



**Dutch  
Energy  
Efficient  
Mortgage  
Framework**  
*Part II of II*

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**ENERGY  
EFFICIENT  
MORTGAGES**  
Netherlands



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Great care has gone into compiling this document. However, it could contain mistakes. We welcome any observations and recommendations for improvement.

Please feel free to submit them to the Energy Efficient Mortgages NL Hub at: [info@eemnl.com](mailto:info@eemnl.com).

## CONTENTS

<b>1</b>	<b>INTRODUCTION</b>	<b>4</b>
<b>2</b>	<b>SCOPE, DESIGN AND DEVELOPMENT OF THE DUTCH ENERGY EFFICIENT MORTGAGE FRAMEWORK</b>	<b>6</b>
2.1	SCOPE	6
2.2	DESIGN	10
2.3	DEVELOPMENT	10
<b>3</b>	<b>DATA &amp; DEFINITIONS</b>	<b>14</b>
3.1	DATA (AVAILABILITY) ASSUMPTIONS	14
3.2	DEFINITIONS USED IN THE DEEMF	16
<b>4</b>	<b>DEEMF ANALYSIS: CONSTRUCTION OF NEW BUILDINGS (ANNEX I TSC SCC, SECTION 7.1)</b>	<b>18</b>
4.1	PERSPECTIVE 1: INTERPRETATION AND APPLICATION	18
4.2	PERSPECTIVE 2: DATA AVAILABILITY	22
4.3	PERSPECTIVE 3: ALLOCATION TO LOAN(PART(S))	23
4.4	CONCLUSION	24
<b>5</b>	<b>DEEMF ANALYSIS: RENOVATION OF EXISTING BUILDINGS (ANNEX I TSC SCC, SECTION 7.2)</b>	<b>25</b>
5.1	PERSPECTIVE 1: INTERPRETATION AND APPLICATION	26
5.2	PERSPECTIVE 2: DATA AVAILABILITY	35
5.3	PERSPECTIVE 3: ALLOCATION TO LOAN(PART(S))	40
5.4	CONCLUSION	41
<b>6</b>	<b>DEEMF ANALYSIS: ACQUISITION &amp; OWNERSHIP OF BUILDINGS (ANNEX I TSC SCC, SECTION 7.7)</b>	<b>42</b>
6.1	PERSPECTIVE 1: INTERPRETATION AND APPLICATION	43
6.2	PERSPECTIVE 2: DATA AVAILABILITY	46
6.3	PERSPECTIVE 3: ALLOCATION TO LOAN(PART(S))	46
6.4	CONCLUSION	47
<b>7</b>	<b>CONCLUSION</b>	<b>48</b>
	<b>DEEMF DEFINITION LIST</b>	<b>50</b>
	<b>ANNEXES</b>	<b>56</b>
	EP-ONLINE LEGEND	56
	RELEVANT EP-ONLINE DATA FOR SCC	57
	RELEVANT MORTGAGE (SERVICING) DATA FOR SCC	58
	EP-ONLINE DATA AVAILABILITY	59
	DNSH OVERVIEW	62
	<b>ABBREVIATIONS AND LEGISLATIVE REFERENCES</b>	<b>63</b>
	ABBREVIATIONS	63
	EU LEGISLATIVE REFERENCES	65
	<b>DISCLAIMER</b>	<b>67</b>

# 1 Introduction

This document is part of a two-piece publication of the Energy Efficient Mortgages NL Hub (“EEM NL Hub”) describing how the EU Taxonomy can be interpreted and applied in the Dutch residential real estate market. This Dutch Energy Efficient Mortgage Framework Part II document (“DEEMF Part II”) describes the interpretation, analysis and definitions that the EEM NL Hub working group has established. As described in more detail in the Dutch Energy Efficient Mortgage Framework Part I document (“DEEMF Part I”), the EU Taxonomy provides definitions for what can be considered environmentally sustainable economic activities.

This DEEMF Part II of the Dutch Energy Efficient Mortgage Framework (“DEEMF”) covers the application of the Technical Screening Criteria (“TSC”) for the environmental objective ‘Climate Change Mitigation’ (“CCM”). The scope of this current version of the DEEMF is limited to the Substantial Contribution Criteria (“SCC”) of the Climate Delegated Act (“CDA”)¹.

This DEEMF Part II documents the outcome of the analysis of the EEM NL Hub working group sessions, where we have covered in much detail the sub-sections of the EU Taxonomy and its potential application. This DEEMF Part II describes the analytical process, methodology and assumptions that the working group(s) have applied in creating the DEEMF.

At first glance one could interpret the EU Taxonomy criteria as ‘standardised’ criteria applicable to all EU member states. However, upon closer reading of the wording in Section 7 “Construction and real estate activities” of the CDA, it becomes clear that it contains both directly and indirectly many references to existing local or national building code and energy performance methodologies. Therefore, we recommend reading this DEEMF Part II in conjunction with DEEMF Part I, which contains a brief overview of the Dutch mortgage and property market, the Dutch energy labelling methodology and the Dutch building code. It also contains a brief summary of the current state of the EU Taxonomy and related European regulation (e.g. the EPBD).

Based on the analysis of the working group, a set of definitions have been created (see also the DEEMF Definition List). The DEEMF is available to all parties directly or indirectly involved in financing Dutch (residential) properties, be it by granting mortgage loans to consumers or investing therein, or otherwise. Applying the framework is voluntary, and the framework is intended to work on a ‘comply or explain’ basis². The next page provides a one-page summary of the analysis and interpretation of the Climate Delegated Act sections that are in scope of this document.

Both DEEMF Part I and II have been composed based on the input from the members and affiliated members of the EEM NL Hub as collected during many working group sessions. This document is therefore a summary as composed by the EEM NL Hub but is not necessarily the official position of any of the individual institutions participating in the Energy Efficient Mortgages NL Hub.

The EEM NL Hub is an association set up with the aim of supporting and promoting the acceleration and adaptation of energy efficient housing in the Netherlands and the financing thereof. The EEM NL Hub therefore has no formal capacity when it comes to interpreting (EU or other) legislation. The interpretation of Section 7 of the EU Taxonomy as presented in this DEEMF Part II is only that: an interpretation, specific to the Dutch residential real estate market. And although the members of the EEM NL Hub hope that by publishing this document, it provides useful guidance for other institutions in other jurisdictions, local specifics in relation to mortgage lending, construction law, energy labelling and energy label data, will make it necessary to perform a careful analysis of the local circumstances and practices and regulations.

The remainder of this document is constructed as follows: Section 2 contains a description of the scope, design and future development of the DEEMF. Section 3 continues with a brief explanation on relevant data, data sources and definitions. The actual framework is presented in Section 4 (EUT 7.1 – New build), Section 5 (EUT 7.2 – Renovation) and Section 6 (EUT 7.7 – Existing build). A conclusion is presented in Section 7.

¹ For Sections 7.1, 7.2 and 7.7 of the Climate Delegated Act Annex I.

² The option for an institution to “not comply and explain” on individual line-items are intended to leave sufficient flexibility to accommodate those institutions that look to apply stricter criteria than included in the DEEMF and to those institutions that are still in the process of working towards a full application of the DEEMF.

## Summary Overview

7. Construction and Real Estate Activities Section(s)		Subsection	Quick Read	In scope of analysis for this version of DEEMF	Perspective 1: Interpretation and application	Perspective 2: Data availability and quality	Perspective 3: Application to mortgage loan level	Guidance Incorporated in DEEMF
7.1	Construction of new buildings		The EU Taxonomy requires newly constructed buildings to be built according to the NZEB criteria and the Primary Energy Demand (PED) should be 10% less than the locally applicable threshold value. In the Netherlands PED is expressed as the BENG-2 indicator and for new constructions a threshold value is calculated ("BENG-2 eis"), recorded and published. In the Netherlands, NZEB is incorporated into the building code, the BENG framework and the NTA 8800 calculation methodology since 1 January 2021. EPC records based on NTA 8800 (with status = completed ("vergunningaanvraag")) list the PED and the applicable PED threshold value. The PED and applicable threshold value can differ per building type (" <i>grondgebonden</i> vs. <i>niet-grondgebonden</i> ").	✓				✓
7.2	Renovation of existing buildings	Major Renovations	Major Renovation: the building renovation complies with the applicable requirements for major renovations as implemented in the Dutch building code.*	✓				* ✗
7.2 alternative		Reduction of (net) Primary Energy Demand	Renovation with (net) PED improvement condition: when it can be demonstrated that a 30% reduction of PED is achieved (without considering the improvement realised through renewable energy sources). An EPC (based on the NTA 8800 method) both before and after the renovation, is needed to assess the improvement in net PED.	✓				✓
7.7(1)	Acquisition and ownership of buildings	Buildings built before 31/12/2020	For buildings built before 31 December 2020 (or with a building permit application dated before the NZEB norm): a valid Energy Performance Certificate (EPC) of class A should be available to be considered aligned.	✓				✓
7.7(1) alternative		Buildings built ≤31/12/2020 - Alternative: building is within Top 15%						**
7.7(2)		Buildings built after 31/12/2020	For buildings built after 31 December 2020 (and with a building permit based on the NZEB norm): SCC of Section 7.1 apply and the '10% better than threshold value' criterion must be met to be considered SCC aligned.	✓				✓

### Legend

	Available
	Available, many identified challenges
	Available, many identified challenges
	Not Available
	Not Covered (yet)

\*As this point in time there is no central national database in the Netherlands, where major renovations (and if the underlying conditions are being met) are centrally registered ("*geen afmeldplicht*"). It is thus currently not possible to determine if the applicable requirements have been met, based on publicly available data.

\*\* Although no definition is provided in this version, a placeholder has been incorporated.

Table 1: Summary overview of the analysis performed by the EEM NL Hub working group.

## 2 Scope, design and development of the Dutch Energy Efficient Mortgage Framework

### 2.1 Scope

The EEM NL Hub working group started with the analysis of the EU Taxonomy and Climate Delegated Act and its possible application to existing residential mortgage practices and regulations. This analysis has been carried out for the application in respect of residential real estate loans and mortgages<sup>3</sup>.

This version (v1.0) of the Dutch Energy Efficient Mortgage Framework covers the application of the Technical Screening Criteria for the environmental objective ‘Climate Change Mitigation’. The working group of the EEM NL Hub follows a phased approach, where we have first focussed on the analysis and interpretation of the most relevant sections of the EU Taxonomy, i.e. those sections that cover existing buildings, renovations and the construction of new buildings.

v1.0 of the DEEMF is therefore limited to the (sub)-sections that cover the Substantial Contribution Criteria documented in Section 7.1, 7.2 and 7.7 of the Climate Delegated Act. The other economic activities of Section 7 will be covered in future updates of the DEEMF. The interpretation and application of the Do No Significant Harm and Minimum Social Safeguards elements of the EU Taxonomy in respect of residential properties in the Netherlands, are currently being analysed by the EEM NL Hub working group and have therefore not been included either in this version of the DEEMF.

Table 2 on the next page provides an overview of the current scope of this v1.0 of the DEEMF. Inclusion in the scope does not entail that a DEEMF definition or application has been determined in all cases. For instance, due to data limitations this is not always the case. To this end, the framework does not only describe what ‘works in practice’ but also what ‘doesn’t work in practice’, as of the time of writing. The [DEEMF Definition List](#) lists (sub)-sections where a definition has been determined by the EEM NL Hub working group.

Further updates of the DEEMF are expected to include i) a broadening of the scope of the analysis of the Climate Delegated Act<sup>4</sup>, ii) updated insights in respect of the existing interpretation, iii) changes resulting from improved data availability and energy performance metrics, and iv) updates resulting from changing relevant market or regulatory developments.

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<sup>3</sup> Commercial real estate is (currently) not in scope for analysis of the EEM NL Hub, on purpose, any (regulatory) references that are relevant for commercial real estate are omitted in this document.

<sup>4</sup> Both in terms of additional economic activities taken into account and additional criteria for Do No Significant Harm and Minimum Social Safeguards.

			Technical Screening Criteria of Climate Delegated Act for Climate Change Mitigation - Annex I				
7. Construction and Real Estate Activities Section(s)		Subsection	Substantial Contribution Criteria	Do No Significant Harm (2) (3) (4) (5) (6)			Minimum Social Safeguards
7.1	Construction of new buildings		✓				
7.2(1)	Renovation of existing buildings	Major Renovations	✓				
7.2(2)		Reduction of (net) Primary Energy Demand	✓				
7.3	Installation, maintenance and repair of energy efficiency equipment						
7.4	Installation, maintenance and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings)						
7.5	Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings						
7.6	Installation, maintenance and repair of renewable energy technologies						
7.7(1)	Acquisition and ownership of buildings	Buildings built before 31 December 2020: building has at least an Energy Performance Certificate (EPC) class A.	✓				
7.7(1) alternative		Buildings built before 31 December 2020 - Alternative: building is within Top 15%					
7.7(2)		Buildings built after 31 December 2020	✓				

Table 2: Overview of Climate Delegated Act sections that have been analysed in v1.0 of the DEEMF.

Note that only applications to residential real estate have been taken into account. It should be noted that the Do No Significant Harm Technical Screening Criteria (can) differ per economic activity (please refer to the [Annex](#) for an overview). There are no TSC for the Minimum Social Safeguards<sup>5</sup>. The columns under the Do No Significant Harm header relate to (2) Climate change adaptation, (3) Sustainable use and protection of water and marine resources, (4) Transition to a circular economy, (5) Pollution prevention and control, (6) Protection and restoration of biodiversity and ecosystems. The blank areas in the table are pending or work in progress of the EEM NL Hub working group.

<sup>5</sup> At the moment of writing of this document, the Platform on Sustainable Finance has published a draft report on Minimum Safeguards. The report aims to provide advice on how compliance with minimum safeguards could be assessed. The Platform's advice is a recommendation to the European Commission in respect of the usability of the EU Taxonomy. The Platform on Sustainable Finance is an independent advisory body to the European Commission. The Platform's report informs but does not prejudice any decision by the European Commission on the matter. However, on page 10 of the report the following is written: "Banks do not have to enquire households on minimum safeguards when providing mortgages of other types of financing".

*Important considerations with respect to the designation of financing of construction of residential real estate according to the EU Taxonomy.*

*Financing of construction of residential real estate in the Netherlands.*

In the Netherlands new constructions are customarily financed before and during the construction phase by the consumer. In most cases, the consumer obtains a mortgage loan that is then drawn down during the construction phase and used to pay the construction company in several instalments. This practice is different from most EU member states where a real estate project manager or developer finances (or obtains bank financing for) the construction of residential property and sells the building units once the construction has been completed.

Therefore, it can be argued that, in The Netherlands, during the construction phase of a residential property, the consumer is in the process of purchasing the property that he/she agreed to buy and for which mortgage financing was obtained, particularly given the fact that (in most cases) the consumer is not actively developing or constructing the property him/herself.

*Text box 1: Financing of new construction in the Netherlands.*

As part of the analysis of the EU Taxonomy and the CDA it has been discussed in the EEM NL Hub working group sessions whether the financing of new constructions should be designated under Section 7.7(2) (which has a reference to the SCC of 7.1) instead of directly applying section 7.1<sup>6</sup>. Reasons put forward to designate new constructions as 7.7(2) are that before and during the construction, the consumer (and mortgage loan taker) is in the process of financing the activity of ‘acquiring’ and (progressively) ‘owning’ real estate. The consumer already has rights and obligations before and during the construction and might in some cases (partially) own the land and is already financing the construction work.

No references are made in Section 7 of the EU Taxonomy that directly allude to mortgage loans, but indirectly mention the financing of the economic activities of Section 7. A description of the economic activity is given in the title of the subsection of the Climate Delegated Act in correspondence with one or multiple NACE<sup>7</sup> codes.

- The activity description of Section 7.7 ‘Acquisition and ownership of building’ is set out as: *‘Buying real estate and exercising ownership of that real estate’*. In addition, the EU Taxonomy wording include a reference to NACE code L68 (buying or selling of own real estate).
- Whereas the activity description of construction of new buildings is set out as: *‘Development of building projects for residential and non-residential buildings by bringing together financial, technical and physical means to realise the building projects for later sale as well as the construction of complete residential or non-residential buildings, on own account for sale or on a fee or contract basis’*. The EU Taxonomy wording of Section 7.1 refers to several NACE codes, in particular F41.1 (construction of building projects) and F41.2 (Construction of residential and non-residential buildings), including also activities under F43 (Specialised construction activities).

With respect to the NACE code designation, the European Commission notes in its explanatory memorandum<sup>8</sup>: *‘Those references should be understood as indicative and should not prevail over the specific definition of the activity provided in its description’*. Therefore, we have taken the literal names of the subsections of Section 7 as a starting point<sup>9</sup> of the analysis of the economic activities in respect of the Dutch residential mortgage market.

<sup>6</sup> In the former case the DNSH of section 7.7(2) would apply. In the latter case the DNSH of 7.1 would apply.

<sup>7</sup> The Statistical Classification of Economic Activities in the European Community, commonly referred to as NACE (for the French term "nomenclature statistique des activités économiques dans la Communauté européenne"), is the industry standard classification system used in the European Union. The current version is revision 2 and was established by Regulation (EC) No 1893/2006.[1] It is the European implementation of the UN classification ISIC, revision 4.

<sup>8</sup> Climate Delegated Act, Explanatory Memorandum Recital (6), page 9.

<sup>9</sup> This and other questions have been submitted to the European Commission as input for a future guidance or Q&A document to be published by the European Commission / DG Energy. The EEM NL Hub is awaiting a response and further guidance on how the financing, towards mortgage consumers for new constructions should be designated according to the EU Taxonomy.

The question whether the construction of properties should be designated according to section 7.1 of the Climate Delegated Act or not, is also a topic that came up during one of the Energy Efficient Mortgages Initiative (EEMI) Bauhaus meetings where it was indicated that new constructions should indeed be classified under Section 7.1.

In this version of the DEEMF, the EEM NL Hub has therefore followed this guidance and categorised the financing of new constructions of residential real estate under Section 7.1 but at the same time recognising that there are strong arguments for designating the financing of new constructions under Section 7.7(2).

These arguments include the fact that, if new construction would be designated under Section 7.1, in our opinion there would be an inconsistency<sup>10</sup> in the calculation of the key performance indicator (KPI) for residential real estate lending where a reference to Section 7.1 is not included in paragraph 1.2.1.3 of the Disclosure Delegated Act that contains the description on how the Green Asset Ratio for Retail Exposures is to be determined<sup>11</sup>.

Furthermore, the DNSH criteria of Section 7.1 are more extensive than the DNSH criteria of Section 7.7 and seem more suitable to the business operations of project developers and construction companies than retail consumers.

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<sup>10</sup> See the EU Taxonomy Disclosure Delegated Act 1.2.1.3.1.1 (i) Residential real estate lending.

<sup>11</sup> The GAR for retail exposures to residential real estate or house renovation loans shall be calculated as a proportion of loans to households collateralised by residential immovable property or granted for house renovation purposes that is taxonomy-aligned in accordance with the technical screening criteria for buildings, namely renovation and acquisition and ownership in accordance with points 7.2., 7.3., 7.4., 7.5, 7.6., and 7.7. respectively, of Annex I to Climate Delegated Act, compared to total loans to households collateralised by residential immovable property or granted for house renovation purposes.

## 2.2 Design

A DEEMF ‘definition list’ is included in this document which allows users to indicate, per DEEMF definition, if the interpretation or definition as included in the DEEMF has been applied or not. It describes a baseline interpretation of the EU Taxonomy in the Netherlands, created by the EEM NL Hub working group(s).

The DEEMF is made publicly available to all interested parties but is expected to be most relevant to those parties directly or indirectly involved in financing Dutch (residential) properties, be it by granting mortgage loans to consumers, investing therein or otherwise.

