BOLIGPRODUSENTENE

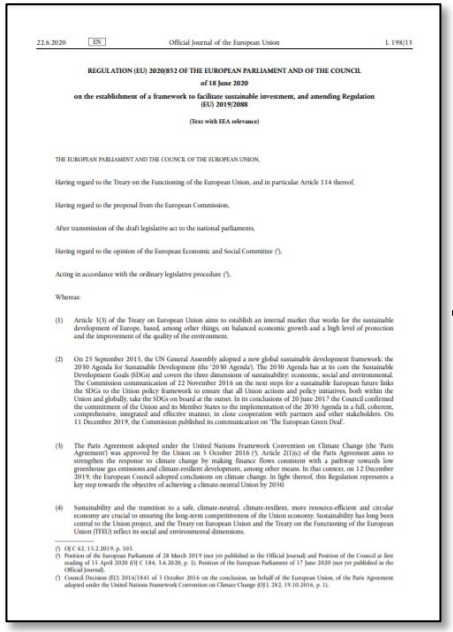
Norske energiregler bryter med krav i taksonomien

Teknisk sjef Lars Myhre

Dag 2, Boligkonferansen 2021 , Meet Ullevål, 9. september 2021

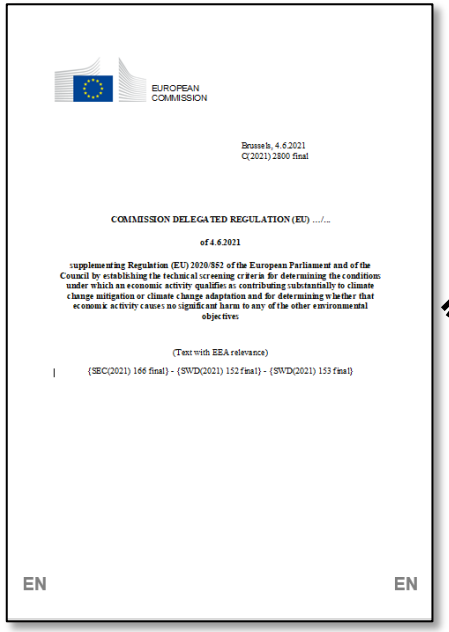
Delegert forordning med tekniske kriterier for to av seks miljømål (klimagassutslipp og klimatilpasning) (fastsatt av EU-kommisjonen 21. april 2021)

Klassifiseringsforordningen 2020/852 (31 sider)



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

Delegert forordning (23 sider)



EUROPEAN COMMISSION

Brussels, 4.6.2021
C(2021) 2800 final

COMMISSION DELEGATED REGULATION (EU) …/..

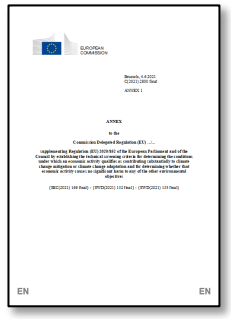
of 4.6.2021

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

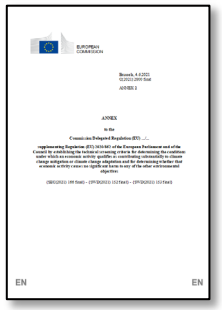
(Text with EEA relevance)

{SEC(2021) 166 final} - {SWD(2021) 152 final} - {SWD(2021) 153 final}

EN EN



Annex I:
Tekniske kriterier **klimagassutslipp** (196 sider)



Annex II:
Tekniske kriterier **klimatilpasning** (293 sider)

Taksonomikrav:

- tilfredsstille hovedkriteriene for ett av de seks miljømålene:
  1. **Klimagassutslipp**
  2. **Klimatilpasning**
  3. Vann og havressurser
  4. Sirkulær økonomi
  5. Forurensning
  6. Biodiversitet og økosystemer
- tilfredsstille basiskriteriene (DNSH) for de fem andre miljømålene.

