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National plan for increasing the number of nearly zero-energy buildings in Hungary

National plan for increasing the number of nearly zero-energy buildings in Hungary

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1 Starting point

Please give a short overview of your national building stock. Describe the most important characteristics and emerging needs. Additionally, illustrate the chronological development of national requirements on the energy performance of buildings (for an example, see guidance document)

Hungary have no accurate statistical data about her building stock.

See the last estimation for buildings, using energy for heating (based on the Hungarian building energetic strategy):

Room floor area m2	
family houses	*252 165 728,55*
appartman	*108 225 334,50*
health care facilities	*46 727 718,00*
officies	*46 735 750,00*
retail	*23 738 400,00*
cultural	*29 877 730,00*
educational	*43 636 226,00*

Approximately 20-30% is refurbished or built after 2006.

2 application of the definition of nearly zero-energy buildings

Please indicate how a nearly zero-energy building is defined within national context and explain underlying assumptions and factors that provide the rationale for the chosen definition.

For reporting the detailed application in practice of the definition of nearly zero-energy buildings, the table presented in the Annex is to be used.

Buildings must be more efficient than cost-optimal level and using at least 25% of renewable energy. (Hungary have detailed demands U-value, q-value Ep–values for the cost-optimal level.)

If a national definition of nearly zero-energy buildings does not exist yet in your country, please indicate here whether precise plans are already under development and if so, please describe these plans. Please also describe if any currently used non-governmental definitions will be considered in these plans and/or a future directive.

There is no Governmental decision. Plans:
Dwellings

requirements for specific annual consumption in primery energy

floor level	kWh/m^{2}a
1	75
2	65
3 és 4	55
5 or more	50

Office (B)

requirements for specific annual consumption in primery energy

floor level	kWh/m^{2}a
1	102
More then one	85

Educational buildings (schools, nurseries, kindergardens, secondary schools, etc)

requirements for specific annual consumption in primery energy

floor level	kWh/m^{2}a
1	60
More then one	50

3 Intermediate targets for improving the energy performance of new buildings in order to ensure that by 31 December 2020 all new buildings are nearly zero-energy buildings

Please report the 2015 targets ensuring that by 31 December 2020 all new buildings are nearly zero-energy buildings. Also explain how they relate to and help to ensure that all new buildings are nearly zero-energy buildings by 31 December 2020.

What are the qualitative and quantitative 2015 targets for all new buildings?

3.1.1 Qualitative 2015 targets: Interim energy related requirements for new residential and non-residential buildings

Requirements on fraction of renewable energies:
25%

Requirements on useful energy demand:
The targets are not accepted by the government.

Requirements on primary energy demand:
The targets are not accepted by the government.

3.1.2 Quantitative 2015 targets: Share of nZEB according to official nZEB definition on all newly constructed buildings (define reference parameter e.g. number of buildings, floor area, volume etc.):

Miscellaneous:

From your point of view, how close is your country at the moment in achieving this target? In case there is no target defined yet, please indicate when it is expected to have such a target.

When the national building energy strategy is accepted by the government.

4 Intermediate targets for improving the energy performance of new buildings in order to ensure that by 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings

Please report here the 2015 targets ensuring that by 31 December 2018 all new public buildings are nearly zero-energy buildings. Also explain how they relate to and help to achieve that by 31 December 2018, all new public buildings are nearly zero-energy buildings

What are the qualitative and quantitative 2015 targets for all new buildings occupied and owned by public authorities?

4.1.1 Qualitative 2015 targets: Interim energy related requirements for new public buildings

Requirements on fraction of renewable energies:
25%

Requirements on useful energy demand:
The targets are not accepted by the government.

Requirements on primary energy demand:
The targets are not accepted by the government.

4.1.2 Quantitative 2015 targets: Share of public nZEB according to official nZEB definition on all newly constructed public buildings (define reference parameter e.g. number of buildings, floor area, volume etc.):

Miscellaneous:

From your point of view, how close is your country at the moment in achieving this target? In case there is no target defined yet, please indicate when it is expected to have such a target.

When the national building energy strategy is accepted by the government.