The DEEMF is designed to work on a ‘comply or explain’ basis: if applied by an institution, for each definition included in the checklist, the institution can indicate whether it applies the common or baseline interpretation of the DEEMF, or, if not, the institution is to provide an alternative definition or application of the relevant term.

By making the DEEMF a voluntary standard on a comply or explain basis, the members of the EEM NL Hub aim to create transparency by providing one common interpretation that can be used by as many institutions as possible: by i) not excluding institutions that are not (yet) able to fully apply the framework and that are still in the process of working towards a full application of the DEEMF, and ii) enabling those institutions that are more ambitious than the applicable version of the framework to indicate where they apply stricter criteria than included in the DEEMF. The option for an institution to ‘not comply and explain’ on individual line-items is intended to leave sufficient flexibility to accommodate both types of institutions. In addition, the comply or explain nature of the DEEMF allows those institutions that are more ambitious than the applicable version of the framework, to make this transparent to its stakeholders by clearly indicating this where relevant.

## 2.3 Development

This version of the DEEMF has been compiled by the EEM NL Hub with extreme care and after extensive consultation with i) the participants in the relevant EEM NL Hub working groups, and ii) other stakeholders. The framework document has been presented to the members of the EEM NL Hub for approval taking into account the currently applicable:

- 1) EU and national regulations;
- 2) Sustainability and mortgage loan data; and
- 3) Market best practices.

The EEM NL Hub will be monitoring relevant regulatory developments and improvements in respect of data availability or EPC labelling methodology with a view to update the DEEMF for any relevant developments after careful analysis, consideration and evaluation. The exact content of future revisions of the DEEMF will be determined by and subject to approval of the members of the EEM NL Hub.

## Working group analysis

This version of the DEEMF has been established by the EEM NL Hub working group members building on three key perspectives:

### 1. Interpretation & application:

*Do we understand the technical screening criteria as laid down for the Climate Change Mitigation environmental objective and can we apply them to the Dutch situation?*

Although this might sound like a basic question to ask, it is important to realise that the process to draft the EU Taxonomy has taken several years and reflects input from all member states and is thus a document full of political compromises. Application of this EU-level wording is therefore less straightforward than one would expect, particularly given the fact that construction, energy labelling and mortgage lending are highly jurisdiction specific activities.

### 2. Data availability:

*Do we think there is data available to demonstrate compliance with the Technical Screening Criteria?*

At this stage, the objective of the EEM NL Hub working group has explicitly not yet been to collect the actual data to demonstrate compliance of a specific economic activity with the EU Taxonomy. Instead, the focus has been on identifying possible data-sources and establishing if the necessary data is likely to be available and what the obstacles are for obtaining this data in the future (including limitations as a result of GDPR regulation). As further discussed below, whether or not certain data is or is expected to be available was taken into consideration in setting the definitions as included in the DEEMF.

### 3. Application to mortgage loan level:

*Can the mortgage loan or mortgage loanpart linked to the relevant economic activity, be identified?*

One of the most tangible expressions of EU Taxonomy alignment is the reporting of the Green Asset Ratio, as mandated by the Disclosure Delegated Act. Therefore, determining the loan attached to a sustainable activity is an essential component of the analysis and the calculation underlying the determination of the Green Asset Ratio.

In the Netherlands we have the somewhat special situation that most residential mortgage loans are composed of multiple loan parts, depending on the redemption profile, interest fixed rate period and loan purpose selected by the borrower. This has also been taken into consideration in determining the definitions as included in the DEEMF.

Table 3 below provides an overview of the three above perspectives that were discussed and considered in numerous EEM NL Hub working group sessions for each of the seven subsections of Section 7 of the EU Taxonomy and ultimately resulted in v1.0 of the DEEMF.

7. Construction and Real Estate Activities Section(s)		Subsection	 <b>Perspective 1:</b> Interpretation and application	 <b>Perspective 2:</b> Data availability and quality	 <b>Perspective 3:</b> Application to mortgage loan level
7.1	Construction of new buildings		Do we understand the technical screening criteria and can we apply them to the Dutch situation?	Do we think there is (sufficient and qualitative) data available to demonstrate compliance with the Technical Screening Criteria?	Can the mortgage loan or mortgage loan(part) linked to the relevant economic activity be identified and can the exact (reporting) amount for EU Taxonomy alignment be determined?
7.2	Renovation of existing buildings	Major Renovations			
7.2 alternative		Reduction of (net) Primary Energy Demand			
7.3	Installation, maintenance and repair of specific measures				
7.4					
7.5					
7.6					
7.7(1)	Acquisition and ownership of buildings	Buildings built before 31/12/ 2020			
7.7(1) alternative		Buildings built before 31/12/ 2020 - Alternative: building is within Top 15%			
7.7(2)		Buildings built after 31/12/ 2020			

Table 3: Three perspectives applied by the EEM NL Hub working group.

### Interpretation levels

The EC states<sup>12</sup>: ‘The goal of the EU Taxonomy is to prevent greenwashing and to help investors identify economic activities in line with our environmental and climate objectives’. To promote the wide adaptation and application of the EU Taxonomy and the underlying Technical Screening Criteria (“TSC”) among market participants, from the outset the intention of the working group members has been to follow a pragmatic approach in developing the DEEMF. The objective is to develop a framework that is ‘usable’ and ‘understandable’ for all users (i.e. mortgages originators, consumers, investors and other stakeholders) but at the same time is a correct reflection of the actual regulation.

Another important perspective that the EEM NL Hub members are highly cognisant of, is the risk of ‘greenwashing’. The EEM NL Hub working group members have therefore voiced the desire to only have those activities qualify that are genuinely sustainable.

Diagram 1 below depicts the possible interpretation levels applied by the EEM NL Hub working group. Where possible the EEM NL Hub working group has limited itself to applying a strict interpretation, based on the literal linguistic application of the TSC and the ability to apply and prove this on a loan or collateral basis.

Where possible this is the *default* application as it leaves little to no room for potential misinterpretation and provides for a very clear and transparent application.

<sup>12</sup> See [https://ec.europa.eu/commission/presscorner/detail/en/QANDA\\_22\\_712](https://ec.europa.eu/commission/presscorner/detail/en/QANDA_22_712)

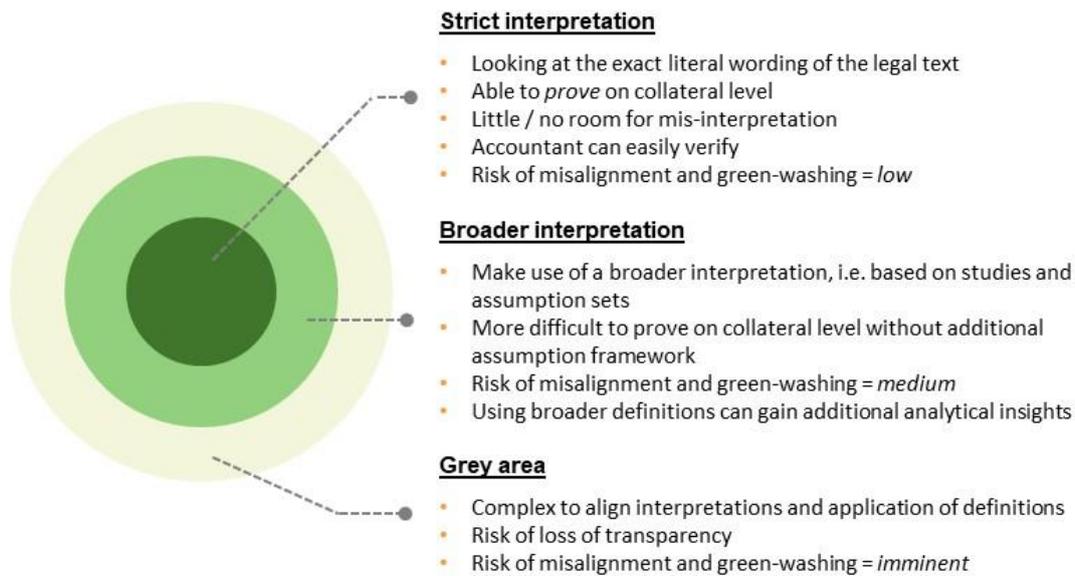


Diagram 1: Interpretation levels applied by the EEM NL Hub working group.

In some cases, the EEM NL Hub working group has identified the need to use and apply a broader interpretation, where the ‘strict’ interpretation and/or application is not possible, for instance due to a lack of incorporation of the specific TSC in local regulation or best practices and/or due to a lack of data. In the following sections we describe the choices that were made and why, substantiating the reasoning for deviating from the ‘strict’ interpretation.

Finally, the EEM NL Hub working group formulated a third interpretation level, the ‘grey’ area where it was found to be difficult to substantiate the designation of the activity to be aligned with the substantial contribution criteria and therefore the risk of green washing is deemed too high.

This way the EEM NL Hub working group aims to provide transparency around the choices that were made. Having a categorisation of the application of the EU Taxonomy TSC into ‘strict’, ‘broader’ and ‘grey’ creates valuable pathways for future developments (in the areas of regulation, best practices, and data availability).

### Roadmap

It is envisaged that future updates of the DEEMF will contain:

- An interpretation of the remaining Technical Screening Criteria (Sections 7.3 – 7.6);
- Potential updates and or revisions in respect of the current wording;
- Incorporation of the Do No Significant Harm screening criteria for Section 7; and
- Incorporation of the Minimum Social Safeguards.

Any future versions of the DEEMF will, following approval by the EEM NL Hub members, be published on the website of the EEM NL Hub ([www.energyefficientmortgages.nl](http://www.energyefficientmortgages.nl)).

### 3 Data & Definitions

#### 3.1 Data (availability) assumptions

In considering the data availability, two data sources have been key to the analysis performed:

- 1) A baseline understanding of ‘typical’ mortgage servicing data: commonly used for underwriting, origination and servicing of mortgage loans and reporting on mortgage loan portfolios.
- 2) the official government database EP-Online, which contains data on energy performance of buildings, maintained by the Netherlands Enterprise Agency (“NEA” or “*Rijksdienst voor Ondernemend Nederland*”) and only to the extent made publicly available at this point in time.

The analysis in this DEEMF Part II document is focused on Substantial Contribution Criteria and the ability to demonstrate alignment. In practice, these are criteria that are mainly to be applied on a loan and or building unit level (“*verblijfsobject-niveau*”). In the sections below we explain these data categories as they are relevant in practical application of the substantial contribution criteria of the EU Taxonomy to mortgage loans.

##### *Mortgage (underwriting & servicing) data*

In the Netherlands, mortgage originators either perform the underwriting and mortgage loan servicing activities for their mortgage loan book themselves or alternatively, outsource these activities to a third-party.

Either way, the IT systems used by either the mortgage originators or the third-party servicer typically capture only the data required for the current mortgage loan underwriting and servicing processes. This would typically include data on loan level, collateral level, customer level or financial level.

In most cases, all data relevant for the underwriting and servicing of a mortgage loan is collected and stored according to a logical hierarchy. In other words: data that is relevant about the collateral, the building unit, is often stored separately in a table or data set reflecting data solely about the collateral. This aspect is called ‘normalisation’ in data science.

Making this distinction is relevant in considering the (sustainability) data that is needed in *applying* the EU Taxonomy as it is not only relevant to identify what data is missing and where to possibly source it but also to have an understanding of how the missing data can be obtained and linked to the relevant mortgage loan(part) or put differently, be able to *use* the sustainability data.

In both the development and maintenance of the DEEMF it is relevant to distinguish these hierarchical (data) levels. This is in particular relevant in applying and calculating the potential EU Taxonomy aligned amounts. As often not the whole outstanding balance of a mortgage loan can be designated to be aligned with the substantial contribution criteria, but fractions of the mortgage loan (in the Netherlands often structured as a loanpart).

In addition, the amounts that can be attributed to be in line with the substantial contribution criteria can change over time (for example: before, during or after the economic activity under consideration).

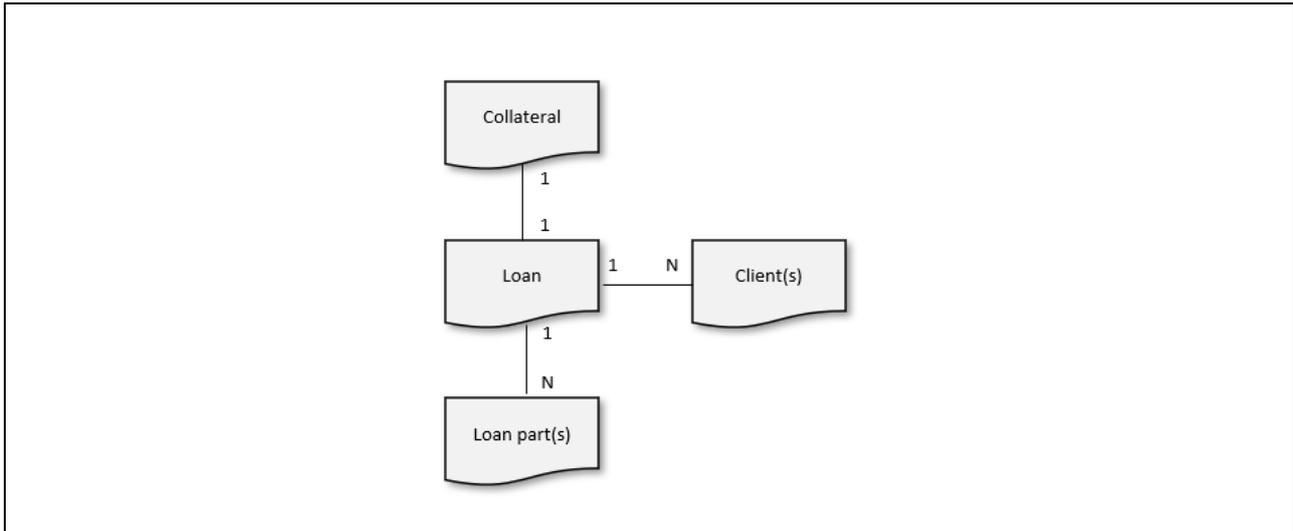


Diagram 2: Simplified<sup>13</sup> diagram showing the typical (data) relations of a Dutch mortgage loan.  
Note: The '1' and 'N' depict the relationship between the entities.

### Energy Performance data in EP-Online

EP-Online is the official database managed by the Dutch government, via the NEA, that stores energy labels and detailed energy performance metrics. The database is (currently) publicly available, free of charge and lists all valid EPCs (and additional underlying data in respect of the relevant property, if available) in the Netherlands.

Under the currently applicable NTA 8800 calculation methodology, in order to obtain an EPC, a registered energy performance advisor is required to inspect the building unit and to use the NTA 8800 calculation methodology. As part of the energy performance assessment, under the NTA 8800 methodology, approximately 200 data points are collected for the property and subsequently loaded into an IT module that performs the assessment and determines the energy performance status of the building unit.

These data points are consequently loaded into the EP-online database (but not all made publicly available). In total, per property up to 37 data fields (depending on data availability) are made publicly available through EP-Online (and are thus accessible). As part of the EPC registration by the energy advisor, this information must be published in EP-online. Data in EP-Online is stored on building unit level and is published for the duration of the validity of the EPC.

In the description of the framework and the corresponding selection rules we make extensive use of the actual EP-Online data field names. In the [Annex](#) a glossary can be found that describes these (37) data fields (with names, definitions and data types).

The EP-Online information is stored on building unit level and can be identified and linked with existing mortgage data via the address. In some cases, for instance for new constructions, alternatives can be employed<sup>14</sup>.

<sup>13</sup> The diagram is simplified in terms of entities (cashflows, offers, special servicing, etc. are typically managed separately) and cardinality (relationships between entities). Usually, in the Netherlands a loan is tied to one collateral although variations on this relation are common.

<sup>14</sup> Alternatives such as matching on BAG\_ID, registration\_number, project name or project object description can also be employed but pose more (operational) technical challenges.

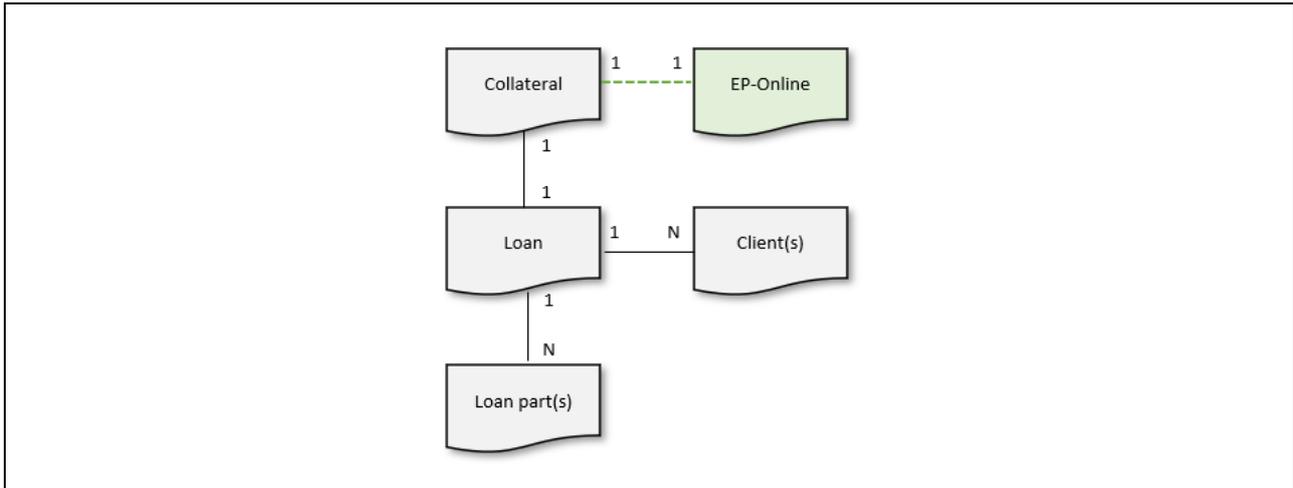


Diagram 3: Simplified<sup>15</sup> diagram showing the typical (data) relations of a Dutch mortgage including EP-Online.

Note: The green line is dashed to reflect the technical challenges in mapping mortgage collateral data with EP-Online.

### 3.2 Definitions used in the DEEMF

In this section several definitions that have been used in the EEM NL Hub working group are further explained.

#### NACE<sup>16</sup>

The EU Taxonomy lists an overview of eligible economic activities and corresponding criteria that must be complied with. These (economic) activities are qualified according to NACE codes. It is important to note that this activity-level qualification scheme, does not directly list mortgage lending but it does list the financing of the economic activities related to construction, renovation or purchase/acquisition of (residential) properties – to which a financial product (mortgage loan or another financial instrument) can be applied.

#### Energy performance data & EP-Online

In the Netherlands, all energy performance data of the total property stock is recorded in a database maintained by NEA and made accessible through an online portal called “EP-Online”.

In this database all information on all valid EPCs is available. In total, there are, 37 data fields available in EP-Online. The quantity of information, in number of data fields varies greatly depending on the:

- **Building Type:** family house vs apartments (see example for the box below).
- **Label Methodology:** for instance; an EPC based on the most recent methodology NTA 8800 (EP-Online lists many EPCs that are still valid<sup>17</sup> based on older methodologies).
- **Label Status:** for instance: building permit, completion or existing building<sup>18</sup>.

These differences in data (in)availability have been taken into account explicitly in the description of the DEEMF and the corresponding definitions. See the section [EP-Online data availability](#) for an overview, in the Annex.

<sup>15</sup> The diagram is simplified in terms of entities (cashflows, offers, special servicing, etc. are typically managed separately) and cardinality (relationships between entities). Typically, a loan is tied to one collateral although variations on this relation are common.