Link til delegert forordning med anneks I og II:
https://eur-lex.europa.eu/legal-content/EN/TXT/DOC/?uri=PI_COM:C(2021)2800&from=EN

Delegert forordning med tekniske kriterier for to av seks miljømål (klimagassutslipp og klimatilpasning) (fastsatt av EU-kommisjonen 21. april 2021)

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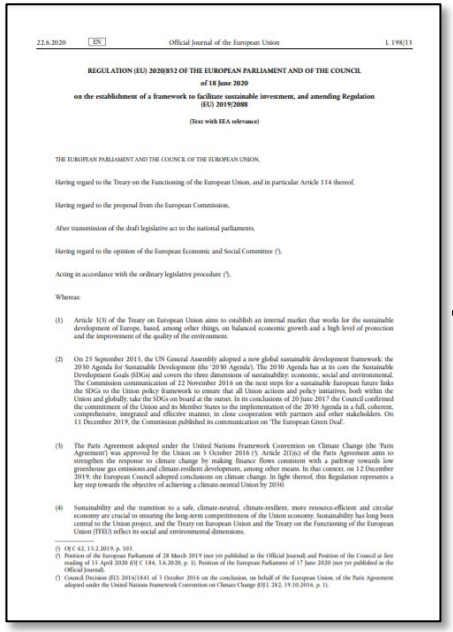

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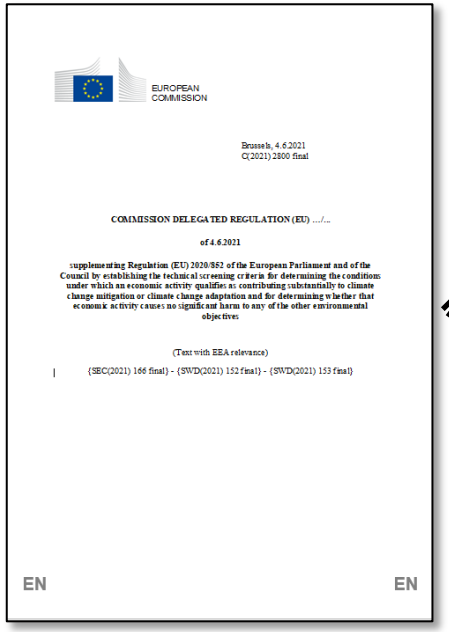

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(Text with EEA relevance)

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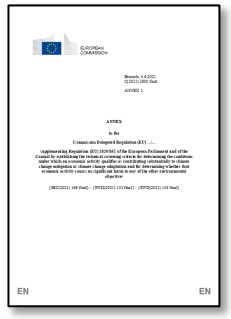

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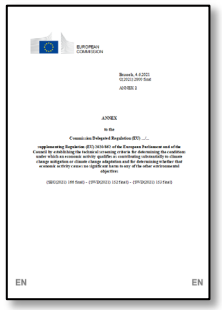

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Link til delegert forordning med anneks I og II:
https://eur-lex.europa.eu/legal-content/EN/TXT/DOC/?uri=PI_COM:C(2021)2800&from=EN

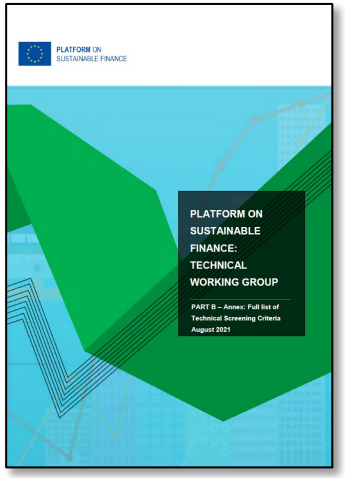
Tekniske kriterier for øvrige miljømål (arbeidsutkast august 2021)

Eksempel på EUs ambisjonsnivå for miljømålet sirkulær økonomi:

This ambition builds on a reduction of the EU27 material footprint (RME) by 50% by 2030 and by 75% by 2050 (compared to a 2015 baseline of 14t/capita)

Draft report (100 sider)

Annex til draft report (993 sider)



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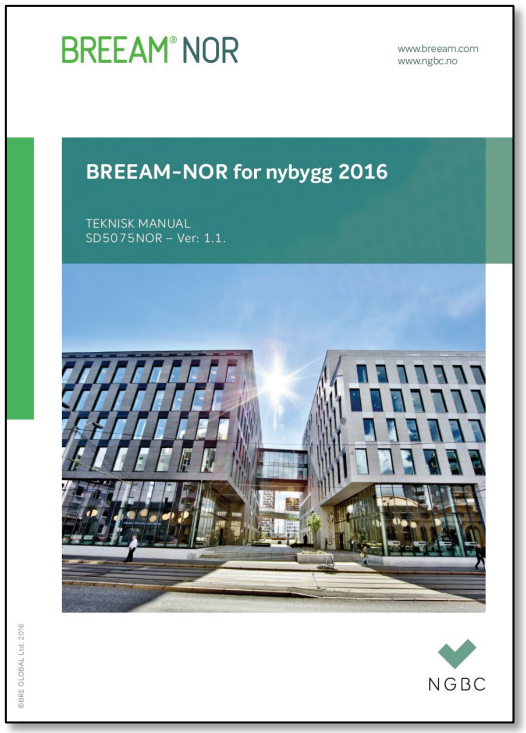
  4. Sirkulær økonomi
  5. Forurensning
  6. Biodiversitet og økosystemer
- tilfredsstille basiskriteriene (DNSH) for de fem andre miljømålene.