5 Policies and measures for the promotion of all new buildings being nearly zero-energy buildings after 31 December 2020

5.1	**Residential buildings**
5.1.1	Relevant regulations: Yes
5.1.2	Relevant economic incentives and financing instruments: No
5.1.3	Energy performance certificates' use and layout in relation to nZEB standard: Not yet.
5.1.4	Supervision (energy advice and audits): Not yet.
5.1.5	Information (tools): Yes
5.1.6	Demonstration: Yes
5.1.7	Education and training: Yes
5.2	**Non-residential buildings**
5.2.1	Relevant regulations: Yes
5.2.2	Relevant economic incentives and financing instruments: No
5.2.3	Energy performance certificates' use and layout in relation to nZEB standard: Not yet
5.2.4	Supervision (energy advice and audits) Not yet
5.2.5	Information (tools) Yes
5.2.6	Demonstration Yes
5.2.7	Education and training Yes
5.3	From your point of view, how would you evaluate the current measures that are in force? Please also try to describe the existing gap between what is in force and what should be in force in order to ensure that after 31 December 2020, all new buildings are nearly zero-energy buildings. Are there precise measures planned for the future?
It will be visible only after the decision on National Building Energy Strategy	

6 Policies and measures for the promotion of all new buildings occupied and owned by public authorities being nearly zero-energy buildings after 31 December 2018

6.1	**All new buildings occupied and owned by public authorities**
6.1.1	Relevant regulations Yes
6.1.2	Relevant economic incentives and financing instruments No
6.1.3	Energy performance certificates' use and layout in relation to nZEB standard Not yet
6.1.4	Supervision (energy advice and audits) Not yet
6.1.5	Information (tools) Yes
6.1.6	Demonstration Yes
6.1.7	Education and training Yes

6.2	From your point of view, how would you evaluate the current measures that are in force? Please also describe the existing gap between what is in force and what should be in force in order to ensure that after 31 December 2018, all new public buildings are nearly zero-energy buildings. Are there precise measures planned for the future?
Using the existing electric energy performance certification system.	

7 Policies and measures for the promotion of existing buildings undergoing major renovation being transformed to nearly zero-energy buildings

7.1 Residential buildings
7.1.1 Relevant regulations: Only recommendation.
7.1.2 Relevant economic incentives and financing instruments Not yet.
7.1.3 Energy performance certificates' use and layout in relation to nZEB standard No
7.1.4 Supervision (energy advice and audits) Not yet.
7.1.5 Information (tools) Yes
7.1.6 Demonstration Yes
7.1.7 Education and training Yes
7.2 Non-residential buildings
7.2.1 Relevant regulations Only recommendation.
7.2.2 Relevant economic incentives and financing instruments Not yet
7.2.3 Energy performance certificates' use and layout in relation to nZEB standard No
7.2.4 Supervision (energy advice and audits) Not yet
7.2.5 Information (tools) Yes
7.2.6 Demonstration Yes
7.2.7 Education and training Yes
7.3 From your point of view, how would you evaluate the current measures that are in force? Please also try to describe the existing gap between what is in force and what should be in force in order to stimulate the transformation of buildings that are refurbished into nZEB. Are there precise measures planned for the future?
Not necessary, but possible with the existing electric energy performance certification system.

8 Additional Information

Please fill in any additional information on actions taken to increase the number of nearly zero-energy buildings in your country.

9 Possible improvements

Where do you see most room for improvement in order to increase the number of nearly zero-energy buildings in your country? Please also try to give examples for appropriate measures.

New retail and office buildings.
The building qualification systems are motivating high energy performance buildings in the office sector.

There is a plan to pre-qualifies every new retail building that have greater floor are than 400 m2. Environmental aspects like energy consumption is going to be analysed in the prequalification process. This is going to motivate high energy performance retail buildings.