<sup>16</sup> Nomenclature statistique des Activités économiques dans la Communauté Européenne.

<sup>17</sup> We assume *valid* means it is listed in EP-Online, as of the assessment date.

<sup>18</sup> This distinction was introduced as of 1-1-2021 with the introduction of NTA 8800.

### Building types and NZEB thresholds

The table below lists the different building types as distinguished by the NEA in EP-Online. In the table we have only listed buildings that are classified as residential (“met woonfunctie”). We have added, in the second column if the building type is classified as either “grondgebonden” (fixed to the ground) or “niet-grondgebonden” (not fixed to the ground).

Building Sub-type (“pand_gebouwtype”)	Building Type (“Grondgebonden of niet-grondgebonden”)	Residential designation (“Woonfunctie”)	BENG2 Threshold (“BENG2 eis”) <sup>19, 20</sup>	BENG2 Threshold (10% lower)
Detached house (“Vrijstaande woning”)	House (“grondgebonden”)	yes	30	27
Terraced House (“Rijwoning tussen”)	House (“grondgebonden”)	yes	30	27
Semi-detached/corner Terraced House (“Twee-onder-een-kap/rijwoning hoek”)	House (“grondgebonden”)	yes	30	27
Apartment (“Appartement”)*	Apartment or other (“niet-grondgebonden”)	yes	50	45
Shared dwelling (“Woongebouw met niet-zelfstandige woonruimte”)	Apartment or other (“niet-grondgebonden”)	yes		
Holiday Home (“Logieswoning/vakantiebungalows”)	Holiday Home (“grond gebonden”)	yes		
Mobile home (“Woonwagen”)	Not in scope	yes		
Houseboat new berth (“Woonboot nieuwe ligplaats”)	Not in scope	yes		
Houseboat existing berth (“Woonboot bestaande ligplaats”)	Not in scope	yes		
Apartment house-other (“Flatwoning (overig)”)*	Apartment or other (“niet-grondgebonden”)	yes	50	45
Porch house (“Portiekwoning”)*	Apartment or other (“niet-grondgebonden”)	yes		
Maisonnette (“Maisonnette”)*	Apartment or other (“niet-grondgebonden”)	yes	50	45
Flat (“Galerijwoning”)*	Apartment or other (“niet-grondgebonden”)	yes	50	45

Table 4: Building types as distinguished by NEA.

\* For these building types an additional “subtype” exists: “Pand\_gebouwsubtype” with the following domains: Appartement, Hoekvloer, Hoekdak, Tussendak, Tussenvloer, Hoekmidden, Tussenmidde, Tussendakvloer, Hoekdakvloer

<sup>19</sup> Remarks:

- Houses and apartments with a light-weight construction structure will receive a surcharge of 5 kWh/m<sup>2</sup>/yr for BENG-1 (see also Comments below).
- A house is officially ‘other residential function’ in this context and, e.g. a terraced house (row house), corner house, semi-detached, detached house.
- A residential building is (for instance an apartment complex or a building for student housing).
- A residential building does not have to meet the minimum value for the share of renewable energy insofar as it is not possible to meet this due to location-specific circumstances.

<sup>20</sup> These values are taken from “Wet Bouwbesluit” (2012) in Table 5.1A.

## 4 DEEMF Analysis: Construction of New Buildings (Annex I TSC SCC, Section 7.1)

### Quick Read

The EU Taxonomy requires newly constructed buildings to be built according to the NZEB criteria and the Primary Energy Demand (PED) should be 10% less than the locally applicable threshold value.

In the Netherlands PED is expressed as the BENG-2 indicator and for new constructions a threshold value is calculated (“BENG-2 eis”), recorded and published.

In the Netherlands, NZEB is incorporated into the building code, the BENG framework and the NTA 8800 calculation methodology since 1 January 2021. EPC records based on NTA 8800 (with status = ‘completion’ (“opgelevering”) or ‘permit application’ (“vergunningaanvraag”)) list the PED and the applicable PED threshold value.

The PED and applicable threshold value can differ per building type (“grondgebonden vs. niet-grondgebonden”).

*Text box 2: Quick read on construction of new buildings.*

In this section the ways to identify if a building is being or has been constructed according to the SCC of Section 7.1 are explored.

To determine if the SCC have been met (i.e. the requirement of the PED to be 10% less than the locally applicable threshold value), the estimated or measured PED must be compared to the threshold value as required under the Dutch building code.

Alternatively, for those buildings with an EPC of A++++, it can be concluded that the ‘10% better than threshold value’ criterion has been met automatically as the EPC Class A++++ is tied to a PED of  $\leq 0$  kWh/m<sup>2</sup> per year.

### 4.1 Perspective 1: Interpretation and application

*Section 7.1 wording in the EU Taxonomy*

Section	NACE	Substantial contribution to climate change mitigation of Annex I	Footnote
7.1 Construction of New Buildings	F41.1, F41.2, F43	Constructions of new buildings for which:  The Primary Energy Demand (PED) <sup>282</sup> , defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council  <sup>283</sup> . The energy performance is certified using an as built Energy Performance Certificate (EPC).	<sup>282</sup> : The calculated amount of energy needed to meet the energy demand associated with the typical uses of a building expressed by a numeric indicator of total primary energy use in kWh/m <sup>2</sup> per year and based on the relevant national calculation methodology and as displayed on the Energy Performance Certificate (EPC).  <sup>283</sup> : Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (OJ L 153, 18.6.2010, p. 13).

Linguistic decomposition and interpretation of key words & phrases of Section 7.1

Term or key phrase	Source in Dutch regulation and relevant references	Analysis	DEEMF definition
<i>Primary Energy Demand (PED)</i>	Hoofdstuk 5. Technische bouwvoorschriften uit het oogpunt van energiezuinigheid en milieu Afdeling 5.1. Energiezuinigheid, nieuwbouw	Primary Energy Demand (PED) is interpreted as BENG 2 indicator as mentioned in Article 5.1 as “ <i>Primair fossiel energiegebruik</i> ”.	Primary energy demand expressed in kWh/m <sup>2</sup> /year on building unit level.  EP-Online definition: Pand_primaire_fossiele_energie
<i>building</i>	See section <a href="#">building</a>	We use the distinct categorisation of buildings as can be found in EP-Online combined with the metrics of Table 5.1A ( <i>bouwbesluit 2012</i> ) and a categorisation in buildingtype (“ <i>grondgebonden en niet-grondgebonden</i> ”).  In our definition a building is a building unit as the energy performance is ultimately calculated and registered in the Netherlands on building unit level.	Any building unit meeting the categorisation of buildings as used in EP-Online combined with the metrics of Table 5.1A (“ <i>bouwbesluit 2012</i> ”) and a categorisation in building type (“ <i>grondgebonden en niet-grondgebonden</i> ”).  See section <a href="#">building</a> for the (sub)-categorisation of building types.
<i>Resulting from the construction</i>		The assumption is that a building unit will be constructed in accordance with the permit application.	Up and until the construction is completed (so both before and during actual construction) we refer to the PED in the permit application as recorded in EP-Online as Pand_primaire_fossiele_energie (status is (“ <i>vergunningaanvraag</i> ”)).
<i>Is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing</i>	Hoofdstuk 5. Technische bouwvoorschriften uit het oogpunt van energiezuinigheid en milieu Afdeling 5.1. Energiezuinigheid, nieuwbouw	<i>Primary Energy Demand (PED)</i> is interpreted as the BENG 2 indicator as mentioned in Article 5.1 as “ <i>Primair fossiel energiegebruik</i> ”.  As a result, in the vast majority of cases, the maximum values to meet the 10% lower than the threshold value criterion are 27 kWh/m <sup>2</sup> /year per year and 45 kWh/m <sup>2</sup> /year per year respectively.	For houses (“ <i>grondgebonden</i> ” building units): The threshold value is defined as (Pand_eis_primaire_fossiele_energie) Which corresponds to 30 kWh/m <sup>2</sup> per year on building unit level in most cases <sup>21</sup> .  For apartments (“ <i>niet-grondgebonden</i> ” building units): The threshold value is defined as (Pand_eis_primaire_fossiele_energie)

<sup>21</sup> Deviations to the NZEB threshold value are applicable in some cases as explained in the previous section.

<p>Directive 2010/31/EU of the European Parliament and of the Council</p>	<p>The threshold value is set in the wet bouwbesluit in Table 5.1A (bouwbesluit 2012)</p> <p>and differs per building type.</p> <p>Also see DEEMF part I</p>	<p>There are however, deviations possible for the threshold value. Possible deviations to the threshold value are incorporated per registration in the data field Pand_eis_primaire_fossiele_energie.</p> <p>For standalone (“grondgebonden”) properties with status ‘building permit application’ (pand_status = “vergunningsaanvraag”), the PED on building level as recorded in EP-Online as part of the building permit application is used and compared with the threshold value</p> <p>For apartments (“niet-grondgebonden”) properties with status ‘building permit application’ (pand_status = “vergunningsaanvraag”) the two following possible situations can be distinguished:</p> <ul style="list-style-type: none"> <li>• <b>Cases where the PED on building unit level is identical for all the building units in the building.</b> Although most likely incorrect, in this case there is no other option than to take this PED as the estimation of the resulting PED.</li> <li>• <b>Cases where the PED differs per building unit in the building.</b></li> </ul> <p>Note: any property with an EPC Class A++++ automatically meets the requirement of ‘10% better than the threshold value’ as the maximum BENG 2 value for A++++ is 0 kWh/m2 per year.</p>	<p>Which corresponds to 50 kWh/m<sup>2</sup>/year per year on building level, in most cases.</p> <p>There are, however, deviations possible for the threshold value.</p> <p>Possible deviations to the threshold value are incorporated per registration in the data field Pand_eis_primaire_fossiele_energie.</p> <p>The 10 % lower threshold can be checked by calculating if the <math>0.9 \times \text{Pand\_primaire\_fossiele\_energie} \leq \text{Pand\_eis\_primaire\_fossiele\_energie}</math> per building unit.</p>
<p><i>The energy performance is certified using an as built Energy Performance Certificate (EPC)</i></p>		<p>Once a building unit receives an EPC with status ‘completion’ (“oplevering”) this means it has been completed and the on-site inspection has taken place.</p> <p>In the Netherlands, the certification of the energy performance of a property is required to include an on-site inspection of the property.</p>	<p>Before and during the construction phase, the ‘as built’ phrasing is interpreted as: how it will be built, according to the information available up and until the moment of completion (“oplevering”) of the building unit.</p>

		<p>This on-site inspection can only take place once the construction of a property is completed.</p> <p>Before and during the construction phase, the EPC of a building(unit) is based on the technical information provided by the applicant in the building permit application and therefore envisages the building as to be built.</p> <p>At the moment the final EPC is issued, the status of the property in EP-Online will convert from status 'planning permission' ("vergunning-aanvraag") to 'completed' ("oplevering").</p>	
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*Related EU regulation references*

Related EU regulation reference(s)	Alias	Directive implemented in NL (if applicable)
Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings	The Energy Performance and Building Directive version III	Wet Bouwbesluit 2012

*Related Dutch regulation references*

Related regulation reference(s) in Dutch Law or best practice framework(s)	Section(s)
Bouwbesluit 2012	<p><i>Hoofdstuk 5. Technische bouwvoorschriften uit het oogpunt van energiezuinigheid en milieu</i></p> <p><i>Afdeling 5.1. Energiezuinigheid, nieuwbouw</i></p>

## 4.2 Perspective 2: Data availability

When analysing the data availability in respect of the SCC for Section 7.1. the EEM NL Hub considered the data available in EP-Online and the data generally available in the source systems of mortgage loan servicers. See sections [relevant EP-Online data for SCC](#) and [relevant mortgage \(servicing\) data for SCC](#) for an overview, in the Annex.

### *Observations in respect of data quality & availability*

1. For properties where the BENG / NTA 8800 calculation methodology is applied, in general, the ‘10% better than the threshold value’ criterion can be applied and verified as data availability appears not to be a major issue. There are however some data quality issues or concerns, especially with respect to EP-Online where for apartments (“niet-grondgebonden woningen”) with status building permit application “vergunningsaanvraag” the PED value is not always available or clearly distinguishable on building unit level.
2. It is often the case that during the construction phase a property is not yet allocated a formal address and postal code. As a result, ‘mapping’ the property (under construction) that serves as collateral for a mortgage loan can be challenging. Sometimes manual verification of the information as documented in the mortgage servicing data should carefully be assessed against the information in EP-Online.
3. There are ‘transition cases’ where building permits have been granted based on a previous energy performance measurement methodology (i.e. prior to the NTA 8800 methodology being in force). Note that when the construction is realised/completed after 31 December 2020, to provide the final EPC, the building will be measured upon completion according to the NTA 8800 methodology. In practice it is challenging or often not possible to check the PED of buildings under construction with a building permit application date that precedes the implementation of NTA 8800 (i.e. building permit application most likely done based on a legacy methodology) as (the publication of) PED was not required under this legacy methodology.
4. Note that the classification (“grondgebonden vs niet-grondgebonden”) for the different building (sub) types is not explicitly mentioned (with)in EP-Online. It can however be implicitly derived using the references in the Wet Bouwbesluit.
5. Be aware that for correct analysis and reporting one should frequently monitor if the Pand\_status has changed, for instance from permit application (“vergunningsaanvraag”) to completion (“oplevering”) to determine if a property should be considered under Section 7.1 or Section 7.7 (see also section [allocation to loanparts](#) below). There is a possibility that the PED as included in the building permit application (with Pand\_status ‘permit-request (“vergunningsaanvraag”)) differs from the PED when the building moves to Pand\_status completion (“oplevering”).

There is no guarantee that if the ‘10% better than threshold value’ criterion was met during the construction phase (i.e. based on the information in the building permit application), it will also be met once the building is completed and measured on-site and the final EPC is awarded. Given the recent implementation of NTA 8800, as of yet there is no clear statistical data to analyse in how many cases the PED during the (“vergunningsaanvraag”) phase differs from the PED at completion (“oplevering”) in both absolute and relative terms. Additional insights can be useful for future application.

### 4.3 Perspective 3: Allocation to loan(part(s)).

#### Static application

The mortgage balance drawn from the available construction deposit(s) as of assessment time  $t^*$  is attributed to the substantial contribution of the economic activity of Section 7.1.

#### Dynamic application

Before or during the construction an indicative assessment of the PED (“BENG-2”) value should be available (as part of the documentation submitted for the building permit application). If this PED value is lower than the threshold value (“BENG-2 eis”), based upon this information available at the time, provisionally the assumption can be made that the building is (to be) built within the applicable threshold value as required under Dutch construction law.

One should take into account the fact that the financing and the different stages of the economic activity not always run in parallel: financing can take place even before the economic activity (in this case, new construction) is started. Also, once the construction phase has been completed (and thus this specific economic activity), the financing of a property continues and is considered from the perspective of another economic activity (acquisition and ownership of a building, Section 7.7). In practice there is a close relation between SCC 7.1 (property not yet completed – status “vergunningsaanvraag”) and 7.7(2) (construction of the property completed and status changed to “oplevering”).

In diagram 4 and table 5 below this evolution is further described.

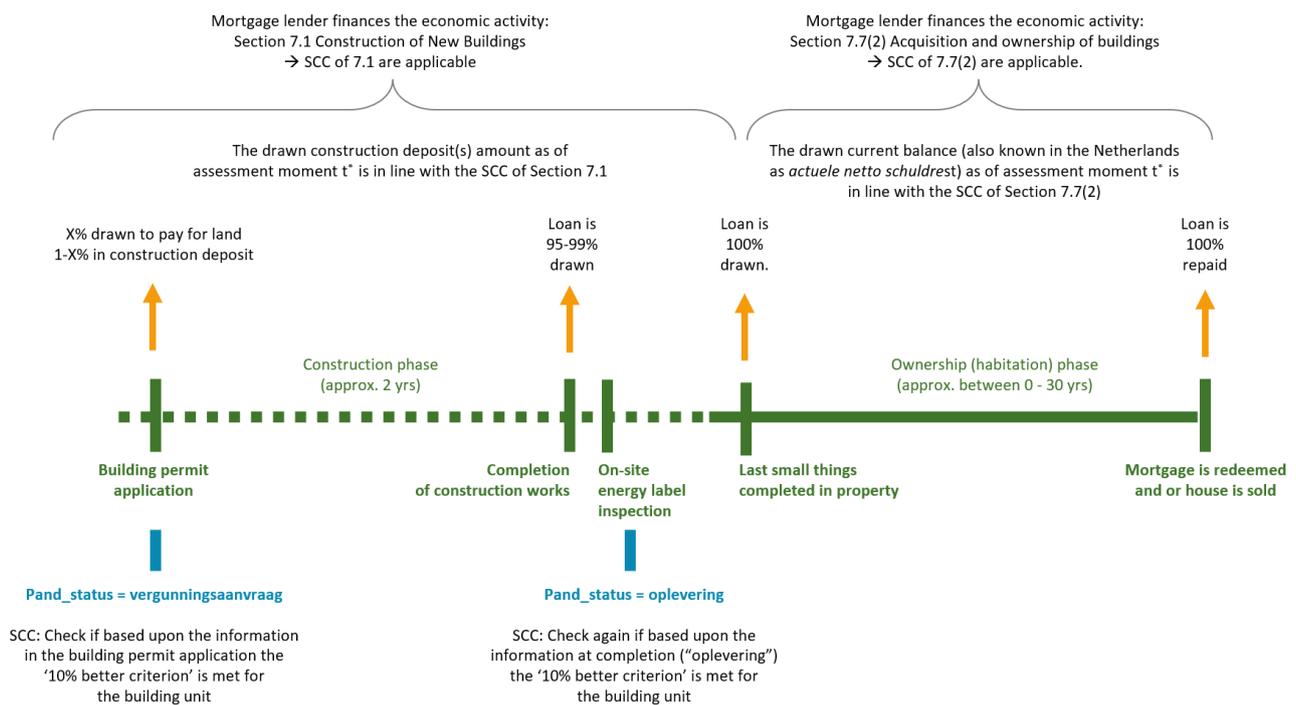


Diagram 4: Financing versus economic activity.

Another way to represent this, is according to the below table where the different ‘financing’ stages are plotted against the different economic activities of Section 7.1 and Section 7.7.

		Economic Activity	
		Construction of New Buildings Section 7.1	Acquisition and ownership of buildings Section 7.7
Financing relative to the Economic Activity	<i>Before</i>	<p>In the Netherlands, in most cases financing is approved and provided to a consumer before the actual construction work commences.</p> <p>If applicable (e.g. to purchase the land that the property will be built on), based on status ‘building permit application’ (pand_status = “vergunningsaanvraag”):</p> <p><b><u>the drawn deposit(s) amount as of assessment moment t* is in line with the SCC of Section 7.1</u></b></p>	<p style="text-align: center;">Not applicable</p> <p>(For the purchase of existing properties, the financing is provided as of the date of acquisition and not before).</p>
	<i>During</i>	<p>In the Netherlands, it is common that a consumer draws under his construction deposit to pay the invoices of the construction company during the construction phase (and thus the actual outstanding loan amount increases over time).</p> <p>Status ‘building permit application’ (pand_status = “vergunningsaanvraag”):</p> <p><b><u>the drawn deposit(s) amount as of assessment moment t* is in line with the SCC of Section 7.1</u></b></p>	<p style="text-align: center;"><b><u>The drawn current balance (also known in the Netherlands as “actuele netto schuldrest”) as of assessment moment t* is in line with the SCC of Section 7.7(2).</u></b></p>
	<i>After</i>	<p>Once status completion (“oplevering”) is recorded, the economic activity ‘construction’ is considered to be completed and Section 7.1 is no longer applicable from the next reporting date (the economic activity that is being financed from this point onwards becomes <i>Acquisition and ownership of buildings</i>).</p> <p>Status ‘building permit application’ (pand_status = “vergunningsaanvraag”), (and only until the next reporting date):</p> <p><b><u>the drawn deposit(s) amount as of assessment moment t* is in line with the SCC of Section 7.1.</u></b></p>	<p style="text-align: center;">Not applicable.</p> <p>(The outstanding mortgage amount is assumed to be zero if a property is no longer owned or the mortgage loan has been redeemed).</p>

Table 5: Overview construction vs. existing buildings.