Link: https://ec.europa.eu/info/publications/210803-sustainable-finance-platform-technical-screening-criteria-taxonomy-report_en

Kriterier i arbeidsutkastet viser til Level(s)

EU

Norge



Delegert forordning definerer ni finansielle hovedaktiviteter

1. Forestry
2. Environmental protection and restoration activities
3. Manufacturing
4. Energy
5. Water supply, sewerage, waste management and remediation
6. Transport
7. **Construction and real estate activities**
8. Information and communication
9. Professional, scientific and technical activities

7. Construction and real estate activities

7.1. Construction of new buildings

7.2. Renovation of existing buildings

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. Acquisition and ownership of buildings

Annex I Klimagassutslipp (Climate Change Mitigation)
7.1 New Construction

Hovedkriterier:

1. **Minimum 10 % lavere primærenergibehov enn det nasjonale NZEB-kravet gitt av bygningsenergidirektivet** (2010/31/EU). NZEB står for nearly zero-energy building. Energiytelsen verifiseres gjennom energisertifikatet - Energy Performance Certificate (EPC)

2. For bygninger større enn 5000 m2 skal utførelsen kontrolleres gjennom **luftlekkasjemåling og termografering**.

3. For bygninger større enn 5000 m2 skal det gjøres **klimagassberegning** for hele livsløpet.

Utfordring:
Norge har ikke innført bygningsenergidirektivet fra 2010.

- vi følger ikke beregningsmetodikken i direktivet,
- vi bruker ikke primær-energibegrepet
- vi har ikke nasjonalt NZEB-mål basert på primærenergi.

Uten norsk referanse kan vi formelt ikke dokumentere at vi tilfredsstiller taksonomien

Opp mot taksonomien hjelper det ikke om boligprosjektene er aldri så bærekraftig……