Annex- Definition of nZEB

1. General Information		
Country	Hungary	
Name of regulation ,directive, certification scheme	7/20006 (IV 24.) TNM degree	
Editor of regulation, directive, certification scheme	Ministry of Interior	
Year of introduction of current version	2012	2014
benchmark of current version (Select one)	○ Energy Autonomous building ○ Net zero energy buildings ◉ Nearly zero energy buildings ○ Other ○ Efficient buildings ○ Plus energy buildings ○ Zero energy buildigns	
Integration and consideration in national directive	Please add explanation/ comment/ source will be considerd	
2. Field of Application		
2.1 Building category **Select one and describe right is this typology included in the directive? Are special requirements or exceptions defined for this typology?** **If more than one definition exists, you can duplicate this appendix for each of them.**		
Member States shall ensure that all new buildings are nearly zero- energy buildings by 31 December 2020 respectively after 31 December 2018 (occupied and owned by public authorities). For the purpose of the calculation buildings should be adequately classified into the [...] categories. References: EPBD article 9.1a/b, EPBD Annex I.		
Category ○ Residential ○ Non-residential ◉ Residential and Non-residential		Please add explanation/ comment/ source
single family houses	included in the directive	Please add explanation/ comment/ source
apartment blocks	included in the directive	Please add explanation/ comment/ source
Offices	included in the directive	Please add explanation/ comment/ source
educational buildings	included in the directive	Please add explanation/ comment/ source
hospitals	included in the directive	Please add explanation/ comment/ source
hotels and restaurants	included in the directive	Please add explanation/ comment/ source
sports facilities	included in the directive	Please add explanation/ comment/ source
wholesale and retail trade service buildings	included in the directive	Please add explanation/ comment/ source
other types of energy-consuming buildings	included in the directive	Please add explanation/ comment/ source
2.2 New/retrofit buildings **Select one and describe right. If more than one definition exists, you can duplicate this appendix for each of them.**		
New, and existing buildings that are subject to major renovation, should meet minimum energy performance requirements adapted to the local climate. *Member States shall furthermore [...] stimulate the transformation of buildings that are refurbished into nearly zero-energy buildings. Reference: EPBD preamble recital 15, EPBD article 9.2.*		

◉ New buildings ○ Retrofit ○ New and retrofit	Please add explanation/ comment/ source

2.3 Private/public buildings

Select one and describe right. If more than one definition exists, you can duplicate this appendix for each of them.

Member States shall ensure that by 31 December 2020, all new buildings are nearly zero- energy buildings and after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings. Reference: EPBD article 9.1a/b

○ Private ○ Public ◉ Public and private	Please add explanation/ comment/ source

3. Energy Balance and calculation

3.1 Balance Type

Describe how renewable energy is calculated / included in the energy balance (e.g. renewable heat from solar thermal collectors reduces energy use for heat and DHW; renewable electricity reduces/compensates delivered electricity).

[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources
Energy performance of a building means the calculated or measured amount of energy needed to meet the energy demand [...]. Reference: EPBD article 2.2, EPBD article 2.4

○ energy demand vs energy generation ○ energy import vs energy export ◉ virtual balance between demand and generation ○ not specified ○ other	Please add explanation/ comment/ source

3.2 Physical boundary

Select the widest possible boundary and describe right if/which further subdivisions are possible

This directive lays down requirements as regards the common general framework for [...] buildings and building units. […] building' means a roofed construction having walls, for which energy is used to condition the indoor climate. Reference: EPBD article 1.2, EPBD article 2.1

◉ single building ○ building unit ○ building unit	Please add explanation/ comment/ source

○ **building site** ○ **cluster of buildings** ○ **quarter or city** ○ **other**	

3.3 System boundary demand / energy uses included

Define if this load sector is included in the energy balance calculation (other requirements like maximum consumption values can be described below under item 5, further requirements).

[...] energy performance of a building means the calculated or measured amount of energy needed to meet the energy demand associated with a typical use of the building, which includes, inter alia, energy used for heating, cooling, ventilation, hot water and lighting. Reference: EPBD article 2.4

space heating, domestic hot water	considered	Please add explanation/ comment/ source
ventilation, cooling, air conditioning	considered	Please add explanation/ comment/ source
auxiliary energy	considered	Please add explanation/ comment/ source
lighting	considered	Please add explanation/ comment/ source
plug loads, appliances, IT	possible to add	Please add explanation/ comment/ source
central services	not considered	Please add explanation/ comment/ source
electric vehicles	not considered	Please add explanation/ comment/ source
embodied energy	not considered	Please add explanation/ comment/ source

3.4 System boundary generation / renewable energy sources included

Select and explain right (e.g. only in building's physical footprint, on-site, on-site incl. import of off-site renewables like pellets, wood chips, rape oil etc.). How is CHP (based on non-renewable energy carriers like natural gas or oil) included?