#### 4.4 Conclusion

The conclusion is that in the Netherlands it is possible to directly apply the technical screening criteria of Section 7.1 for buildings that are being built according to the NTA 8800 norm. There are however some challenges in respect of data availability, particularly in respect of some specific property types such as apartments during the construction phase. Also, as highlighted on page 8, some uncertainty exists whether or not new construction of residential property (when financed by a consumer) should be designated as Section 7.1 and not Section 7.7.

## 5 DEEMF Analysis: Renovation of existing buildings (Annex I TSC SCC, Section 7.2)

### Quick Read

Section 7.2 contains two alternatives to determine if a renovation meets the SCC:

- **Renovation with (net) PED improvement condition:** when it can be demonstrated that a 30% reduction of PED is achieved (without considering the improvement realised through renewable energy sources). An EPC (based on the NTA 8800 method) both before and after the renovation, is needed to assess the improvement in net PED.
- **Major Renovation:** the building renovation complies with the applicable requirements for major renovations as implemented in the Dutch building code.

As (at this point in time) there is no central national database where major renovations (and if the underlying conditions are being met) are recorded. Major renovations are not centrally registered (“*geen afmeldplicht*”). It is thus currently not possible to determine if the applicable requirements for a major renovation (“*ingrijpende renovatie*”) have been met, based on publicly available data.

Text box 3: Quick read on renovation of existing buildings.

In this section the ways to identify and apply the SCC of Section 7.2: renovation of existing buildings, are explored.

Although the wording and technical description of Section 7.2 is relatively brief at first sight, relevant and technical explanations are provided in the footnotes. Following careful review of the SCC, the schematic overview as presented in the diagram below, of the different routes that can be taken in the application of Section 7.2 was compiled.

We distinguish the following alternatives presented in the SCC of Section 7.2:

- Option I: an estimate of net PED reduction must be performed (pre-renovation) and validated through an energy performance certificate (post-renovation). Within option I, an improvement in energy efficiency must be realised and the footnotes provide three different options of estimating this (ex-ante) improvement.
- Option II: The building renovation complies with the applicable requirements for major renovations as implemented.

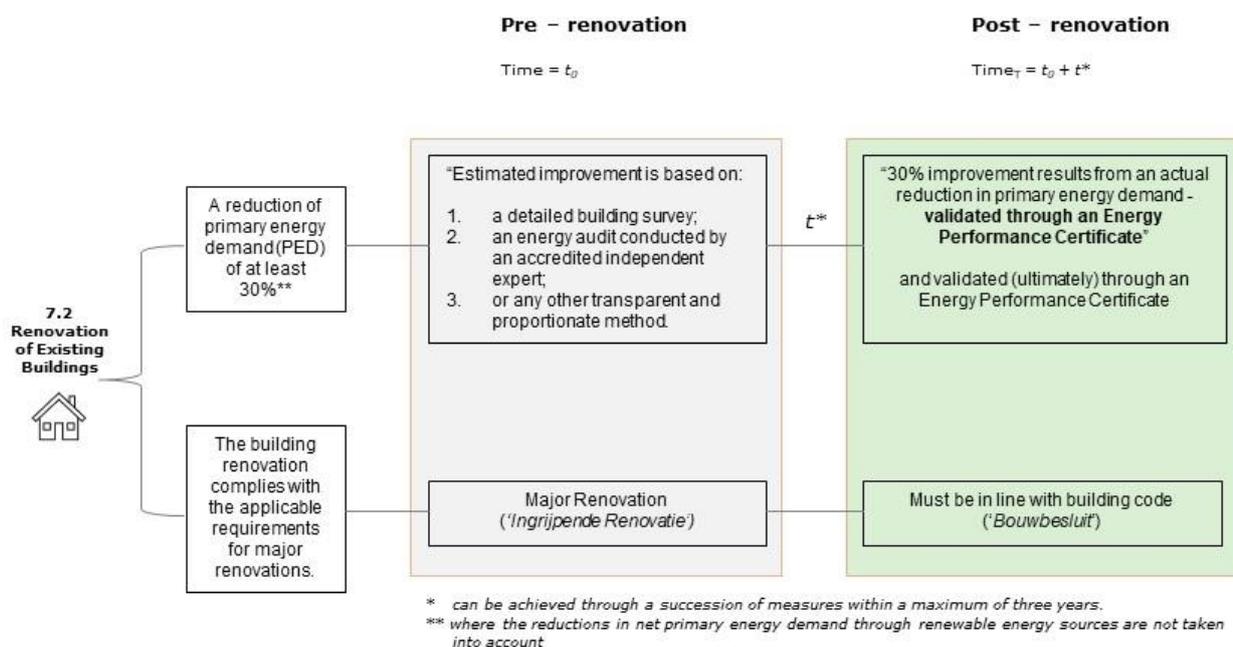


Diagram 5: Overview possible options for renovation under EU Taxonomy.

## 5.1 Perspective 1: Interpretation and application

### Section 7.2 wording in the EU Taxonomy

Section	NACE	Substantial contribution to climate change mitigation of Annex I	Footnote
7.2 Renovation of Existing Buildings	F41, F43	<p>The building renovation complies with the applicable requirements for major renovations.<sup>299</sup></p> <p>Alternatively, it leads to a reduction of primary energy demand (PED) of at least 30%.<sup>300</sup></p>	<p><sup>299</sup>: As set in the applicable national and regional building regulations for ‘major renovation’ implementing Directive 2010/31/EU. The energy performance of the building or the renovated part that is upgraded meets cost-optimal minimum energy performance requirements in accordance with the respective directive.</p> <p><sup>300</sup>: The initial primary energy demand and the estimated improvement is based on a detailed building survey, an energy audit conducted by an accredited independent expert or any other transparent and proportionate method and validated through an Energy Performance Certificate. The 30 % improvement results from an actual reduction in primary energy demand (where the reductions in net primary energy demand through renewable energy sources are not taken into account) and can be achieved through a succession of measures within a maximum of three years.</p>

### Linguistic decomposition and interpretation of key words & phrases of Section 7.2 – part 1 ‘Major Renovation’

Term or key phrase	Source in Dutch regulation and relevant references	Analysis	DEEMF definition
<i>building</i>	See section <a href="#">building</a>	<p>We use the distinct categorisation of buildings as can be found in EP-Online combined with the metrics of Table 5.1A (<i>bouwbesluit 2012</i>) and a categorisation in building type (“<i>grondgebonden en niet-grondgebonden</i>”).</p> <p>In our definition a building is a building unit as the energy performance is ultimately calculated and registered in the Netherlands on building unit level.</p>	Any building unit meeting the categorisation of buildings as used in EP-Online combined with the metrics of Table 5.1A (“ <i>bouwbesluit 2012</i> ”) and a categorisation in building type (“ <i>grondgebonden en niet-grondgebonden</i> ”).
<i>Renovation</i>		In the context of a ‘major renovation’ the word ‘renovation’ should be read in reference to the phrase, ‘ <i>the renovated part that is upgraded meets cost-optimal minimum energy performance requirements in accordance with the respective directive</i> ’ in the footnote.	<p>Where not referring to a ‘major renovation’, a renovation constitutes:</p> <p>Any (general) work carried out in the renovation irrespective if it (in)directly contributes to the energy performance, as long as</p>

		<p>Hence should be interpreted in part of fully as having an effect on energy efficiency.</p> <p>In addition, the renovation should apply to the applicable requirements (i.e. as implemented in the Netherlands) corresponding to a Major Renovation definition as implemented in national regulation. Hence in this context the phrase renovation must be interpreted and applied as a ‘Major Renovation’.</p>	<p>some form of energy improvement is intended as a subset of the overall work carried out in the renovation process.</p>
<p>Major renovation reference in Directive 2010/31/EU.</p>		<p>Recital 16 of Directive 2010/31/EU notes:</p> <p><i>‘Major renovations of existing buildings, regardless of their size, provide an opportunity to take cost-effective measures to enhance energy performance. For reasons of cost-effectiveness, it should be possible to limit the minimum energy performance requirements to the renovated parts that are most relevant for the energy performance of the building. Member States should be able to choose to define a ‘major renovation’ either in terms of a percentage of the surface of the building envelope or in terms of the value of the building. If a Member State decides to define a major renovation in terms of the value of the building, values such as the actuarial value, or the current value based on the cost of reconstruction, excluding the value of the land upon which the building is situated, could be used.’</i></p>	<p>Article 2 section 10 notes of the directive, states:</p> <p>‘major renovation’ means the renovation of a building where:</p> <ul style="list-style-type: none"> <li>(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</li> <li>(b) more than 25 % of the surface of the building envelope undergoes renovation;</li> </ul> <p>Member States may choose to apply option (a) or (b).</p>
<p>As set in the applicable national and regional building regulations for ‘major renovation’ implementing</p>	<p>Dutch Building code Article 3.2</p>	<p>As set in the Dutch Building code Article 3.2:</p> <p><i>“Met artikel 3.2, ingevoegd via Stcrt. 2013, 16919, is een uitwerking gegeven aan artikel 5.6, vierde lid, van het Bouwbesluit 2012. In artikel 3.2 is bepaald dat van ingrijpende renovatie als bedoeld in artikel 2 van de herziene richtlijn energie prestatie gebouwen sprake is wanneer meer dan 25% van de oppervlakte van de gebouwschil wordt vernieuwd, veranderd of vergroot én deze vernieuwing, verandering of vergroting de integrale gebouwschil betreft. Hiermee wordt bedoeld dat de uitwendige scheidingsconstructie volledig, dat wil zeggen met inbegrip van alle constructieonderdelen (binnenblad, spouwvulling, buitenblad) wordt gerenoveerd. Het voorschrift geldt alleen voor het deel van de gebouwschil dat wordt gerenoveerd en niet voor de gehele gebouwschil van het gebouw. Met deze keuze voor de oppervlakte van de gebouwschil als criterium voor de beoordeling van de vraag of sprake is van</i></p>	<p>The conclusion is that in the Netherlands option (b) of Article 2 of Directive 2010/31/EU is implemented:</p> <p>‘a major renovation constitutes a renovation of a building where more than 25 % of the surface of the building envelope undergoes renovation.’</p>

		<i>ingrijpende renovatie is uitvoering gegeven aan de keuzemogelijkheid zoals deze in artikel 2 onderdeel 10 van de herziene richtlijn is gegeven.”</i>	
<i>The energy performance of the building or the renovated part that is upgraded meets cost-optimal minimum energy performance requirements in accordance with the respective directive.</i>	Renewable Energy Directive (RED II), Directive (EU) 2018/2001	<p>We assume this phrase refers to the Renewable Energy Directive (RED II), Directive (EU) 2018/2001.</p> <p>The Renewable Energy Directive is the legal framework for the development of renewable energy across all sectors of the EU economy. It has been adopted in December 2020 and states among other things that renewable energy is to be implemented for both the construction of new buildings and when major renovations are performed.</p> <p>Article 15 section 4 states:</p> <p><i>‘Member States shall introduce appropriate measures in their building regulations and codes in order to increase the share of all kinds of energy from renewable sources in the building sector.</i></p> <p><i>In establishing such measures or in their support schemes, Member States may take into account, where applicable, national measures relating to substantial increases in renewables self-consumption, in local energy storage and in energy efficiency, relating to cogeneration and relating to passive, low-energy or zero-energy buildings.</i></p> <p><i>Member States shall, in their building regulations and codes or by other means with equivalent effect, require the use of minimum levels of energy from renewable sources in new buildings and in existing buildings that are subject to major renovation in so far as technically, functionally and economically feasible, and reflecting the results of the cost-optimal calculation carried out pursuant to Article 5(2) of Directive 2010/31/EU, and in so far as this does not negatively affect indoor air quality. Member States shall permit those minimum levels to be fulfilled, inter alia, through efficient district heating and cooling using a significant share of renewable energy and waste heat and cold.’</i></p>	<p>The rules for renewable energy for new constructions have been implemented in the BENG framework (wijziging BENG, Stb.2019, 501). Where a minimum share of renewable energy is expressed as the BENG 3 indicator. The rules for renewable energy for major renovations have been implemented in the Bouwbesluit 2012 and in the Besluit Bouwwerken Leefomgeving):</p> <p><i>“In het Bouwbesluit 2012 (artikel 5.6 lid 5 en lid 6) is een eis opgenomen voor een minimumwaarde hernieuwbare energie bij ingrijpende renovaties van gebouwen. De eis treedt per 1 februari 2022 in werking en vloeit voort uit de herziening van de richtlijn hernieuwbare energie (REDII) van 11 december 2018.”</i><sup>22</sup></p>
<i>complies with the applicable requirements for major renovations</i>	See section major renovations in Dutch regulation	See section major renovations guidance according to NEA.	See section Incorporation of Renewable Energy Directive in the Building Code <sup>23</sup> .

<sup>22</sup> <https://www.rijksoverheid.nl/documenten/richtlijnen/2021/12/02/leidraad-eis-hernieuwbare-energie-bij-ingrijpende-renovatie>

<sup>23</sup> In DEEMF Part I

*Linguistic decomposition and interpretation of key words & phrases of Section 7.2 – part 2 ‘reduction in net PED’*

Term or key phrase	Source in Dutch regulation and relevant references	Analysis	DEEMF definition
<i>alternatively</i>			Meaning instead of the other option, literally the <i>alternative</i> (in this context referring to the alternative Substantial Contribution Criteria for major renovations).
<i>It leads to</i>			The economic activity, that is financed (in this case ‘renovation’) ultimately, will result in.
<i>a reduction of primary energy demand (PED) of at least 30 %</i>			The BENG 2 indicator, expressed as kWh/m <sup>2</sup> /year on building unit level is reduced by at least 30% as a result of the renovation.
<i>The initial primary energy demand</i>			The prime energy demand before the economic activity of renovation is carried out (pre-renovation).
<i>Renewable energy sources</i>		In section 7.2 of the CDA or in the corresponding footnotes, no definition is given of renewable energy sources.  The analysis of what constitutes as renewable energy sources in the Netherlands is pending <sup>24</sup> .  Therefore, in this version of the framework we deem the elements of section 7.6 of the Climate Delegated Act as renewable energy sources.	Renewable energy sources are items that are eligible in section 7.6 ‘Installation, maintenance and repair of renewable energy technologies’ of the Climate Delegated Act. These items include (as taken from Section 7.6 of the CDA): <ul style="list-style-type: none"> <li>• photovoltaic systems</li> <li>• solar hot water panels</li> <li>• heat pumps contributing to the targets for renewable energy in heat &amp; cool<sup>25</sup></li> <li>• solar transpired collectors</li> <li>• thermal or electric energy storage units</li> <li>• high efficiency micro CHP (combined heat and power) plant</li> <li>• heat exchanger/recovery systems</li> </ul>
<i>The 30 % improvement results from an actual reduction in primary energy demand (where the reductions in net primary energy demand through renewable energy</i>		The BENG 2 indicator is a measure of the use of primary fossil energy. It encompasses, for residential buildings, the primary energy demand for heating, cooling, ventilation and warm tap water.	The energy efficiency improvement of 30% expressed as a reduction in net PED must be the result of measures that are not regarded as improvements to the building unit, resulting from renewable energy sources.

<sup>24</sup> Work in progress for the EEM NL Hub working group

<sup>25</sup> In accordance with Directive (EU) 2018/2001

<p><i>sources are not taken into account).</i></p>		<p>The primary energy demand in the Netherlands is a measure of fossil prime energy demand, 'net' from renewable energy sources. If renewable energy sources are used (such as solar panels or other renewable energy sources), these will need to be deducted from the primary energy demand definition of BENG 2<sup>26</sup>.</p> <p>However, bringing down the PED can 'normally' be realised by increasing the share of renewable energy. As there is a direct inverse relation between the BENG 2 and BENG 3 indicators. If the prime energy demand must be reduced in a way where reductions through renewable energy demand <b>are not taken into account</b>, this limits the options to bring BENG 2 down. In general, BENG 2 can be reduced via:</p> <ul style="list-style-type: none"> <li>• Increasing BENG 3 (the share of renewables)</li> <li>• Decreasing the energy demand.</li> </ul> <p>In this case we have a restriction where the BENG 2 is to improve due to measures that are not the result of increased use of renewable energy.</p> <p>This could for instance be established by for carrying out:</p> <ul style="list-style-type: none"> <li>• insulation to existing envelope components, such as walls, roofs, lofts, basements and ground floors.</li> </ul>	<p>Broadly two cases can be distinguished:</p> <ul style="list-style-type: none"> <li>• <b>Renovation where energy efficiency improvements are made without any 'renewables energy sources'</b>: the BENG 2 score (post-renovation) must be lower than 0.7 x BENG 2 score (pre-renovation).</li> <li>• <b>Renovation where energy efficiency improvements are made that include 'renewables energy sources'</b>: in this case it is not possible to ascertain that the PED (BENG 2 score) reduction is based on '<i>reductions in net primary energy demand through renewable energy sources are not taken into account</i>'.</li> </ul> <p>The post-renovation EPC report lists the 'overall' share of renewables (BENG 3) and the total BENG 2 score of the property. No (net) difference in PED compared to pre-renovation energy performance calculation is included in the post-renovation EPC.</p> <p>Moreover, it is not possible, based on the actual EPC document or the information in EP-Online to attribute the changes to the BENG 2 or BENG 3 scores to individual measures.</p>
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<sup>26</sup> Source: <https://www.rvo.nl/onderwerpen/wetten-en-regels-gebouwen/beng/primair-fossiel-energiegebruik>

		<ul style="list-style-type: none"> <li>• replacement of existing windows with new energy efficient windows.</li> <li>• replacement of existing external doors with new energy efficient doors.</li> <li>• installation of heating, ventilation and air conditioning (HVAC) and water heating systems.</li> <li>• installation of low water and energy using kitchen and sanitary water fittings.</li> </ul> <p>Note that the above examples are derived from the section 7.3 'Installation, maintenance and repair of energy efficiency equipment' of the Climate Delegated Act.</p> <p>For the avoidance of doubt, our interpretation of 'actual' is that it does not refer to energy usage by the inhabitant(s) of the property but that it refers to the PED score of the property.</p>	
<p><i>Estimated improvement is based on a detailed building survey, an energy audit conducted by an accredited independent expert or any other transparent and proportionate method</i></p>		<p>Three options are presented on which the estimated improvement (in net PED) can be based. Furthermore, no additional requirements or specifications are given towards these possible estimation procedures.</p> <p>We have broken down these estimation procedures in the section below.</p> <p>Taking the government EP-Online database and NTA 8800 methodology as the starting point of our analysis, we conclude that the options: 'transparent method' and 'detailed</p>	<p>An independent energy audit (both pre- and post-renovation), carried out by an accredited EPC advisor is, at this stage, the only NEA backed methodology (based on NTA 8800 methodology) to calculate the (net) PED of a property.</p>

		building survey' have not been developed or sponsored by the NEA or government as of yet.  Please note, that a (pre-renovation) EPC based on NTA 8800 does not include an estimation or guarantee of the PED impact based on any or a combination of proposed measures.	
<i>And validated through an Energy Performance Certificate</i>			Based on the wording 'validated' and the need for a 'Certificate', the conclusion is that post-renovation, an energy performance must be carried out according to the NTA 8800 methodology to determine the PED of the property after the renovation.
And can be achieved through a succession of measures within a maximum of three years			The economic activity that is being financed should be achieved within three years of commencing the economic activity.  Not all the work has to be carried out all at once, it can be achieved via a succession of (multiple) measures, within the given time span of three years.