Basiskriterier for de øvrige miljømålene

	(1) Climate change mitigation	(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
Hovedkrav	1. The Primary Energy Demand (PED)282, 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 Council283. The energy performance is certified using an as built Energy Performance Certificate (EPC). 2. For buildings larger than 5000 m2 284, upon completion, the building resulting from the construction undergoes testing for air-tightness and thermal integrity285, and any deviation in the levels of performance set at the design stage or defects in the building envelope are disclosed to investors and clients. As an alternative; where robust and traceable quality control processes are in place during the construction process this is acceptable as an alternative to thermal integrity testing. 3. For buildings larger than 5000 m2 286, the life-cycle Global Warming Potential (GWP)287 of the building resulting from the construction has been calculated for each stage in the life cycle and is disclosed to investors and clients on demand.	1. The economic activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that activity. 2. The physical climate risks that are material to the activity have been identified from those listed in Appendix A to this Annex by performing a robust climate risk and vulnerability assessment with the following steps: (a) screening of the activity to identify which physical climate risks from the list in Appendix A to this Annex may affect the performance of the economic activity during its expected lifetime; (b) where the activity is assessed to be at risk from one or more of the physical climate risks listed in Appendix A to this Annex, a climate risk and vulnerability assessment to assess the materiality of the physical climate risks on the economic activity; (c) an assessment of adaptation solutions that can reduce the ident The climate risk and vulnerability assessment is proportionate to th its expected lifespan, such that: (a) for activities with an expected lifespan of less than 10 years, the at least by using climate projections at the smallest appropriate sca (b) for all other activities, the assessment is performed using the hi state-of-the-art climate projections across the existing range of futu with the expected lifetime of the activity, including, at least, 10 to 3 scenarios for major investments. 3. The climate projections and assessment of impacts are based on guidance and take into account the state-of-the-art science for analysis and related methodologies in line with the most recen on Climate Change reports568, scientific peer-reviewed publica or paying models. 4. The adaptation solutions implemented: (a) do not adversely affect the adaptation efforts or the le risks of other people, of nature, of cultural heritage, of assets and o (b) favour nature-based solutions570 or rely on blue or green infras possible; (c) are consistent with local, sectoral, regional or national adaptatio (d) are monitored and measured against pre-defined indicators and considered where those indicators are not met; (e) where the solution implemented is physical and consists in an a screening criteria have been specified in this Annex, the solution co significant harm technical screening criteria for that activity.				
Basiskrav (DNSH)	The building is not dedicated to extraction, storage, transport or manufacture of fossil fuels. The Primary Energy Demand (PED)572 setting out the energy performance of the building resulting from the construction does not exceed the threshold set for the nearly zero-energy building (NZEB) requirements in national regulation implementing Directive 2010/31/EU. The energy performance is certified using an as built Energy Performance Certificate (EPC).	The activity complies with the criteria set out i	b) WCs, including suites, bowls and flushing cisterns, have a full flush volume of a maximum of 6 litres and a maximum average flush volume of 3,5 litres; c) urinals use a maximum of 2 litres/bowl/hour. Flushing urinals have a maximum full flush volume of 1 litre. To avoid impact from the construction site, environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed, in accordance with a water use and protection management plan, developed in consultation with relevant stakeholders.	hierarchy and the EU Construction and Demolition Waste Management Protocol. Operators limit waste generation in processes related to construction and demolition, in accordance with the EU Construction and Demolition Waste Management Protocol and taking into account best available techniques and using selective demolition to enable removal and safe handling of hazardous substances and facilitate re-use and high-quality recycling by selective removal of materials, using available sorting systems for construction and demolition waste. Building designs and construction techniques support circularity and in particular demonstrate, with reference to ISO 20887 or other standards for assessing the disassemblability or adaptability of buildings, how they are designed to be more resource efficient, adaptable, flexible and dismantleable to enable reuse and recycling.	0,06 mg of formaldehyde per m³ of material or component and less than 0,001 mg of categories 1A and 1B carcinogenic volatile organic compounds per m³ of material or component, upon testing in accordance with CEN/TS 16516 and ISO 16000-3 or other comparable standardised test conditions and determination methods.. Where the new construction is located on a potentially contaminated site (brownfield site), the site has been subject to an investigation for potential contaminants, for example using standard ISO 18400. Measures are taken to reduce noise, dust and pollutant emissions during construction or maintenance works.	implemented. For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment, where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented.

The building is not dedicated to extraction, storage, transport or manufacture of fossil fuels.

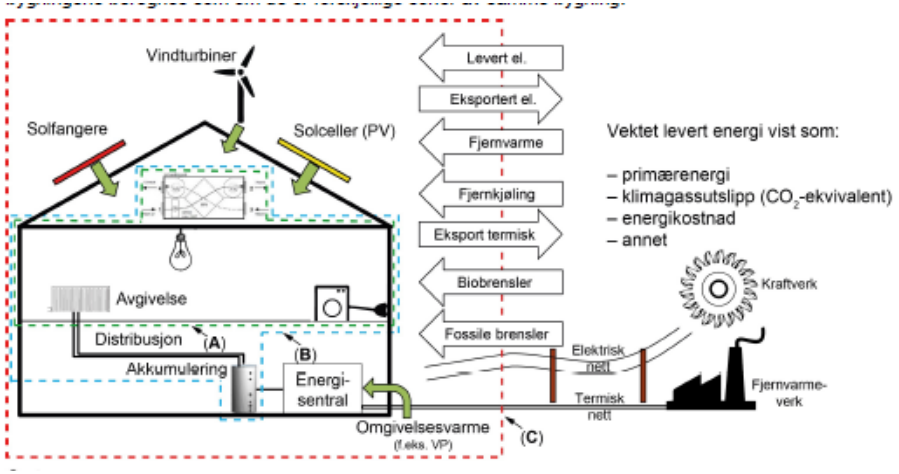
The **Primary Energy Demand** (PED) setting out the energy performance of the building resulting from the construction does not exceed the threshold set for the nearly zero-energy building (NZEB) requirements in national regulation implementing **Directive 2010/31/EU**. The energy performance is certified using an as built **Energy Performance Certificate** (EPC).