[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby. [...] energy from renewable sources means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases. [...] minimum levels of energy from renewable sources [...] to be fulfilled, inter alia, through district heating and cooling [...]. Reference: EPBD article 2.2,EPBD article 2.6, EPBD article 13.4

generation on-site	considered	Please add explanation/ comment/ source
generation near by	considered	Please add explanation/ comment/ source
generation external	not considered	Please add explanation/ comment/ source
crediting	not considered	Please add explanation/ comment/ source

3.5 Balance period / calculation step

What is the defined period of time over which the balance is calculated? Is the calculation period divided into calculation steps (e.g. one hour, one month or one heating and/or cooling season)?

[…] The methodology for calculating energy performance should be based not only on the season in which heating is required, but should cover the annual energy performance of a building […]. Reference: EPBD preamble recital 9
[…] requirements should be set with a view to [...] the cost-optimal balance between the investments involved and the energy costs saved throughout the lifecycle of the building [...]Reference: EPBD preamble recital 10.

○ **Life cycle balance** ◉ **Yearly** ○ **Seasonal** ○ **Other**	Please add explanation/ comment/ source

3.6 Monthly accounting limitation

Is a monthly accounting limit defined? Is it based on end energy (e.g. monthly electricity generation compensates monthly electricity loads) or on primary energy (any monthly generation compensates any loads)? Are surpluses transferred to an annual balance?

○ monthly source based end energy crediting ○ monthly primary energy crediting ◉ nothing defined ○ other	Please add explanation/ comment/ source

4. Accounting system

4.1 Normalization

[…] including a numerical indicator of primary energy use expressed in kWh/m² per year. Reference: EPBD article 9.3a

○ person ○ gross floor area ○ net floor area ○ gross volume ○ net volume ○ usable floor area ○ treated floor area ◉ conditioned area ○ other	Please add explanation/ comment/ source

4.2 Primary metric

Indicate which metric is used for the energy performance calculation / energy balance and give input on (the source of) the conversion factors on the right. Possible sources are e.g. EN 15603 or national and regional codes.

The energy performance of a building shall be expressed in a transparent manner and shall include an energy performance indicator and a numeric indicator of primary energy use, based on primary energy factors per energy carrier, which may be based on national or regional annual weighted averages or a specific value for on- site production. Reference: EPBD Annex 1.
[...] including a numerical indicator of primary energy use expressed in kWh/m 2 per year. Reference: EPBD 9.3a
[…] primary energy' means energy from renewable and non- renewable sources which has not undergone any conversion or transformation process. Reference : EPBD article 2.5

○ energy need ○ energy use ○ delivered/site energy ○ primary / source energy (renewable part included) ◉ primary / source energy (renewable part not included) ○ (equivalent) carbon emissions ○ exergy	Please add explanation/ comment/ source

○ energy costs ○ environmental credits ○ points (labeling system) ○ other	
4.3 Secondary metric	
○ energy use ○ energy need ○ delivered/site energy ○ primary / source energy (renewable part included) ○ primary / source energy (renewable part not included) ○ (equivalent) carbon emissions ○ exergy ○ energy costs ○ environmental credits ○ points (labeling system) ○ other	Please add explanation/ comment/ source
4.4 Symmetric or asymmetric weighting	
◉ symmetrical weighting ○ asymmetrical weighting	Please add explanation/ comment/ source
4.5 Time dependent weighting Static: no time dependent weighting (annual constant weighting/factors) Quasi-static: seasonal/monthly average weighting factors Dynamic: weighting factors based on shorter time periods /hourly basis (according to energy offer and demand in the grid)	
Primary energy factors […] may be based on national or regional yearly average values and may take into account […] European standards. Reference: EPBD 9.3a	
	Please add explanation/ comment/ source