*Options for estimating PED improvement*

Footnote 300 in Section 7.2 presents several options, on how to 'estimate' the PED improvement. In the diagram below the different options are presented and the table below contains an assessment of their current readiness for practical use.

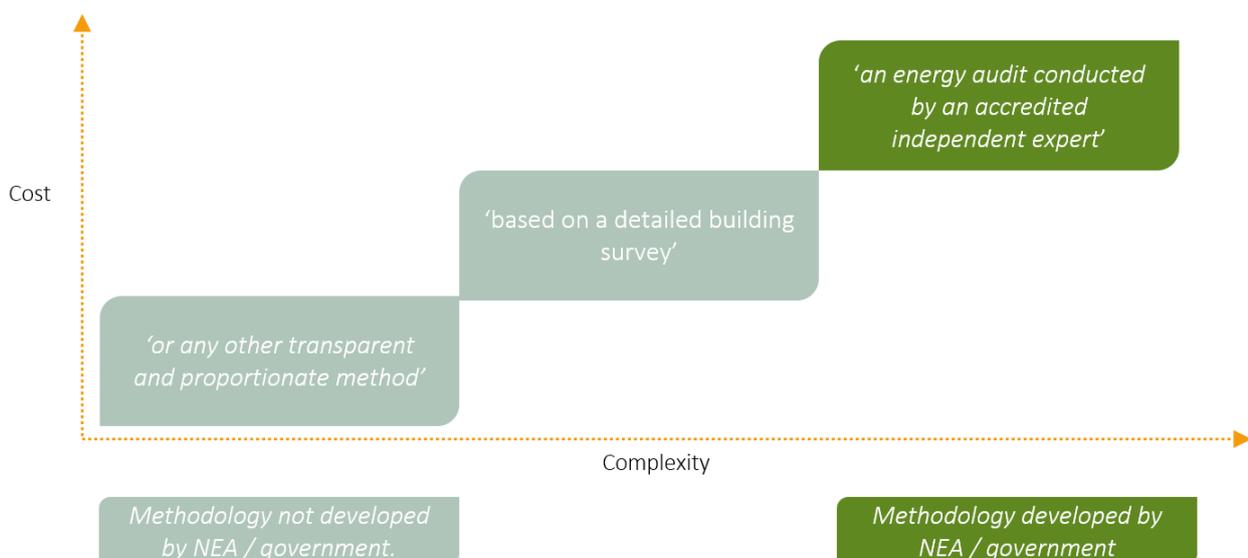


Diagram 6: Different options allowed under Section 7.2 of the EU Taxonomy mapped against complexity and costs.

Footnote <sup>300</sup> of 7.2	Considerations	Pro / Con
<i>and validated through an Energy Performance Certificate.</i>	The wording is unambiguous w.r.t. the need to have the post-renovation PED confirmed through an EPC.	Under the NTA 8800 methodology, an EPC can only be issued following an assessment carried out by an EPC auditor (“ <i>vakbekwaam EnergiePrestatie-adviseur</i> ”) made in accordance with the (“ <i>Beoordelingsrichtlijn 9500</i> ”) which includes an on-site measurement of the property.  O.a. due to the on-site visit, obtaining an EPC is relatively costly.
However, to determine the estimated improvement and thus the pre-renovation PED, the TSC wording offers three options:		
<i>an energy audit conducted by an accredited independent expert.</i>	This option requires an EPC to be issued pre-renovation similar to an EPC under the post-renovation determination as described above.	Relatively costly as this option requires an official EPC both before and after the renovation work(s).  Particularly for smaller renovations, the fact that twice the costs for an EPC would be incurred, would be prohibitively expensive <sup>27</sup> .  Also, the fact that when requesting the initial EPC (and thus the costs being incurred), it is still uncertain if the 30% reduction can be achieved and thus if the TSC will be met through the renovation, make this an undesirable option particularly for the smaller (less costly) renovations.
<i>Based on a detailed building survey</i>	No additional definitions or requirements are given with respect to the content of what a detailed building survey entails.  The EEM NL Hub working group members have not checked what building survey methodologies are in existence as of current in the Netherlands and how they relate to the EU Taxonomy.	The interpretation of the EEM NL Hub working group is that still an analysis for each individual building (unit) would be required but that under this option a physical (on-site) inspection of the building (unit) would not be required.  This option appears to sit between the two other options in terms of complexity and thus costs.  The EEM NL Hub working group looks to explore the feasibility of this option in the future.
<i>Or any other transparent and proportionate method</i>	This option appears to allow for the implementation of a more general method where the PED of multiple building (units) is determined without an official EPC being issued and thus an on-site measurement taking place, or a detailed analysis being performed on an individual building (unit) or property level.	The EEM NL Hub working group intends to work closely together with the NEA to develop a method that would meet the requirements of being transparent and proportionate and at the same time be consistent and easy to apply to many different types of properties.  The aim of such method would be to enable the different stakeholders to determine in a simple way if the 30% reduction in PED can be achieved.

<sup>27</sup> Further improvements to the EPC issuing process for smaller renovations where a second on-site visit is no longer required are being discussed.

	<p>The requirement for the method to be transparent would imply that it is relatively simple, can be verified by other stakeholders and can be applied consistently over multiple types of properties.</p> <p>The reference to proportionate appears to imply that particularly for the smaller renovations, a relatively simple method to determine the PED of a building(unit) or property before the renovation taking place, can be developed and applied.</p> <p>There are however (commercial) parties that provide PED estimation (of the building and or of the renovation work that is to be carried out)<sup>28</sup>.</p>	<p>Particularly from this perspective, the requirement under the TSC to exclude ‘renewables’ appears to be counterintuitive and not be in line with most common customer behaviour (e.g. when renovating a property, customers tend to install solar panels as well).</p>
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*Related EU regulation references*

Related EU regulation reference(s)	Alias	Directive implemented in NL (if applicable)
Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings	The Energy Performance of Buildings Directive version III	Wet Bouwbesluit 2012

*Related Dutch regulation references*

Related regulation reference(s) in Dutch Law or best practice framework(s)	Section(s)
Bouwbesluit 2012	<p><i>Hoofdstuk 3.</i></p> <p><i>Hoofdstuk 5. Technische bouwvoorschriften uit het oogpunt van energiezuinigheid en milieu</i></p> <p><i>Afdeling 5.1. Energiezuinigheid, nieuwbouw</i></p>
Tijdelijke regeling hypothecair krediet & Besluit Gedragstoezicht financiële ondernemingen Wft	<i>Tijdelijke regeling hypothecair krediet</i> Artikel 1, 2, 3, 4, 5 en 6 (and corresponding annexes).
Nationaal instituut voor budgetvoorlichting	<i>Advies Financieringslastnormen 2022</i>
Praktijkboek besluit bouwwerken leefomgeving, Ministerie van Binnenlandse Zaken en koninkrijksrelaties	
NEA Guidance on Home Improvement	<i>Energieprestatie-eisen bij verbouw en renovatie</i>

<sup>28</sup> These methodologies have not been analysed in this version of the framework.

Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (Text with EEA relevance.)	
Onderzoek innovatieve opties BENG(Bijna EnergieNeutrale Gebouwen)  In opdracht van het ministerie van Binnenlandse Zaken en Koninkrijksrelaties	

## 5.2 Perspective 2: Data availability

When analysing the data availability in respect of the SCC for Section 7.2. the EEM NL Hub considered the data available in EP-Online and the data generally available in the source systems of mortgage loan servicers. See sections [EP-Online data availability](#) and [relevant mortgage \(servicing\) data for SCC](#) for an overview, in the annex.

### Major renovations:

It is a requirement under the Dutch building code that major renovations (“*ingrijpende renovaties*”), comply with the building code. However, there is no legal requirement to obtain and (re-)register an EPC following a major renovation and as a result, the energy performance of a property post-renovation is not necessarily recorded in EP-Online (“*geen afmeldplicht in EP-Online bij ingrijpende renovatie*”) unless/until an EPC is required for other reasons such as letting or sale of the property.

No central register exists where major renovations are recorded and as a result (confirmed by own research of the EEM NL hub members), major renovations can currently i) not be directly identified in EP-Online or any other central registry or database, and ii) are virtually impossible to correctly identify in traditional mortgage servicing data (without changes to the processes being implemented) and thus, it is currently impossible to devise a general definition or guidance on how to identify and check, on a case-by-case, basis if the conditions for a major renovation have been met upon completion of the renovation.

Research carried out in 2020 confirms these observations, see also text box 4 below. Therefore, the EEM NL Hub working group has concluded that (although the definition of a major renovation in the Netherlands is relatively clear), for the moment insufficient data is available to further consider the major renovation option to meet the SCC of a renovation, in this version of the DEEMF.

In 2020, SIRA Consultancy performed the study: ‘measuring the effect of a minimum share of renewable energy for major renovations’ (“*Effectmeting minimumaandelen hernieuwbare energie bij ingrijpende renovatie*”) that looks into the (potential) ‘effects’ of the newly proposed regulation of the incorporation of renewable energy for major renovations in the Netherlands.

The study is focused on identifying:

1. The changes that the amended regulation would have on consumers and business in the Netherlands, in comparison to existing regulation.
2. Measure both the quantitative and qualitative effects of the proposed changes.

The report lists the following, where we have expressed in bold the important conclusions on the registrations of major renovations in the Netherlands:



*'The number of major renovations that fall under the definition of the Building Decree is not registered centrally. Therefore, questionnaires have been used to gauge the number of Major Renovations in the Netherlands, from respondents. The interviews show that the definition from the Building Decree is hardly used in practice. There is therefore no complete picture of the number of major renovations that fall under the definition of the Building Decree. In practice, for example, often there is a reference towards a major renovation when, for example, windows are replaced, cavity wall are installed, insulation measures are taken or installing double glazing. However, these are not situations that fall under the definition of major renovation as referred to in the Building Decree.'*

*'The definition in the Buildings Decree stipulates that the renovation must concern the 'integral building shell', whereby the roof or shell is 'fully opened up and renewed' for more than 25% of the surface of that shell. This means that at least 25% of the building can be viewed 'from the inside out'. This is the case, for example, when both the roof and all windows of a building are replaced.'*

*'Buildings that undergo a major renovation according to the definition of the Buildings Decree will in practice often be temporarily uninhabitable. In general, it is expected that major renovations in accordance with the Building Decree will be limited.'*

*'It is indicated in the research that in the case of a major renovation, a trade-off is often made between renovation and demolition of the property and carrying out a new construction ("sloop-nieuwbouw"). The latter case, can be interesting as the lifespan of the building is then expected to be longer. The NZEB requirements apply to demolition and new construction, which also include a minimum requirement for renewable energy.'*

The research also indicates that between 50 and 500 family houses undergo a major renovation yearly that could be regarded as being in line with the Dutch building code.

Text box 4: Summary SIRA Consultancy study 'measuring the effect of a minimum share of renewable energy for major renovations'.

### Reduction in net-PED

As of August 2022 627,041 of the valid EPCs for residential properties in the Netherlands are based on the NTA 8800 methodology (which was introduced on 1 January 2021) out of 4,632,066 valid EPCs for residential properties in total<sup>29</sup>. This means that 86% of all the residential properties in the Netherlands with a valid EPC do not have a PED value as this was not provided in EPCs under the legacy methodologies. In addition, approximately 3.67 million building units in the Netherlands do not have a valid EPC<sup>30</sup>.

As currently only 13.54% of EPCs are based on the NTA 8800 methodology<sup>31</sup>, relatively few building units 'already' have a PED estimation. Determining if the 30% reduction in net PED will be achieved, using the available 'pre-renovation' PED values is thus not feasible for the vast majority of properties in the Netherlands without an EPC being issued or the PED being measured in another way. Over time the availability of PED values as included in EPCs that are based on the NTA 8800 methodology will increase.

EPC classes are directly related to the BENG 2 metric within the NTA 8800 methodology. Therefore, an argument can be made that reverse inference could be possible. For example: an EPC of class C should have a PED of between 190 and 250 kWh/m<sup>2</sup>/year. This is true for EPCs that have been established in the NTA 8800 methodology, but not per se based on legacy energy performance methodologies. At the time of introduction of the NTA 8800 methodology, calibration studies ("inijkstudies") have been performed to determine if EPC class migrations would occur as a result of the introduction of the new energy performance methodology. At this stage it has not yet been analysed if the outcomes of these calibration studies could be used to inferred estimated EPC classes under the NTA 8800 methodology from the energy label class under previous methodologies.

<sup>29</sup> Only the EPCs with a "woonfunctie" have been taken into account.

<sup>30</sup> There are 8,083,982 residential building units in the Netherlands as of July 2022, according to CBS

<sup>31</sup> These include building permits ("vergunningaanvraag")

### *Availability of PED data in EP-Online*

Of the relatively few, but increasing number, of EPCs based on the NTA 8800 methodology as recorded in EP-Online, a very significant part is for newly built properties or properties currently under construction. As of August 2022, only 583,535 EPCs have been issued for existing properties based on the NTA 8800 methodology (and thus have a PED score). This means that for the existing property stock, the overwhelming majority of building (units) do not have PED data available. Also, EP-Online currently does not record if a renovation has been carried out on a building (unit) and what reduction in PED has been realised over what time period.

An additional challenge is the requirement to determine the reduction in PED without taking into account *the reduction in net primary energy demand through renewable energy sources*. A potential way of doing this is to check if the post-renovation BENG 2 score is 30% lower than the pre-renovation BENG 2 score while the BENG 3 score has not decreased, subject to the boundary condition that the timing between the two moments after issuing the financing is equal or less than three years. Another complexity of this methodology is that it can only be assessed *after the fact*. In practice one wants to know upfront if the renovation is potentially aligned with the Substantial Contribution Criteria of Section 7.2 in order to determine if the loan qualifies for a 'green' funding programme. This is particularly relevant for mortgage customers seeking finance and advice on funding options for energy efficiency improvements.

### *Availability of PED data in mortgage servicing data*

Ideally a financial institution is able to determine before providing the financing for a renovation if the renovation will meet the requirements of the SCC. In practice, in the Netherlands renovation financing is provided in the form of a construction deposit: a short-term (typically one to two year) draw-down facility that can be used to settle the invoices of the renovation.

The mortgage servicer verifies the invoices submitted by the borrower and if correctly submitted, the invoice is paid, the construction deposit is drawn and the mortgage loan amount is increased by the same amount. In most cases, these are 'included' in the overall mortgage loan in the form of a separate loanpart.

At this point in time, it is not yet customary that within a construction deposit a distinction is made for the type of renovation works: general reconstruction works (that do not enhance the energy efficiency of the property, per se) and sustainability measures ("*verduurzamingsmaatregelen*") are often combined into one single construction deposit.

The use case provided in text box 5 below is typical for many mortgage loans with a construction deposit: typically both the general value-increasing (but not energy efficiency improving) measures are financed together with energy efficiency measures from a single construction deposit.

More recently several mortgage lenders have started promoting the implementation of energy efficient improvement measures by offering specific 'renovation loans', in most cases with beneficial loan conditions. To qualify for these types of loans, the improvements to the property are required to meet specific conditions and general reconstruction works or improvements cannot be financed. In Section 7.2 there is no specific reference to the type of renovation and the interpretation of the EEM NL Hub working group is therefore that *any* renovation that meets the SCC qualifies and as a result, the loan related to the whole renovation part would qualify. Note that 'renewable energy sources' can be part of the SCC where a 30% reduction in (net)PED must be established, as long as the condition of net reduction is met in the renovation activity.

Use case: Example of a mixed renovation financed through a construction deposit “*bouwdepot*”

**Situation:** A customer requests a mortgage loan for the purchase of a new (“*grondgebonden*”) property for a price of € 550,000. The property has an EPC of Class E (recorded in EP-Online) and a pre-renovation PED of 300 kWh/m<sup>2</sup>/year.

**Renovation:** The customer also wants to renovate the property by purchasing and installing a new kitchen, a new bathroom and a new wooden floor (estimated cost € 75,000) and insulate the property (at a cost of € 50,000).

**Documentation:** The consumer has a valuation report (“*taxatie rapport*”) including the reconstruction / renovation work, with a total property value of € 675,000. The customer requests a mortgage loan of € 675,000 euro (i.e. a Loan-to-Value of 100%).

**Mortgage loan structure:** On day one, the customer is granted a mortgage loan totalling € 675,000 of which € 125,000 is placed in a construction deposit. The full mortgage loan of € 675,000 can either be structured as one loan for the full amount, or it can be composed of several loanparts, e.g. one loanpart of € 550,000 and a separate loanpart of € 125,000. During the renovation, the customer submits invoices to the mortgage lender and these are paid out.

**New EPC:** Once the renovation is completed, a new EPC is obtained demonstrating that the energy performance of the property has improved to EPC Class B (PED of 180 kWh/m<sup>2</sup>/year).

**EU Taxonomy alignment:** as the net PED of the property has improved by 40% (180 / 300 kWh/m<sup>2</sup>/year = 60%), the SCC of a renovation is met and demonstrated in the form of an EPC and the whole renovation (and thus the € 125,000 loan part) is deemed to be in line with the SCC. Note that in this case the PED reduction was achieved by energy improvements that are not based on renewable energy.

*Text box 5: Use case renovation construction deposit.*

#### *Observations in respect of data quality & availability*

1. EP-Online is not a usable data source to determine if a renovation qualifies as a major renovation. Given the lack of a central registry, this data can currently only be obtained from the customer.
2. Under the Dutch building code, it is a requirement for a major renovation that it includes the installation of renewable energy sources (where possible) (“*hernieuwbare energie-eis*”).
3. For the calculation of the net PED reduction, the reduction from renewable energy sources cannot be included (i.e. must be excluded from the calculation). The TSC of Section 7.3 provide some insights as most of the measures described in Section 7.3 “*Installation, maintenance and repair of energy efficiency equipment*” do improve the energy efficiency but are not renewables.
4. Given the current lack of “a transparent and proportionate method” to determine the PED of a property (pre-renovation), our conclusion is that the only workable option for now is to obtain an EPC (with a PED value) under the NTA 8800 methodology pre-renovation. This EPC will automatically be recorded in EP-Online and accessible for mortgage lenders.
5. An EPC based on the NTA 8800 methodology, includes suggestions on energy efficiency improvements. It however does not include any estimation or calculation of what effect the proposed measure or combination of measures have on the BENG 2 and or BENG 3 scores. Set aside any form of guarantee for a mortgage consumer.
6. It is not possible to identify, post-renovation, from an EPC document, based on the NTA 8800 methodology, to what extent the individual types of measures that were implemented since the pre-renovation EPC, have attributed to changing BENG 2 and BENG 3 values (when multiple measures energy efficiency measures have been carried out simultaneously).

7. In applying the EU Taxonomy Technical Screening Criteria in practice, it is needed to accurately identify, track and account for individual energy efficiency measures. Specifically for situations where multiple clauses of the substantial contribution criteria could be (potentially) aligned. For instance, if certain measures are potentially in line with SCC of sections 7.3 or 7.6 (currently out of scope in this version 1.0 of this document) one wants to track and distinguish these accurately and detailed.
8. In context of SCC 7.2 it is important for financial institutions to have an adequate view of the energy efficient measures that are to be carried out. Specifically, to make an assessment of ‘how reductions in net primary energy demand through renewable energy sources are not taken into account’. Therefore, a granular and detailed overview of the proposed sustainability measures that an institution is financing, should be available. In addition, an assessment should be made per measure what the impact of the individual measure is on the BENG 2 score and/or the BENG 3 score.
9. An EPC based on the NTA 8800 methodology notes, on the second page of the certificate: *‘Renewable energy is derived from the sun, biomass, outside air or ground. Solar panels, solar water heaters, heat pumps and a biomass boiler or heating system increase the share of renewable energy’*<sup>32</sup>. This is roughly in line with the wording of the Climate Delegated Act Section 7.6.
10. At this point in time, the EEM NL Hub working group has not extensively analysed the measures as approved under the so-called EBB (“Energiebespaarbudget”) / EBV (“Energie besparende voorzieningen”) scheme and the eligibility of these measures in relation to the EU Taxonomy.