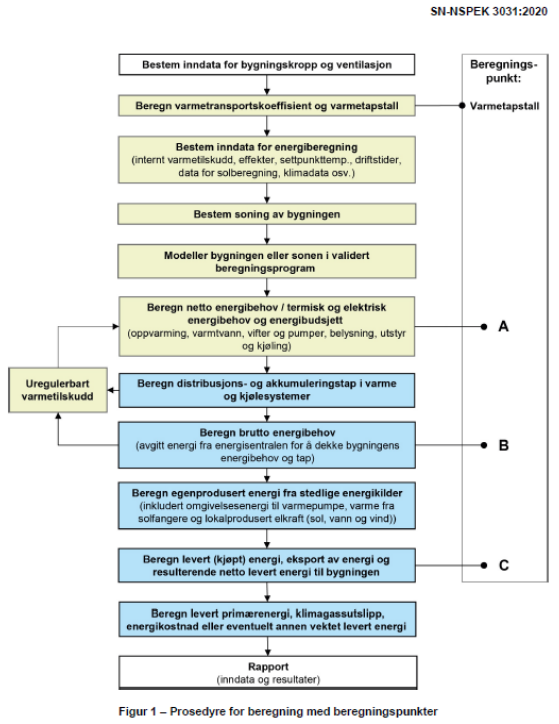
Hva er primærenergi?

- **Netto energibehov** (TEK17):
  - ikke hensyn til systemtap i varme- og kjøleanlegg

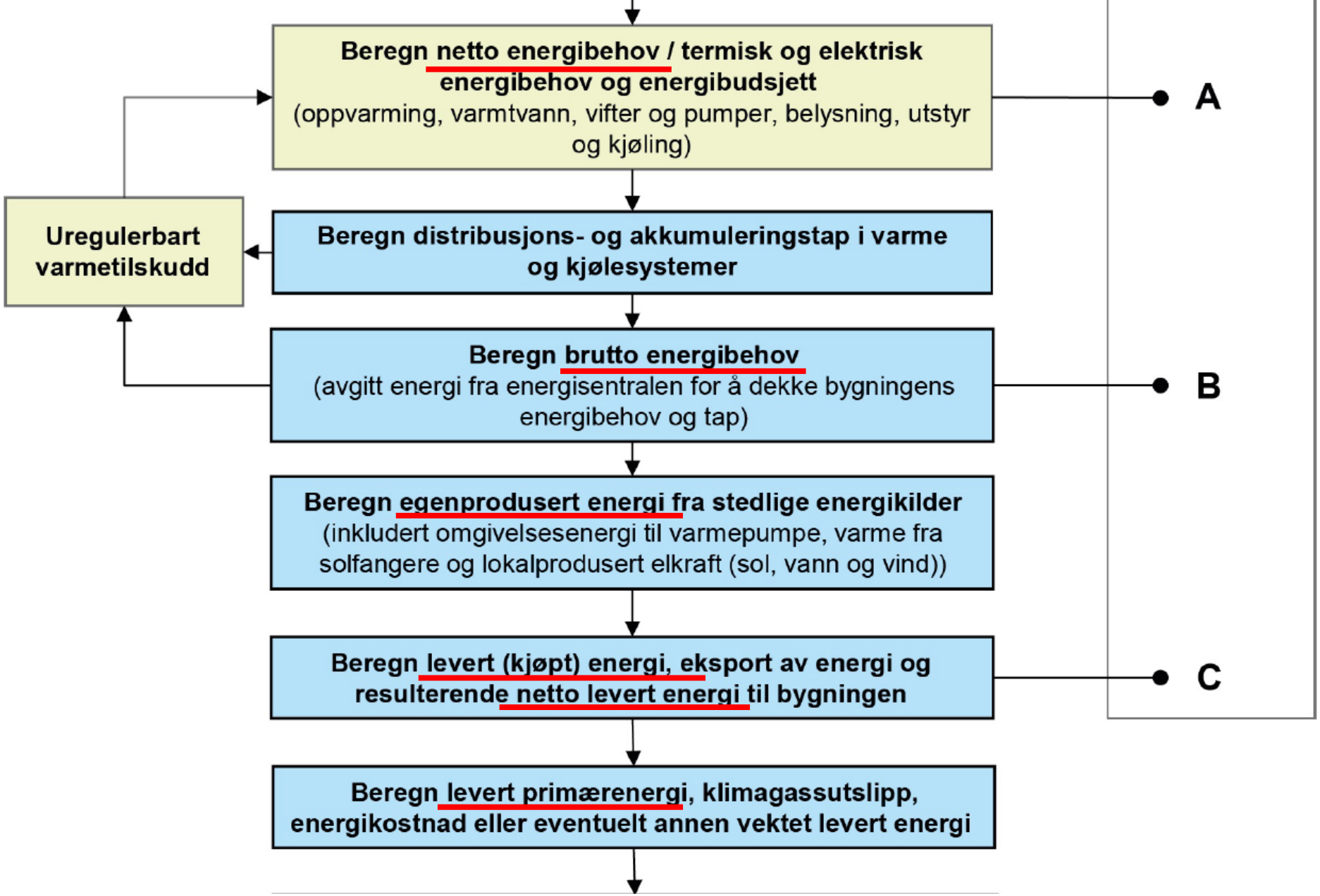
- **Levert energi** (energimerkeordningen):
  - inklusive systemtap i oppvarmings- og kjøleanlegg (tilsvarer ca. kjøpt energi)