◉ **static conversion factors** ○ **quasi static conversion factors** ○ **dynamic conversion factors**	
5. Further requirements	
5.1 Fraction of renewables Select and describe right if guidelines are given for any fraction of renewable energy and indicate how/at which level a certain fraction is calculated (e.g. solar thermal heat might be a fraction of energy use, electricity from PV a fraction of delivered energy.)	
Member States shall introduce [...] appropriate measures [...] to increase the share of all kinds of energy from renewable sources in the building sector [...]. By 31 December 2014, Member States shall [...] require the use of minimum levels of energy from renewable sources in new buildings and in existing buildings [...] Reference: RED article 13.4 *[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources [...]Reference : EPBD article 2.2*	
◉ **defined** ○ **not defined** ○ **defined in other regulation**	Please add explanation/ comment/ source 25%
5.2 Temporal performance Describe if any requirements are given for a temporal match between on-site energy load and on-site energy generation (load match) and which calculation procedures are applied.	
Load match ○ **defined** ◉ **not defined**	Please add explanation/ comment/ source
Grid interaction ○ **defined** ○ **not defined**	Please add explanation/ comment/ source
5.3 Energy performance or rating requirements Are limitations given for a standard energy rating, an energy indicator or maximum demands for heating, cooling, embodied energy, demand of appliances, etc.? If yes, type the values and give explanations on the right	
nearly zero-energy building means a building that has a very high energy performance [...]. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources […] *The energy performance [...] shall [...] include an energy performance indicator and a numeric indicator of primary energy use [....]. Reference : EPBD article 2.2, EPBD Annex 1.*	
Performance or rating	Please add explanation/ comment/ source

○ **defined** ◉ **not defined** ○ **defined in other regulation**	
Energy Performance indicator Is an energy performance indicator defined? If yes, type the values and the according unit.	Give further explanation
Numeric indicator of primary energy use Is a numeric indicator of primary energy use defined? If yes, type the values and the according unit.	Give further explanation
5.4 General framework / prescriptive requirements Describe which guidelines are given for: Thermal characteristics (insulation, thermal bridges, thermal capacity, passive heating, internal loads, solar protection) Efficiency of installations (hot water supply, air-conditioning, lighting fan power)	
The methodology shall [...] take into consideration: thermal characteristics (thermal capacity, insulation, passive heating, cooling elements, and thermal bridges), heating installation and hot water supply, air-conditioning installations, natural and mechanical ventilation, built-in lighting, the design, positioning and orientation of the building, outdoor climate, passive solar systems and solar protection, [...], internal loads. Reference: EPBD Annex 1	
◉ **defined** ○ **not defined** ○ **defined in other regulation**	Please add explanation/ comment/ source
5.5 Definition of comfort level & IAQ requirements (for winter and summer season, beside other national directives) Describe which guidelines are given for indoor climatic conditions, minimum or maximum indoor temperature, minimum lighting levels/ daylight availability, minimum ventilation rates/ natural ventilation, indoor air quality, max. CO2 levels, etc.	
This Directive [...] takes into account [...] indoor climate requirements [...] Reference: EPBD article 1.1 *The methodology shall [...] take into consideration: [...] indoor climatic conditions [...]Reference: EPBD Annex 1* *That includes […] indoor air-quality, adequate natural light […].Reference:* *EPBD preamble recital 9*	
○ **defined** ○ **not defined** ◉ **defined in other regulation**	Please add explanation/ comment/ source

5.6 Monitoring procedure Describe if and how a monitoring mandatory is formulated; calculated or measured values are used; an evaluation of the indoor environmental quality is considered; which calculation step is used.	
[…] energy performance of a building means the calculated or measured amount of energy needed […] Reference: EPBD article 2.4 *Member States shall encourage the introduction of intelligent metering systems […] and the installation of automation, control and monitoring systems […]. Reference: EPBD article 8.2*	
◉ **defined** ○ **not defined**	Please add explanation/ comment/ source Measured geometry, estimated leakage, standardized loads and demands, calculated other parameters

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