Several mortgage lenders currently offer renovation loans, in most cases with favourable loan-conditions such as reduced interest rates, to stimulate the improvement of the energy efficiency of properties. Often these products are based upon Dutch norms of granting loans for energy efficiency, such as included in the *“Tijdelijke regeling hypothecair krediet & Besluit Gedragstoezicht financiële ondernemingen”*.

Under this norm a common set of Dutch energy efficiency measures has been established, known as the EBV and EBB. Further investigation is recommended into how the EBB and EBV measures relate to:

- Other regulation: such as the EU Taxonomy (sections 7.3 and or 7.6), the Energy Performance and Building Directive, the Renewable Energy Directive and the Energy Labelling Directive (Regulation (EU) 2017/1369);
- How different measures Influence the BENG 1, 2 and 3 metrics;
- How these relate to different national or municipal subsidy programmes;
- How combinations of EBB and EBV measures impact the above.

*Text box 6: Further analysis required on EBB / EBV vs EU Taxonomy definitions.*

<sup>32</sup> “Hernieuwbare energie is afkomstig uit zon, biomassa, buitenlucht en bodem. Zonnepanelen, zonneboilers, warmtepompen en biomassaketels vergroten het aandeel hernieuwbare energie.”

### 5.3 Perspective 3: Allocation to loan(part(s)).

#### Static application

Irrespective of which option under Section 7.2 (major renovation or 30% reduction in net PED) is selected, only the fraction of the (mortgage) loan that is used for the (major) renovation can be designated as aligned with the substantial contribution criteria if the SCC are met. Within the work carried out in a renovation no distinction is made between elements that have no effect on energy efficiency and the elements that increase the energy efficiency of the property being renovated. Therefore, at most, a fraction of the loan(part) (equal to the loan amount used to finance the renovation) can be designated in accordance with the SCC of 7.2 unless if, upon completion of the renovation work an EPC Class A is issued in which case (if the property was built before 31 December 2020), the whole mortgage loan can be designated as aligned with the SCC of Section 7.7 (see section 10 below).

#### Dynamic application

		Economic Activity
		Renovation of Existing Buildings
<b>Financing relative to the Economic Activity</b>	<i>Before</i>	Financing can be approved and granted before the renovation work commences. If an <i>estimate*</i> is present that a reduction of 30% in net PED is going to be met, the financing of the renovation can be attributed to be in line with the SCC, based upon the knowledge (the estimate) as of the assessment time.  *Irrespective of the estimation procedure.
	<i>During</i>	Idem above, however the renovation work needs to be carried out within a period of three years.
	<i>After</i>	When the renovation work is completed, a validation through an Energy Performance Certificate needs to be performed.  Multiple 'end-states' are possible here: <ul style="list-style-type: none"> <li>• The 30% reduction in net PED is confirmed and the EPC Class of the property is &lt; A. In this case the renovation loan is aligned with the SCC for the remainder of the duration of the mortgage loan(part).</li> <li>• A 30% reduction in net PED is confirmed and the EPC Class of the property is ≥ A. In this case, based upon the SCC of Section 7.7 the full mortgage loan can be classified as aligned, if the building was built before 31 December 2020.</li> <li>• The 30% reduction in net PED is not achieved: the loan is no longer aligned based on the SCC of Section 7.2. In this case, alternatives can potentially be feasible, for instance: upon close specification of the energy efficiency measures it might be feasible to designate some of the economic activities to be in line with the SCC of Sections 7.3, 7.4, 7.5 or 7.6<sup>33</sup> and the specific amounts can be classified as aligned.</li> </ul>

Table 6: Dynamic application of renovation to mortgage loan(parts).

<sup>33</sup> This demonstrates the need for detailed and granular tracking of the "actual" individual measures that are financed by the lender.

## 5.4 Conclusion

### *Major renovation*

It is our assessment that, in practice, the SCC of Section 7.2 will be very challenging to meet or demonstrate.

As described, major renovations are not recorded in EP-Online (or any other central database in the Netherlands) as there is no requirement to obtain a new EPC after the major renovation even though the renovation needs to comply with the Dutch building code.

Therefore, we do not elaborate on this alternative in this version of the DEEMF as there is (at this point in time) simply no way to determine, based on officially recorded information, if a renovation is a major renovation and if the conditions of a major renovation are being met. In the short term, using the SCC 7.2 for major renovations, we only see this feasible if this is based on proprietary information the consumer provides to the mortgage lender.

If a mortgage originator ‘knows’ that a customer is to undertake a renovation, it might be worth checking if the consumer plans to change more than 25% of the surface of the building envelope. If this is the case, the consumer is required to abide by the rules of a major renovation and consequentially the regulations for renewable energy need to be followed (“*hernieuwbare energie-eis*”).

### *Reduction of (net) PED*

The SCC of Section 7.2 present several options to ‘estimate’ the reduction in (net) PED achieved by a renovation, each with different pro’s and con’s. In the Netherlands, currently no transparent and proportionate method to estimate the PED impact of renovation is developed, widely accepted and applied. The building-survey option appears not to be easily applicable to residential properties and would in any case need to be further developed.

An energy audit both before and after a renovation is relatively expensive, particularly for the smaller renovations and does not provide a guarantee that the reduction in net PED will be achieved. An EPC based upon NTA 8800 does include a basic summary and suggestions for energy efficiency improvements that can be done to the property but does not ‘guarantee’ that these measures will actually result in a (net) PED reduction of 30%<sup>34</sup>. Another important challenge is the requirement for the reduction in PED not to take into account the reduction through renewable energy sources. The required information is currently not readily available on an EPC and would need detailed interpretation.

The EEM NL Hub advocates the further development of the two alternative estimation procedures with the aim of estimating the pre-renovation PED score of a property in a simplified manner (i.e. without an on-site measurement).

An alternative route that could be explored is the use of proxy estimation in energy efficiency renovations: for instance, an improvement of two or three EPC classes could be regarded as an energy efficient renovation. The EEM NL Hub has not (yet) investigated if, in practice, it can be substantiated that these improvements by two or three EPC classes will result in the reduction of the net PED by 30%. Having such a business rule and corresponding substation might be very useful for EU Taxonomy purposes and, maybe more importantly, would be very transparent for consumers as well.

However, the requirement that renewable energy sources are not taken into account when determining the improvement in PED is a significant obstacle to developing such method, particularly given the fact that from a consumer perspective the installation of solar panels is most often included in an energy efficiency renovation.

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<sup>34</sup> Several (commercial) parties are introducing estimation tooling & expertise and offer complementary ‘guarantees’ that the energy performance will improve to an estimated point.

## 6 DEEMF Analysis: Acquisition & ownership of buildings (Annex I TSC SCC, Section 7.7)<sup>35</sup>

### Quick Read

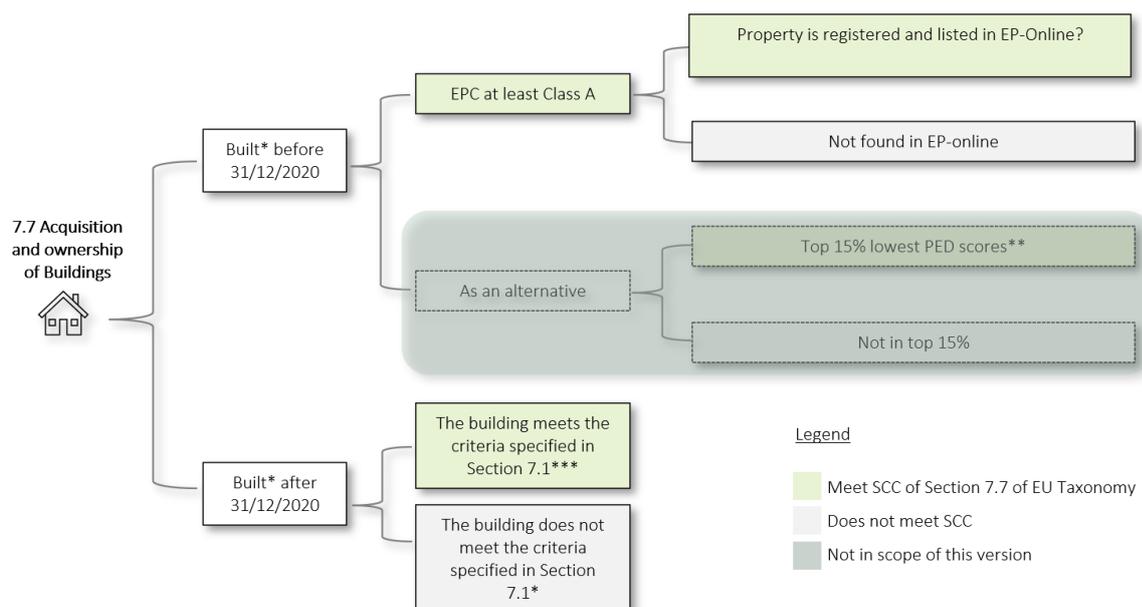
- For buildings built before 31 December 2020 (or with a building permit application dated before the NZEB norm (applicable as of 01 January 2021)): a valid Energy Performance Certificate (EPC) of class A should be available to be considered aligned.
- For buildings built after 31 December 2020 (and with a building permit based on the NZEB norm): SCC of Section 7.1 apply and the '10% better than threshold value' criterion must be met to be considered SCC aligned.

Text box 7: Quick read on renovation of existing buildings.

In this section we explore ways to identify if a building(unit) complies with the SCC of acquisition and ownership of buildings. The SCC contains different criteria depending on when the building was built (before or after 31 December 2020).

For buildings built before 31 December 2020 two options are provided to determine if the SCC are met. As an alternative to the EPC Class A criterion, it is also allowed to provide evidence that the building is within the top-15% of operational Primary Energy Demand of buildings built before 31 December 2020.

This latter alternative is not included or incorporated in this version of the framework<sup>36</sup>.



\* For those properties where construction was completed after 31/12/2020 but where the building permit application was submitted pre-NZEB (In the Netherlands 01/01/2021), the property can be considered to be built before 31/12/2020 – to meet the SCC of Section 7.7, an EPC Class A is sufficient.

\*\* Demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings. Currently not in scope of this version of the DEEMF.

\*\*\* Meet the criteria specified in Section 7.1 that are relevant at the time of the acquisition.

Diagram 7: Overview SCC of Section 7.7.

<sup>35</sup> The criteria for large non-residential building have been left out of scope.

<sup>36</sup> The Top-15% alternative, is not incorporated in this version of the DEEMF as the analysis is ongoing in the EEM NL Hub working group. It is expected to be included in future updates of the DEEMF.

## 6.1 Perspective 1: Interpretation and application

### Section 7.7 wording in the EU Taxonomy

Section	NACE	Substantial contribution to climate change mitigation of Annex I	Footnote
7.7 Acquisition and ownership of buildings	L68	<p>1. For buildings built before 31 December 2020, the building has at least an Energy Performance Certificate (EPC) class A.</p> <p>As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.</p> <p>2. For buildings built after 31 December 2020, the building meets the criteria specified in Section 7.1 of this Annex that are relevant at the time of the acquisition.</p>	

### Linguistic decomposition and interpretation of key words & phrases of Section 7.7(1)

Substantial contribution to climate change mitigation of Annex I
<p>For buildings built before 31 December 2020, the building has at least an Energy Performance Certificate (EPC) class A.</p> <p>As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.<sup>37</sup></p>

Term or key phrase	Source in Dutch regulation and relevant references	Analysis	DEEMF definition
<i>building</i>	See section <a href="#">building</a>	<p>We use the distinct categorisation of buildings as can be found in EP-Online combined with the metrics of Table 5.1A (<i>bouwbesluit 2012</i>) and a categorisation in buildingtype ( "<i>grondgebonden en niet-grondgebonden</i>").</p> <p>In our definition a building is a building unit as the energy performance is ultimately calculated and registered in the Netherlands on building unit level.</p>	Any building unit meeting the categorisation of buildings as used in EP-Online combined with the metrics of Table 5.1A (" <i>bouwbesluit 2012</i> ") and a categorisation in building type (" <i>grondgebonden en niet-grondgebonden</i> ").

<sup>37</sup> Analysis by the EEM NL Hub working group of this paragraph of Section 7.7 is still on-going and therefore a temporary placeholder has been insert as the DEEMF definition. We expect to incorporate this in the next version of the DEEMF.

<p><i>Built before 31 December 2020</i></p>		<p>Only as of 1 January 2021 is it a requirement for a building to be constructed according to the NZEB regulations. All building permit applications ('vergunningaanvraag') before that date did not have to meet the NZEB requirements.</p>	<p>The construction of the building unit has been completed before 31 December 2020</p> <p>or</p> <p>The construction of the building unit is completed after 31 December 2020 but the building permit application is dated (submitted) before 31 December 2020.</p>
<p><i>Energy Performance Certificate</i></p>		<p>We want to emphasise the importance of the abbreviation Energy Performance Certificate (EPC) which is not to be confused with a "Energie Prestatie Coefficient", a term that has been used often on Dutch energy performance certificates based on older calculation methodologies.</p>	<p><b>Energy Performance Certificate (EPC):</b> a document or digital record describing the energy performance of the building(unit).</p> <p>A <b>certificate</b> should be present with a valid validity date, irrespective of the methodology.</p>
<p><i>Energy Performance Certificate (EPC) class A</i></p>		<p>See diagram with EPC classes of NTA 8800<sup>38</sup> that depicts the ordinal scale of energy performance classes in the Netherlands.</p>	<p>Irrespective of the EPC methodology all valid Energy Performance Certificates with any of the following values (A, A+, A++, A+++, A++++).</p> <p>Note that all EPCs Class A with a valid certificate or registration in EP-Online are deemed eligible, this including those based on older (legacy) EPC methodologies.</p>

<sup>38</sup> In DEEMF Part I

*Linguistic decomposition and interpretation of key words & phrases of 7.7(2)*

**Substantial contribution to climate change mitigation of Annex I**

For buildings built after 31 December 2020, the building meets the criteria specified in Section 7.1 of this Annex that are relevant at the time of the acquisition.

Term or key phrase	Source in Dutch regulation and relevant references	Analysis	DEEMF definition
<i>building</i>	See section <a href="#">building</a>	<p>We use the distinct categorisation of buildings as can be found in EP-Online combined with the metrics of Table 5.1A (<i>bouwbesluit 2012</i>) and a categorisation in buildingtype (<i>'grondgebonden en niet-grondgebonden'</i>).</p> <p>In our definition a building is a building unit as the energy performance is ultimately calculated and registered in the Netherlands on building unit level.</p> <p>Note that it is important to look into the type of building and building sub-type to determine of the criteria of Section 7.1 are met.</p>	Any building unit meeting the categorisation of buildings as used in EP-Online combined with the metrics of Table 5.1A ( <i>'bouwbesluit 2012'</i> ) and a categorisation in building type ( <i>"grondgebonden en niet-grondgebonden"</i> ).
<i>Built after 31 December 2020</i>			<p>The building permit application is dated (submitted) after 31 December 2020;</p> <p>And</p> <p>The construction of the building has been completed after 31 December 2020.</p>
<i>Meets the criteria specified in Section 7.1</i>		We have interpreted this sentence that the SCC of Section 7.1 the '10% better than threshold value' criterion, needs to be checked.	The DEEMF criteria of <a href="#">TSC SCC 7.1 Construction of New Buildings</a> to be complied with.

*Related EU regulation references*

Related EU regulation reference(s)	Alias	Directive implemented in NL (if applicable)
Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings	The Energy Performance and Building Directive version III	Wet Bouwbesluit 2012

*Related Dutch regulation references*

Related regulation reference(s) in Dutch Law or best practice framework(s)	Section(s)
Bouwbesluit 2012	<i>Hoofdstuk 5. Technische bouwvoorschriften uit het oogpunt van energiezuinigheid en milieu</i> <i>Afdeling 5.1. Energiezuinigheid, nieuwbouw</i>

## 6.2 Perspective 2: Data availability

For the application of SCC of Section 7.7 it is important to have collateral identifiers, loan or mortgage balance(s) and the date of application of the building permit. Especially the last data point can be challenging to obtain. This data field is required to be able to determine if the building permit application was submitted under the NZEB regime or before, and thus whether or not the SCC of 7.1 need to be applied or if an EPC Class A is sufficient to meet the SCC of Section 7.7.

When analysing the data availability in respect of the SCC for Section 7.7, the EEM NL Hub considered the data available in EP-Online and the data generally available in the source systems of mortgage loan servicers. See sections [relevant EP-Online data for SCC](#) and [relevant mortgage \(servicing\) data for SCC](#) for an overview, in the annex.

## 6.3 Perspective 3: Allocation to loan(part(s))

### *Static application*

The outstanding mortgage balance as of assessment time  $t^*$  is attributed to the substantial contribution of the economic activity of Section 7.7.

### *Dynamic application*

Section 7.7 covers ‘existing’ buildings that meet certain SCC. However, the SCC of this section do not describe the ‘execution’ of an economic activity, as a process, to meet the criteria. Hence we do not make a ‘before, during or after the economic activity’ distinction for Section 7.7. and we deem the outstanding mortgage loan amount at the respective point in time to be relevant

## 6.4 Conclusion

In general, we are able to directly apply the SCC of Section 7.7 in the strict form in the Netherlands. There is however a less than ideal situation as not all properties in the Netherlands have a valid Energy Performance Certificate. As of August 2022, only 4.8 million residential building units have a valid EPC of the approximately 8.08 million building units<sup>39</sup> in the Netherlands.

In 2015 all building(unit) owners ‘received’ a temporary or “*voorlopig*” energy label from NEA. This was based on an assessment of the energy performance of the building based on the NEN 7120 methodology and readily available data<sup>40</sup>. As of 01 January 2021, NTA 8800 replaced the former (legacy) methodologies (NEN 7120) and as a result the validity of all preliminary or “*voorlopige*” energy labels that were issued in 2015 have been cancelled<sup>41</sup>.

These aforementioned preliminary labels have been issued and widely applied in both many internal and external reporting applications. At this point in time, there is no alternative energy performance indicator provided by the government. Against this background the EEM NL Hub working group members have expressed a desire to broaden, in the future, the strict interpretation as it is currently applied in this version of the DEEMF<sup>42</sup>.

### *Substantiation*

We have chosen to first focus on the energy performance certificates with class A as its application is relatively straightforward and less poly-interpretable compared to the alternative of the top 15% calculation.<sup>43</sup>

As of May 2022 there are 957.864 residential building units in the EP-Online database with an EPC of class A . Investigating the top-15% as an alternative to 7.7(1) might be more ‘beneficial’ in terms of the number of building units that can be flagged as aligned with the SCC of Section 7.7, thus directly influencing the numerator of the GAR calculation.

### *Observations*

As mentioned in the evaluation of this screening criterium, the EEM NL Hub working group members have expressed the desire for a solid methodology to be provided that could (partially) acknowledge the cases where:

1. Preliminary EPCs have been removed (especially for the cases where we infer the EPC was relatively energy efficient, but no valid certificate was issued or is no longer valid).
2. Buildings that might not have or no longer have an EPC but where the construction year likely indicates eligibility if an EPC would be obtained.
3. For mortgage loans based on building units where there is evidence that an energy performance improvement has taken place, (“*verduurzaming*”), but no registered EPC is available. For instance, due to the reason the customer is not (planning to) sell the house and thus lacks an incentive to obtain a new EPC.