- **Primærenergi** (EU og EPBD):
  - den energimengden som er nødvendig for å fremskaffe én mengdeenhet levert energi, og tar hensyn til behovet for energi til utvinning, prosessering, lagring, transport, generering, omdanning, overføring, distribusjon og alle andre nødvendige trinn for å levere energien til bygningen der den leverte energien skal brukes





Figur 1 – Prosedyre for beregning med beregningspunkter


Beregn netto energibehov / termisk og elektrisk energibehov og energibudsjett
(oppvarming, varmtvann, vifter og pumper, belysning, utstyr og kjøling)
A
Uregulerbart varmetilskudd
Beregn distribusjons- og akkumuleringstap i varme og kjølesystemer
Beregn brutto energibehov
(avgitt energi fra energisentralen for å dekke bygningens energibehov og tap)
B
Beregn egenprodusert energi fra stedlige energikilder
(inkludert omgivelsesenergi til varmepumpe, varme fra solfangere og lokalprodusert elkraft (sol, vann og vind))
Beregn levert (kjøpt) energi, eksport av energi og resulterende netto levert energi til bygningen
C
Beregn levert primærenergi, klimagassutslipp, energikostnad eller eventuelt annen vektet levert energi

Mer kompliserte energiberegninger

CSTB
le futur en construction

Historical evolution of requirements in Europe
Roadmap to overall energy performance

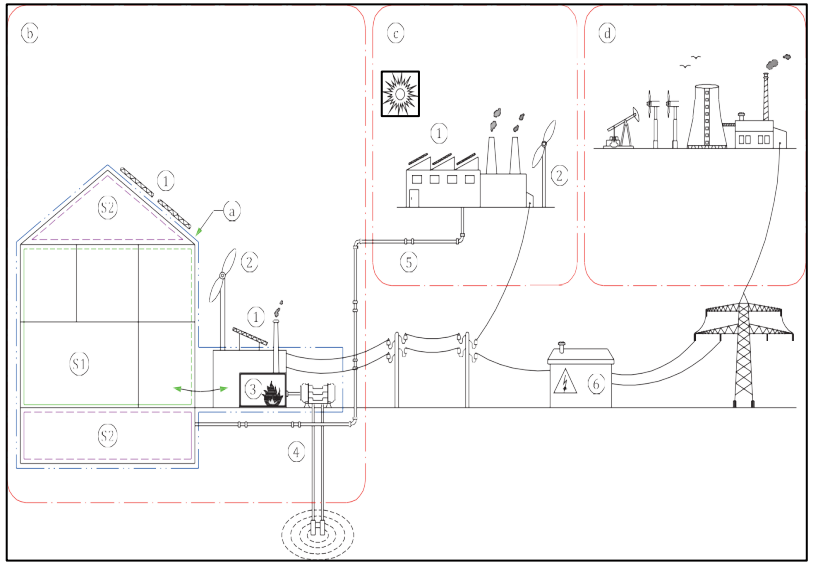
Evolution of assessment boundaries –Towards global view

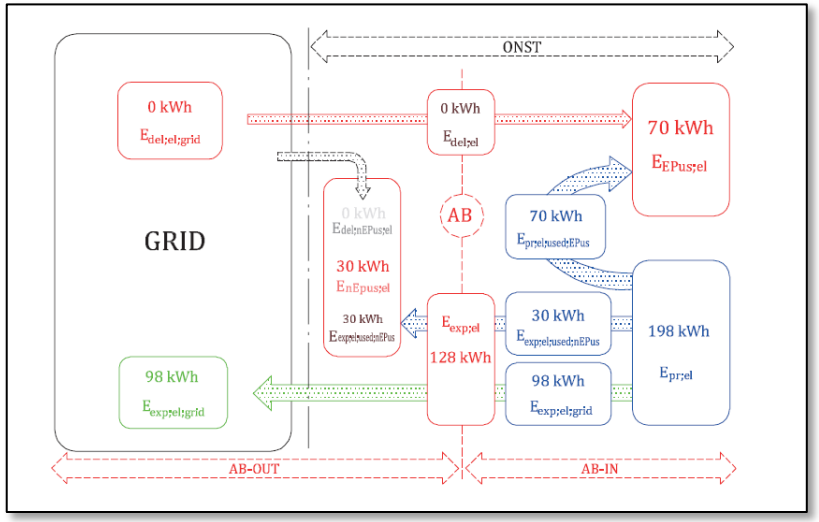
Product (1950-1970)	Building envelope (1970-1990)	Tech. system (1990-2010)	Interaction Building - grid (>-2010)

Nearby

"Building" (energy consuming)

"Building" + neighborhood

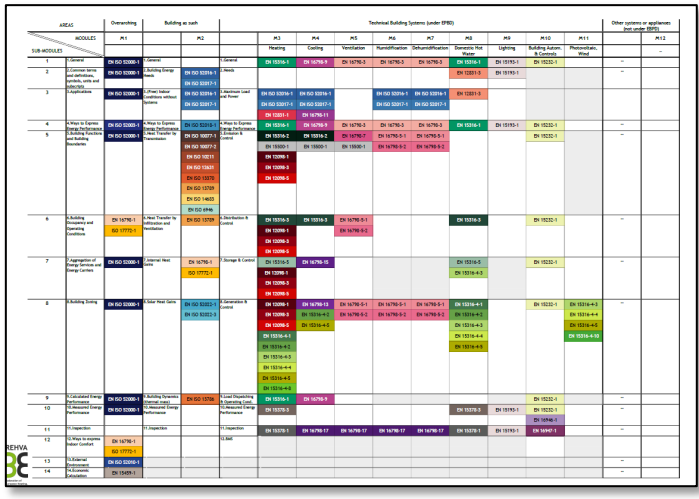




Johann Zirngibl, JWG Workshop, Victoria, Canada, September 2015

Norge følger ikke nye CEN-standarder for energiberegning

- CEN fikk i 2010 oppdrag fra EU-kommisjonen om å revidere alle energiberegningsstandardene (Mandat M/480). Bakgrunnen var innføringen av det reviderte bygningsenergidirektivet (2010/31/EU). De nye standardene skulle bidra til felles beregningsregler internt i EU. Direktivet ble endret i 2018 for å gi enda klarere føringer om bruk av CEN-standardene (2018/844).
- De nye CEN-standardene ble publisert i 2017 og utgjør en omfattende pakke på vel 50 standarder og mer enn 3 000 sider. Standardene har en modulær oppbygging hvor resultatene fra én standard fungerer som inndata til beregningene i annen standard.
- Det reviderte 2010-direktivet er ikke innlemmet som del av EØS-avtalen.
- Verken TEK17 eller høringsforslag nye energikrav følger bygningsenergidirektiv og CEN-standarder.
- TEK17 og energimerkeordningen henviser til gamle NS 3031:2014 som ble trukket tilbake da den var i konflikt med de nye CEN-standardene.

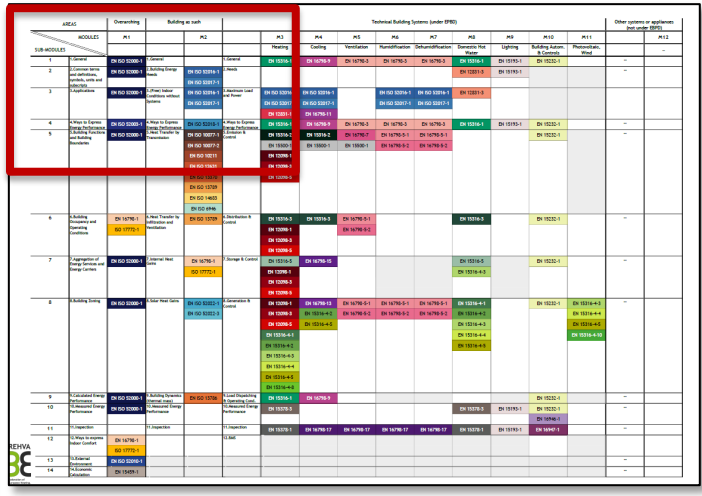


CEN-standardene har en modulær oppbygging, hvor beregningsresultatene fra én standard fungerer som inndata til beregningene i en annen standard