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<sup>39</sup> According to CBS as of July 2022.

<sup>40</sup> For instance, year of construction and property type. It did not involve a physical assessment of the building unit.

<sup>41</sup> As of this date these preliminary or “*voorlopige*” labels are also not available anymore in EP-Online.

<sup>42</sup> The EEM NL Hub is awaiting a response on this issue from NEA (at the moment of writing).

<sup>43</sup> Providing adequate evidence that the building unit is within the top 15% in terms of operational Primary Energy Demand (PED) of buildings built before 31 December 2020.

## 7 Conclusion

In the previous three sections we have analysed the SCC of the Climate Delegated Act for real estate activities. In the table below we summarize this analysis process.

- **7.1 Construction of new buildings:**
  - We understand the wording, can find adequate references in existing regulation and energy performance methodology.
  - In general, the data is expected to be available and we can give guidance on which data fields from EP-Online can be used to check the alignment to this SCC. There are some data quality issues or concerns, especially with respect to EP-Online where for (*“niet-grondgebonden woningen”*) with status permit application (*“vergunningaanvraag”*) the PED value is not always available or clearly distinguishable on building unit level.
  - The application to mortgage loan level from an monetary or reporting perspective is clear.
- **7.2 Renovation of existing buildings:**
  - We understand the wording, can find adequate references in existing regulation and energy performance methodology.
  - For major renovations there are severe data availability issues as there does not exist an obligation to register these cases in EP-Online (*“geen afmeldplicht”*). Therefore, we cannot give any guidance on how to identify or use major renovations on behalf of the EEM NL Hub.
  - For the alternative, the reduction in (net) PED (excluding renewable energy sources), there are many known challenges: such as 1) the omission of methods to estimate the ex-ante PED reduction; and 2) it can be challenging to infer if the reduction in PED is solely the result of improvements excluding renewable energy sources.
  - Therefore, we recommend to only use the 7.2 alternative in the case there are two EPCs (ex-ante and ex-post) based on NTA 8800 methodology available and the reduction in PED is not the result of renewable energy sources. This occurrence might be *theoretical* in practice.
  - Only the fraction of the loan that is allocated towards the renovation of the building can be reported as SCC aligned<sup>44</sup>.
- **7.7. Acquisition and ownership of buildings:**
  - We understand the wording and can find adequate references in existing regulation and energy performance methodology.
  - In general, the data is available, and we can give guidance on which data fields from EP-Online that can be used to check the alignment to these SCC.
  - The application to mortgage loan level from a monetary or reporting perspective is clear.

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<sup>44</sup> Unless the ex-post renovation EPC is of Class A.

7. Construction and Real Estate Activities Section(s)		Subsection	Quick Read	In scope of analysis for this version of DEEMF	Perspective 1: Interpretation and application	Perspective 2: Data availability and quality	Perspective 3: Application to mortgage loan level	Guidance Incorporated in DEEMF
7.1	Construction of new buildings		The EU Taxonomy requires newly constructed buildings to be built according to the NZEB criteria and the Primary Energy Demand (PED) should be 10% less than the locally applicable threshold value. In the Netherlands PED is expressed as the BENG-2 indicator and for new constructions a threshold value is calculated ("BENG-2 eis"), recorded and published. In the Netherlands, NZEB is incorporated into the building code, the BENG framework and the NTA 8800 calculation methodology since 1 January 2021. EPC records based on NTA 8800 (with status = completed ("vergunningsaanvraag")) list the PED and the applicable PED threshold value. The PED and applicable threshold value can differ per building type ("grondgebonden vs. niet-grondgebonden").	✓				✓
7.2	Renovation of existing buildings	Major Renovations	Major Renovation: the building renovation complies with the applicable requirements for major renovations as implemented in the Dutch building code.*	✓				✗*
7.2 alternative		Reduction of (net) Primary Energy Demand	Renovation with (net) PED improvement condition: when it can be demonstrated that a 30% reduction of PED is achieved (without considering the improvement realised through renewable energy sources). An EPC (based on the NTA 8800 method) both before and after the renovation, is needed to assess the improvement in net PED.	✓				✓
7.7(1)	Acquisition and ownership of buildings	Buildings built before 31/12/ 2020	For buildings built before 31 December 2020 (or with a building permit application dated before the NZEB norm): a valid Energy Performance Certificate (EPC) of class A should be available to be considered aligned.	✓				✓
7.7(1) alternative		Buildings built ≤31/12/ 2020 - Alternative: building is within Top 15%						**
7.7(2)		Buildings built after 31/12/ 2020	For buildings built after 31 December 2020 (and with a building permit based on the NZEB norm): SCC of Section 7.1 apply and the '10% better than threshold value' criterion must be met to be considered SCC aligned.	✓				✓

**Legend**

	Available
	Available, many identified challenges
	Not Available
	Not Covered (yet)

\*As this point in time there is no central national database in the Netherlands, where major renovations (and if the underlying conditions are being met) are centrally registered ('geen afmeldplicht'). It is thus currently not possible to determine if the applicable requirements have been met, based on publicly available data.

\*\* Although no definition is provided in this version, a placeholder has been incorporated.

Table 7: Summary overview of the analysis performed by the EEM NL Hub working group.

## DEEMF Definition List

The defined terms (“Definitions Applied”) used in this DEEMF Definition List, to the extent applicable, conform to the standard published by the Energy Efficient Mortgages NL Hub.

However, certain deviations from the defined terms used in the DEEMF Definition List are denoted in the below as follows:

- 1) If the defined term is not applied by the user of the DEEMF Definition List, this is indicated by including the symbol ‘N/A’ in front of the relevant defined term.
- 2) If the user has added a defined term that is currently not included in the DEEMF Definition List, this is indicated by including the symbol ‘+’ in front of the relevant defined term and providing the definition as applied in the column ‘DEEMF Definition Applied’.
- 3) If the defined term deviates from the definition as recorded in the DEEMF Definitions List, this is indicated by including the symbol 'DIFF' in front of the relevant defined term and the alternative definition is presented in the column ‘DEEMF Definition Applied’ (where possible in track-changes from the original definition as included in the DEEMF Definition List).

Section	NACE	Substantial contribution to climate change mitigation of Annex I	Footnote
7.1 Construction of New Buildings	F41.1, F41.2, F43	<p>Constructions of new buildings for which:</p> <p>The Primary Energy Demand (PED)<sup>282</sup>, defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council<sup>283</sup>. The energy performance is certified using an as built Energy Performance Certificate (EPC).</p>	<p><sup>282</sup>: The calculated amount of energy needed to meet the energy demand associated with the typical uses of a building expressed by a numeric indicator of total primary energy use in kWh/m<sup>2</sup> per year and based on the relevant national calculation methodology and as displayed on the Energy Performance Certificate (EPC).</p> <p><sup>283</sup>: Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (OJ L 153, 18.6.2010, p. 13).</p>

### Section 7.1

	Term or key phrase	DEEMF Definition Applied
	<i>Primary Energy Demand (PED)</i>	<p>Primary energy demand expressed in kWh/m<sup>2</sup>/year on building unit level.</p> <p>EP-Online definition: Pand_primaire_fossiele_energie</p>
	<i>building</i>	<p>Any building unit meeting the categorisation of buildings as used in EP-Online combined with the metrics of Table 5.1A (“<i>bouwbesluit 2012</i>”) and a categorisation in building type (“<i>grondgebonden en niet-grondgebonden</i>”).</p> <p>See section <a href="#">building</a> for the (sub)-categorisation of building types.</p>
	<i>resulting from the construction</i>	<p>Up and until the construction is completed (so both before and during actual construction) we refer to the PED in the</p>

		permit application as recorded in EP-Online as Pand_primaire_fossiele_energie (status is (“vergunnings-aanvraag”)).
	is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council	<p>For houses (‘grondgebonden’ building units): The threshold value is defined as (Pand_eis_primaire_fossiele_energie) Which corresponds to 30 kWh/m<sup>2</sup> per year on building unit level in most cases<sup>45</sup>.</p> <p>For apartments (“niet-grondgebonden” building units): The threshold value is defined as (Pand_eis_primaire_fossiele_energie). Which corresponds to 50 kWh/m<sup>2</sup>/year per year on building level, in most cases.</p> <p>There are however, deviations possible for the threshold value. Possible deviations to the threshold value are incorporated per registration in the data field Pand_eis_primaire_fossiele_energie.</p> <p>the 10 % lower threshold can be checked by calculating if the <math>0.9 \times \text{Pand\_primaire\_fossiele\_energie} \leq \text{Pand\_eis\_primaire\_fossiele\_energie}</math> per building unit.</p>
	The energy performance is certified using an as built Energy Performance Certificate (EPC)	Before and during the construction phase, the ‘as built’ phrasing is interpreted as: how it will be built, according to the information available up and until the moment of completion (“oplevering”) of the building unit.

<sup>45</sup> Deviations to the NZEB threshold value are applicable in some cases as explained in the previous section.

Section	NACE	Substantial contribution to climate change mitigation of Annex I	Footnote
7.2 Renovation of Existing Buildings	F41, F43	The building renovation complies with the applicable requirements for major renovations. <sup>299</sup>  Alternatively, it leads to a reduction of primary energy demand (PED) of at least 30 %. <sup>300</sup>	<sup>299</sup> : As set in the applicable national and regional building regulations for ‘major renovation’ implementing Directive 2010/31/EU. The energy performance of the building or the renovated part that is upgraded meets cost-optimal minimum energy performance requirements in accordance with the respective directive.  <sup>300</sup> : The initial primary energy demand and the estimated improvement is based on a detailed building survey, an energy audit conducted by an accredited independent expert or any other transparent and proportionate method and validated through an Energy Performance Certificate. The 30 % improvement results from an actual reduction in primary energy demand (where the reductions in net primary energy demand through renewable energy sources are not taken into account) and can be achieved through a succession of measures within a maximum of three years.

### Section 7.2

	Term or key phrase	DEEMF definition
	<i>The building renovation complies with the applicable requirements for major renovations.</i>	No DEEMF definition available <sup>46</sup> .

### Section 7.2 Alternative

	Term or key phrase	DEEMF definition
	<i>alternatively</i>	Meaning instead of the other option, literally the <i>alternative</i> (in this context referring to the alternative Substantial Contribution Criteria for major renovations).
	<i>It leads to</i>	The economic activity, that is financed, in this case ‘renovation’ ultimately, will result in.
	<i>a reduction of primary energy demand (PED) of at least 30 %</i>	The BENG 2 indicator, expressed as kWh/m <sup>2</sup> /year on building unit level is reduced by at least 30% as a result of the renovation.
	<i>The initial primary energy demand</i>	The prime energy demand before the economic activity of renovation is carried out (pre-renovation).
	<i>Renewable energy sources</i>	Renewable energy sources are items that are eligible in section 7.6 ‘Installation, maintenance and repair of renewable energy technologies’ of the Climate Delegated Act.

<sup>46</sup> Although the linguistic decomposition and interpretation of key words & phrases of Major Renovation are given, we currently do not have a DEEMF definition as we cannot give guidance on application 2 (with respect to data and identification).

		<p>These items include (as taken from Section 7.6 of the CDA):</p> <ul style="list-style-type: none"> <li>• photovoltaic systems</li> <li>• solar hot water panels</li> <li>• heat pumps contributing to the targets for renewable energy in heat and cool<sup>47</sup></li> <li>• solar transpired collectors</li> <li>• thermal or electric energy storage units</li> <li>• high efficiency micro CHP (combined heat and power) plant</li> <li>• heat exchanger/recovery systems</li> </ul>
	<p><i>The 30 % improvement results from an actual reduction in primary energy demand (where the reductions in net primary energy demand through renewable energy sources are not taken into account).</i></p>	<p>The energy efficiency improvement of 30% expressed as a reduction in net PED must be the result of measures that are not regarded as improvements to the building unit, resulting from renewable energy sources.</p> <p>Broadly two cases can be distinguished:</p> <ul style="list-style-type: none"> <li>• <b>Renovation where energy efficiency improvements are made without any ‘renewables energy sources’:</b> the BENG 2 score (post-renovation) must be lower than 0.7 x BENG 2 score (pre-renovation).</li> <li>• <b>Renovation where energy efficiency improvements are made that include ‘renewables energy sources’:</b> in this case it is not possible to ascertain that the PED (BENG 2 score) reduction is based on ‘<i>reductions in net primary energy demand through renewable energy sources are not taken into account</i>’.</li> </ul> <p>The post-renovation EPC report lists the ‘overall’ share of renewables (BENG 3) and the total BENG 2 score of the property. No (net) difference in PED compared to pre-renovation energy performance calculation is included in the post-renovation EPC.</p> <p>Moreover, it is not possible, based on the actual EPC document or the information in EP-Online to attribute the changes to the BENG 2 or BENG 3 scores to individual measures.</p>
	<p><i>Estimated improvement is based on a detailed building survey, an energy audit conducted by an accredited independent expert or any other transparent and proportionate method</i></p>	<p>An independent energy audit (both pre- and post-renovation), carried out by an accredited EPC advisor is, at this stage, the only NEA backed methodology (based on NTA 8800 methodology) to calculate the (net) PED of a property.</p>
	<p><i>And validated through an Energy Performance Certificate</i></p>	<p>Based on the wording ‘validated’ and the need for a ‘Certificate’, the conclusion is that post-renovation, an energy performance must be carried out according to the NTA 8800 methodology to determine the PED of the property after the renovation.</p>

<sup>47</sup> in accordance with Directive (EU) 2018/2001

	And can be achieved through a succession of measures within a maximum of three years	<p>The economic activity that is being financed should be achieved within three years of commencing the economic activity.</p> <p>Not all the work has to be carried out all at once, it can be achieved via a succession of (multiple) measures, within the given time span of three years.</p>
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Section 7.7(1)

<b>Substantial contribution to climate change mitigation of Annex I</b>
<p>For buildings built before 31 December 2020, the building has at least an Energy Performance Certificate (EPC) class A.</p> <p>As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.<sup>48</sup></p>

	<b>Term or key phrase</b>	<b>DEEMF definition</b>
	<i>building</i>	Any building unit meeting the categorisation of buildings as used in EP-Online combined with the metrics of Table 5.1A (“ <i>bouwbesluit 2012</i> ”) and a categorisation in building type (“ <i>grondgebonden en niet-grondgebonden</i> ”).
	<i>Built before 31 December 2020</i>	<p>The construction of the building unit has been completed before 31 December 2020</p> <p>or</p> <p>The construction of the building unit is completed after 31 December 2020 but the building permit application is dated (submitted) before 31 December 2020.</p>
	<i>Energy Performance Certificate</i>	<p><b>Energy Performance Certificate (EPC):</b> a document or digital record describing the energy performance of the building(unit).</p> <p>A <b>certificate</b> should be present with a valid validity date, irrespective of the methodology.</p>
	<i>Energy Performance Certificate (EPC) class A</i>	<p>Irrespective of the EPC methodology all valid Energy Performance Certificates with any of the following values (A, A+, A++, A+++, A++++).</p> <p>Note that all EPCs Class A with a valid certificate or registration in EP-Online are deemed eligible, this including those based on older (legacy) EPC methodologies.</p>

<sup>48</sup> Analysis by the EEM NL Hub working group of this paragraph of Section 7.7 is still on-going and therefore a temporary placeholder has been insert as the DEEMF definition. We expect to incorporate this in the next version of the DEEMF.

Section 7.7(1) Alternative

	Term or key phrase	DEEMF definition
	As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.	No DEEMF definition available <sup>49</sup> .

Section 7.7(2)

Substantial contribution to climate change mitigation of Annex I
For buildings built after 31 December 2020, the building meets the criteria specified in Section 7.1 of this Annex that are relevant at the time of the acquisition.

	Term or key phrase	DEEMF definition
	<i>building</i>	Any building unit meeting the categorisation of buildings as used in EP-Online combined with the metrics of Table 5.1A ( <i>'bouwbesluit 2012'</i> ) and a categorisation in building type ( <i>"grondgebonden en niet-grondgebonden"</i> ).
	<i>Built after 31 December 2020</i>	The building permit application is dated (submitted) after 31 December 2020;  And  The construction of the building has been completed after 31 December 2020.
	<i>Meets the criteria specified in Section 7.1</i>	The DEEMF criteria of <a href="#">TSC SCC 7.1 Construction of New Buildings</a> to be complied with.

<sup>49</sup> Analysis by the EEM NL Hub working group of this paragraph of Section 7.7 is still on-going and therefore a temporary placeholder has been insert as the DEEMF definition. We expect to incorporate this in the next version of the DEEMF.

## Annexes

### EP-Online Legend

Category	Field	English Translation	Datatype
Timestamp	Pand_opnamedatum	Date of recording property Information	Date
Methodology & Status	Pand_opnametype	Property Measurement type	Text
	Pand_status	Property Status	Text
	Pand_berekeningstype	Property Calculation Method	Varchar
	Pand_energieprestatieindex	Property Energy Performance Index	Int
	Pand_energieklasse	Property Energy Class	Varchar
	Pand_energielabel_is_privé	Property Energy Label is Private	Int
	Pand_is_op_basis_van_referentie_gebouw	Property is based on reference building	Int
	Pand_gebouwklasse	Property building class	Varchar
	Meting_geldig_tot	Registration valid untill	Date
	Pand_registratiedatum	Registration date	Date
Building (unit) identification	Pand_postcode	Postal Code	Varchar
	Pand_huisnummer	House Number	Int
	Pand_huisnummer_toev	House Number addition	Varchar
	Pand_detailaanduiding	Detailed designation	Varchar
	Pand_bagverblijfsobjectid	ID in BAG (municipal administration system)	Int
	Pand_bagligplaatsid	ID in BAG (municipal administration system)	Int
	Pand_bagstandplaatsid	ID in BAG (municipal administration system)	Int
	Pand_bagpandid	ID in BAG (municipal administration system)	Int
	Pand_gebouwtype	Building type	Varchar
	Pand_gebouwsubtype	Building subtype	text
	Pand_projectnaam	Project Name	Varchar
	Pand_projectobject	Project Object	Varchar
	Pand_SBIcode	SBI Code	Varchar
Energy Performance Metrics and Thermal Properties	Pand_gebruiksoppervlakte	Square footage area in m <sup>2</sup>	Int
	Pand_energiebehoefte	Energy demand (BENG1)	Int
	Pand_eis_energiebehoefte	Energy demand (BENG1) threshold	Int
	Pand_primaire_fossiele_energie	Prime Fossil Energy demand (BENG2)	Int
	Pand_eis_primaire_fossiele_energie	Prime Fossil Energy demand (BENG2) threshold	Int
	Pand_primaire_fossiele_energie_EMG_forfaitair	Prime Fossil Energy demand forfaitair	Int
	Pand_aandeel_hernieuwbare_energie	Energy demand (BENG3)	Int
	Pand_eis_aandeel_hernieuwbare_energie	Energy demand (BENG3) threshold	Int
	Pand_aandeel_hernieuwbare_energie_EMG_forfaitair	Energy demand (BENG3) forfaitair	Int
	Pand_temperatuuroverschrijding	ToJuli - Heating Exceedance	Int
	Pand_eis_temperatuuroverschrijding	ToJuli - Heating Exceedance Threshold	Int
	Pand_warmtebehoefte	Heat Demand	Int
	Pand_forfaitaire	Property forfaitaire	Int

Table 8: EP-Online legend.

## Relevant EP-Online data for SCC

The table below summarizes relevant EP-Online data fields for the SCC of sections 7.1, 7.2 and 7.3. We have highlighted the relevant fields in orange and where applicable the relevant (data or domain) selection filter.

Category	Field	EUT SCC 7.1	EUT SCC 7.2	EUT SCC 7.7
Methodology & Status	Pand_opnametype			
	Pand_status	Bestaand & Vergunningsaanvraag	Bestaand	Bestaand
	Pand_berekeningstype	NTA-8800 (detailopname woningbouw)		
	Pand_energieprestatieindex			
	Pand_energieklasse	A++++ or A+++		
	Pand_energielabel_is_privé			
	Pand_is_op_basis_van_referentie_gebouw			
	Pand_gebouwklasse	W	W	W
	Meting_geldig_tot	✓	✓	✓
	Pand_registratiedatum			
Building (unit) identification	Pand_postcode	✓	✓	✓
	Pand_huisnummer	✓	✓	✓
	Pand_huisnummer_toev	✓	✓	✓
	Pand_detailaanduiding	✓		
	Pand_bagverblijfsobjectid	✓		
	Pand_bagligplaatsid	✓		
	Pand_bagstandplaatsid	✓		
	Pand_bagpandid	✓		
	Pand_gebouwtype	✓		
	Pand_gebouwsubtype	✓		
	Pand_projectnaam	✓		
	Pand_projectobject	✓		
	Pand_SBIcode	✓		
Energy Performance Metrics and Thermal Properties	Pand_gebruiksoppervlakte			
	Pand_energiebehoefte			
	Pand_eis_energiebehoefte			
	Pand_primaire_fossiele_energie	✓	✓	
	Pand_eis_primaire_fossiele_energie	✓		
	Pand_primaire_fossiele_energie_EMG_forfaitair	✓		
	Pand_aandeel_hernieuwbare_energie		✓	
	Pand_eis_aandeel_hernieuwbare_energie			
	Pand_aandeel_hernieuwbare_energie_EMG_forfaitair			
	Pand_temperatuuroverschrijding			
	Pand_eis_temperatuuroverschrijding			
	Pand_warmtebehoefte			
Pand_forfaitaire				

Table 9: Relevant EP-Online data.

## Relevant mortgage (servicing) data for SCC

The table below summarises relevant ‘traditional’ mortgage data fields for the SCC of sections 7.1, 7.2 and 7.3.

Typical field name (or description)	Field name in Dutch	EUT	EUT	EUT
		SCC 7.1	SCC 7.2	SCC 7.7
Collateral address or alternative identifiers (for new construction(s))	<i>("Identificatievelden onderpand")</i>	✓	✓	✓
Timestamp or batch identification	<i>("periode aanduiding")</i>	✓	✓	✓
Building date	<i>("start bouwjaar")</i>	✓	✓	✓
Date of (application for) building permit	<i>("datum aanvraag / afgifte vergunningsaanvraag")</i>	✓	✓	✓
Start date of loan	<i>("ingansdatum")</i>	✓	✓	✓
Notional Balance	<i>("hoofdsom")</i>	✓	✓	✓
Current Balance	<i>("netto schuldrest")</i>	✓	✓	✓
Drawn (building) depot amounts	<i>("getrokken bouwdepot(s)")</i>	✓	✓	✓
Description of energy efficient improvement measure	<i>("(detail) beschrijving werkzaamheden")</i>		✓	✓
Measure in line with EBV or EBB	<i>("maatregel in lijn met EBB / EBV")</i>		✓	✓

Table 10: Relevant mortgage servicing data.

## EP-Online data availability

The table below indicates the data availability in EP-Online for differing energy performance methodologies

	EP	EPA	ISSO75.3, versie 3.0, oktober 2011	ISSO82.3, versie 3.0, oktober 2011	Nader Voorschrift, versie 1.0, 1 februari 2014 met errata tussj d d 03-11-201	Nader Voorschrift, versie 1.0, 1 februari 2014 met errata tussj d d 03-11-2018	NEN 7120+C2:2012/C3:2013	NEN 7120+C2:2012/C3:2013/C4,C5:2015	NEN 7120+C2:2012/C3:2013/C4,C5:2015, addendum 1 juli 2018	NTA-8800 (basisopname woningbouw)	NTA-8800 (detailopname woningbouw)	Rekenmethodiek Definitief Energielabel, versie 1.2, 16 september 2014
<b>Pand_berekeningstype</b>	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_opnamedatum	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_opnametype	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_status	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_energieindex	Available	Available	Available	Available	Available	Available	Available	Available	Available	Never Available	Never Available	Never Available
Pand_energieklasse	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_energieklasse_is_prime	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_is_op_basis_van_referentie_gebouw	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_gebouwklaas	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Meting_geldig_tot	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_registratiedatum	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_postcode	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_huisnummer	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_huisnummer_toev	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_detailaanduiding	Available	Available	Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Available	Never Available
Pand_bagverbljfsobjectid	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Pand_bagligplaatsid	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_bagstandplaatsid	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_bagpandid	Available	Available	Available	Available	Available	Available	Never Available	Available	Available	Available	Available	Available
Pand_gebouwtype	Available	Available	Never Available	Available	Available	Available	Never Available	Never Available	Never Available	Available	Available	Available
Pand_gebouwsuatype	Available	Available	Never Available	Available	Available	Available	Never Available	Never Available	Never Available	Available	Available	Available
Pand_projectnaam	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_projectobject	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_gblcode	Available	Available	Available	Never Available	Never Available	Never Available	Available	Available	Available	Never Available	Never Available	Never Available
Pand_gebruiksoppervlakte	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_energiebehoefte	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_eis_energiebehoefte	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_primaire_fossiele_energie	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_eis_primaire_fossiele_energie	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_primaire_fossiele_energie_EMG_forfaitair	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_aandeel_hernieuwbare_energie	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_eis_aandeel_hernieuwbare_energie	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_aandeel_hernieuwbare_energie_EMG_forfaitair	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_temperatuuroverschrijding	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_eis_temperatuuroverschrijding	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_warmtebehoefte	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Never Available	Available	Available	Never Available
Pand_energieindex_met_EMG_forfaitair	Available	Available	Available	Available	Available	Available	Available	Available	Available	Never Available	Never Available	Never Available

Table 11: EP-Online data availability for differing energy performance methodologies.

The table below indicates the data availability in EP-Online for NTA 8800 EPCs across different “pand statuses”.

A filter has been applied for: *Pand\_berekeningstype = “NTA-8800 (detailopname woningbouw)”*

Pand_status	Bestaand	Oplevering	Vergunningsaanvraag
Pand_opnamedatum	Available	Available	Available
Pand_opnametype	Available	Available	Available
Pand_energieindex	Never Available	Never Available	Never Available
Pand_energieklasse	Available	Available	Available
Pand_energielabel_is_privé	Available	Available	Available
Pand_is_op_basis_van_referentie_gebouw	Available	Available	Available
Pand_gebouwklasse	Available	Available	Available
Meting_geldig_tot	Available	Available	Available
Pand_registratiedatum	Available	Available	Available
Pand_postcode	Available	Available	Available
Pand_huisnummer	Available	Available	Available
Pand_huisnummer_toev	Available	Available	Available
Pand_detailaanduiding	Available	Available	Never Available
Pand_bagverblijfsobjectid	Available	Available	Available
Pand_bagligplaatsid	Never Available	Never Available	Available
Pand_bagstandplaatsid	Never Available	Never Available	Available
Pand_bagpandid	Available	Available	Available
Pand_gebouwtype	Available	Available	Available
Pand_gebouwsubtype	Available	Available	Available
Pand_projectnaam	Never Available	Never Available	Available
Pand_projectobject	Never Available	Never Available	Available
Pand_SBIcode	Never Available	Never Available	Never Available
Pand_gebruiksoppervlakte	Available	Available	Available
Pand_energiebehoefte	Available	Available	Available
Pand_eis_energiebehoefte	Never Available	Available	Available
Pand_primaire_fossiele_energie	Available	Available	Available
Pand_eis_primaire_fossiele_energie	Never Available	Available	Available
Pand_primaire_fossiele_energie_EMG_forfaitair	Available	Available	Available
Pand_aandeel_hernieuwbare_energie	Available	Available	Available
Pand_eis_aandeel_hernieuwbare_energie	Never Available	Available	Available
Pand_aandeel_hernieuwbare_energie_EMG_forfaitair	Available	Available	Available
Pand_temperatuuroverschrijding	Available	Available	Available
Pand_eis_temperatuuroverschrijding	Never Available	Available	Available
Pand_warmtebehoefte	Available	Available	Available
Pand_energieindex_met_EMG_forfaitair	Never Available	Never Available	Never Available

Table 12: data availability in EP-Online for NTA 8800 EPCs – detailopname woningbouw.

The table below indicates the data availability in EP-Online for NTA 8800 EPCs across different “pand statussen” when a distinction is made between houses and apartments (“grondgebonden vs. niet-grondgebonden”)

Pand_status	Niet Grondgebonden		Grondgebonden	
	Oplevering	Vergunningsaanvraag	Oplevering	Vergunningsaanvraag
Pand_opnamedatum	Available	Available	Available	Available
Pand_opnametype	Available	Available	Available	Available
Pand_energieindex	Never Available	Never Available	Never Available	Never Available
Pand_energieklasse	Available	Available	Available	Available
Pand_energielabel_is_privé	Available	Available	Available	Available
Pand_is_op_basis_van_referentie_gebouw	Available	Available	Available	Available
Pand_gebouwklasse	Available	Available	Available	Available
Meting_geldig_tot	Available	Available	Available	Available
Pand_registratiedatum	Available	Available	Available	Available
Pand_postcode	Available	Available	Available	Available
Pand_huisnummer	Available	Available	Available	Available
Pand_huisnummer_toev	Available	Available	Available	Available
Pand_detailaanduiding	Never Available	Never Available	Available	Never Available
Pand_bagverblijfsobjectid	Available	Never Available	Available	Available
Pand_bagligplaatsid	Never Available	Available	Never Available	Never Available
Pand_bagstandplaatsid	Never Available	Never Available	Never Available	Never Available
Pand_bagpandid	Available	Never Available	Available	Available
Pand_gebouwtype	Available	Available	Available	Available
Pand_gebouwsubtype	Available	Available	Never Available	Never Available
Pand_projectnaam	Never Available	Available	Never Available	Available
Pand_projectobject	Never Available	Available	Never Available	Available
Pand_SBlcode	Never Available	Never Available	Never Available	Never Available
Pand_gebruiksoppervlakte	Available	Available	Available	Available
Pand_energiebehoefte	Available	Available	Available	Available
Pand_eis_energiebehoefte	Available	Available	Available	Available
Pand_primaire_fossiele_energie	Available	Available	Available	Available
Pand_eis_primaire_fossiele_energie	Available	Available	Available	Available
Pand_primaire_fossiele_energie_EMG_forfaitair	Available	Available	Available	Available
Pand_aandeel_hernieuwbare_energie	Available	Available	Available	Available
Pand_eis_aandeel_hernieuwbare_energie	Available	Available	Available	Available
Pand_aandeel_hernieuwbare_energie_EMG_forfaitair	Available	Available	Available	Available
Pand_temperatuuroverschrijding	Available	Available	Available	Available
Pand_eis_temperatuuroverschrijding	Available	Available	Available	Available
Pand_warmtebehoefte	Available	Available	Available	Available
Pand_energieindex_met_EMG_forfaitair	Never Available	Never Available	Never Available	Never Available

Table 13: data availability in EP-Online for NTA 8800 EPCs – grondgebonden vs. niet-grondgebonden.

## DNSH overview

The table below summarises the differing DNSH criteria per economic activity of section 7 of the CDA.

Economic Activity vs DNSH Screening Criteria	(2) Climate change adaptation	(3) Sustainable use and protection of water and marine resources	(4) Transition to a circular economy	(5) Pollution prevention and control	(6) Protection and restoration of biodiversity and ecosystems
7.1 Construction of new buildings	The physical climate risks that are material to the activity have been identified by performing a Robust climate risk and vulnerability assessment	Where installed, except for installations in residential building units, the specified water use for the following water appliances are attested by product datasheets	At least 70 % (by weight) of the non-hazardous construction and demolition waste generated on the construction site is prepared for reuse, recycling and other material recovery.  Compliance with EU Construction and Demolition Waste Management Protocol  Building designs and construction techniques support circularity --> ISO 20887:2020, Sustainability in buildings and civil engineering works	Building components and materials used in the construction comply with Appendix C: Generic criteria for DNSH pollution prevention.  A set of Building components and material emission standards in line with (EC) No 1907/2006	An Environmental Impact Assessment (EIA) or screening has been completed in accordance with Directive 2011/92/EU.  The new construction is not built on one of the following: (a) arable land and crop land with a moderate to high level of soil fertility (b) The land is not on the IUCN European Red List of Threatened Species (c) land matching the definition of forest as set out in national law used in the national greenhouse gas inventory
7.2 Renovation of existing buildings	Idem 7.1	Idem 7.1	Idem 7.1	Idem 7.1	Idem 7.1
7.3 Installation, maintenance and repair of energy efficiency equipment	Idem 7.1	N/A	N/A	Building components and materials used in the construction comply with Appendix C: Generic criteria for DNSH pollution prevention.	N/A
7.4 Installation, maintenance and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings)	Idem 7.1	N/A	N/A	N/A	N/A
7.5 Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings	Idem 7.1	N/A	N/A	N/A	N/A
7.6 Installation, maintenance and repair of renewable energy technologies	Idem 7.1	N/A	N/A	N/A	N/A
7.7 Acquisition and ownership of buildings	Idem 7.1	N/A	N/A	N/A	N/A

Table 14: DNSH overview Section 7 of the CDA.

## Abbreviations and Legislative References

### Abbreviations

Abbreviation	Meaning
BENG	Dutch framework wherein NZEB is established: Bijna Energie Neutraal Gebouw
BENG 1	Bijna Energie Neutraal Gebouw (BENG) indicator of total energy demand
BENG 2	Bijna Energie Neutraal Gebouw (BENG) indicator of the primary (fossil) energy demand
BENG 3	Bijna Energie Neutraal Gebouw (BENG) indicator of share of energy demand obtained from renewable sources
BTAR	Banking book Taxonomy Aligned Ratio
CDA	Climate Delegated Act – As part of the EU Taxonomy Regulation
CMPR	Capital Markets Recovery Package
CO <sub>2</sub> emissions	Carbon Dioxide emissions
CSV	Comma-separated values
DDA	Disclosure Delegated Act – As part of the EU Taxonomy Regulation
DEEMF	Dutch Energy Efficient Mortgage Framework
DNSH	Do No Significant Harm
EBA	European Banking Authority
EBB	Energiebespaarbudget
EBV	Energiebesparende voorzieningen
EC	European Commission
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
EEM NL Hub	The Energy Efficient Mortgage Netherlands Hub
EPBD III	Directive amending the Energy Performance of Buildings Directive (2018/844/EU)
EPBD IV	Proposed revision of the EPBD III (COM(2021) 802 final)
EP-Online	A public database with EPCs and other sustainability data per property, maintained by the NEA
ESA	European Supervisory Authorities
ESMA	European Securities and Markets Authority
EU	European Union
EUT	EU Taxonomy Regulation
GAR	Green Asset Ratio
GHG emissions	Green House Gas emissions
GWh	Gigawatt Hours
ID	Identifier
JC	Joint Committee of the European Supervisory Authorities
KPI	Key Performance Indicator
LtV	Loan to Value – A common risk metric for mortgage Loans
NACE	Nomenclature statistique des Activités économiques dans la Communauté Européenne – A widely used statistical classification of economic activities in the European Community
NEA	Netherlands Enterprise Agency – Also known in the Netherlands as “Rijksdienst voor Ondernemend Nederland” (RVO)
NECP	National energy and climate plans. EU countries’ 10-year national energy and climate plans for 2021-2030.

NEN 7120	Energy Performance of Buildings measurement standard in the Netherlands. Effective until 31 December 2020 (and replaced by NTA 8800) as at that date.
NFRD	Non-financial Reporting Directive
NTA 8800	“ <i>Nederlands Technische Afspraak</i> ” (NTA 8800) is the most recent Dutch legal method to determine the energy performance of a building (unit).
NZEB	Nearly Zero Energy Building - A term mentioned in the EPBD III. Means BENG in Dutch regulation (see above).
OECD	Organisation for Economic Co-operation and Development
PAI indicators	Principal Adverse Impact indicators
PED	Primary Energy Demand
RTS	Regulatory Technical Standards
SCC	Substantial Contribution Criteria
SFAP	Sustainable Finance Action Plan
SFDR	Sustainable Finance Disclosure Regulation
SMEs	Small and Medium-sized Enterprises
STS securitisations	Simple, Transparent and Standardised Securitisations
TSC	Technical Screening Criteria
UNGC	United Nations Global Compact
XML	Extensible Markup Language
ZEB	Zero Energy Building - A term mentioned in the EPBD IV recast

## EU Legislative References

Securitisation Regulation	Regulation (EU) 2017/2402 of the European Parliament and of the Council of 12 December 2017 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation, and amending Directives 2009/65/EC, 2009/138/EC and 2011/61/EU and Regulations (EC) No 1060/2009 and (EU) No 648/2012 (OJ L 347, 28.12.2017, p. 35)
CMRP (Capital Markets Recovery Package CMRP)	Regulation (EU) 2021/557 of the European Parliament and of the Council of 31 March 2021 amending Regulation (EU) 2017/2402 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation to help the recovery from the COVID-19 crisis (OJ L 116, 6.4.2021)
SFDR (Sustainable Finance Disclosure Regulation SFDR)	Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (OJ L 317, 9.12.2019, p. 1)
NFRD (Non-financial Reporting Directive)	Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups (OJ L 330, 15.11.2014, p. 1)
Taxonomy Regulation	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 investment, and amending Regulation (EU) 2019/2088 (OJ L 198, 22.6.2020, p. 13)
Delegated Regulation supplementing The Taxonomy Regulation	Commission Delegated Regulation (EU) 2021/2178 of 6 July 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by specifying the content and presentation of information to be disclosed by undertakings subject to Articles 19a or 29a of Directive 2013/34/EU concerning environmentally sustainable economic activities, and specifying the methodology to comply with that disclosure obligation (OJ L 443, 10.12.2021, p. 9)
The Climate Delegated Act	Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives (OJ L 442, 9.12.2021, p. 1).
EURO 6 Regulation	Commission Regulation (EU) No 459/2012 of 29 May 2012 amending Regulation (EC) No 715/2007 of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 6) (OJ L 142, 1.6.2012, p. 16)
Draft EU Battery Regulation	Proposal for a Regulation of the European Parliament and of the Council concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020, COM/2020/798 final.

Draft SFDR RTS	Final Report on draft Regulatory Technical Standards with regard to the content and presentation of disclosures pursuant to Article 8(4), 9(6) and 11(5) of Regulation (EU) 2019/2088 (JC 2021 50) published 22 October 2021
ESMA's disclosure RTS	Commission Delegated Regulation (EU) 2020/1224 of 16 October 2019 supplementing Regulation (EU) 2017/2402 of the European Parliament and of the Council with regard to regulatory technical standards specifying the information and the details of a securitisation to be made available by the originator, sponsor and SSPE (OJ L 289, 3.9.2020, p. 1)
The Securitisation Disclosure ITS	Commission Implementing Regulation (EU) 2020/1225 of 29 October 2019 laying down implementing technical standards with regard to the format and standardised templates for making available the information and details of a securitisation by the originator, sponsor and SSPE (OJ L 289, 3.9.2020, p. 217)
The ESMA founding Regulation	Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC (OJ L 331, 15.12.2010, p. 84)
The EBA founding Regulation	Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC (OJ L 331, 15.12.2010, p. 12)
The EIOPA founding Regulation	Regulation (EU) No 1094/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Insurance and Occupational Pensions Authority), amending Decision No 716/2009/EC and repealing

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