Norge følger ikke nye CEN-standarder for energiberegning

- CEN fikk i 2010 oppdrag fra EU-kommisjonen om å revidere alle

AREAS		Overarching	Building as such			
MODULES / SUB-MODULES		M1		M2		M3
						Heating
1	1.General	EN ISO 52000-1	1.General		1.General	EN 15316-1
2	2.Common terms and definitions, symbols, units and subscripts	EN ISO 52000-1	2.Building Energy Needs	EN ISO 52016-1 EN ISO 52017-1	2.Needs	
3	3.Applications	EN ISO 52000-1	3.(Free) Indoor Conditions without Systems	EN ISO 52016-1 EN ISO 52017-1	3.Maximum Load and Power	EN ISO 52016-1 EN ISO 52017-1 EN 12831-1
4	4.Ways to Express Energy Performance	EN ISO 52003-1	4.Ways to Express Energy Performance	EN ISO 52018-1	4.Ways to Express Energy Performance	EN 15316-1
5	5.Building Functions and Building Boundaries	EN ISO 52000-1	5.Heat Transfer by Transmission	EN ISO 10077-1 EN ISO 10077-2 EN ISO 10211 EN ISO 12631	5.Emission & Control	EN 15316-2 EN 15500-1 EN 12098-1 EN 12098-3



CEN-standardene har en modulær oppbygging, hvor beregningsresultatene fra én standard fungerer som inndata til beregningene i en annen standard

BOLIGPRODUSENTENE

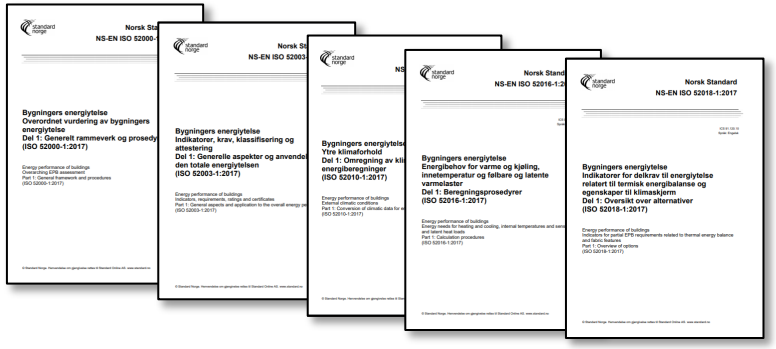
Nye CEN-standarder skal sikre felles beregningsmetodikk i EU og åpenhet om nasjonale valg

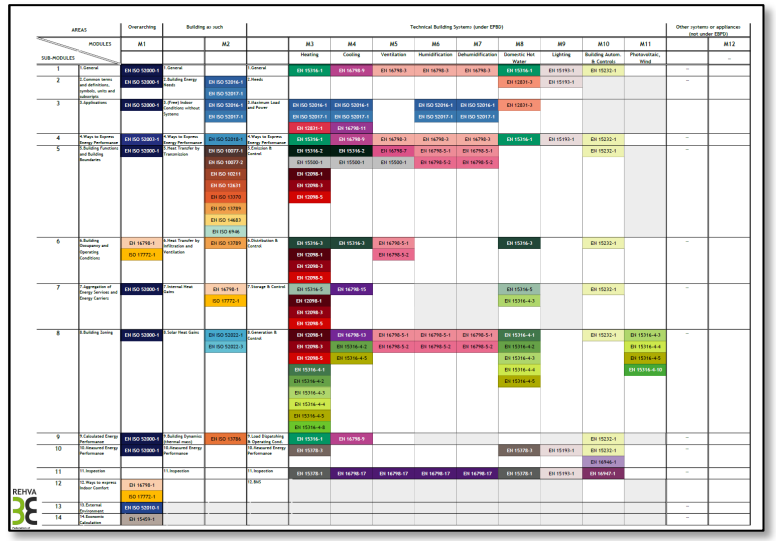
EPBD (2018/844)

> *"Member States shall describe their national calculation methodology following the national annexes of the overarching standards, namely ISO 52000-1, 52003-1, 52010-1, 52016-1, and 52018-1, developed under mandate M/480 given to the European Committee for Standardisation (CEN)."*

Nasjonale valg:

EPB-standardene har et normativt Annex A med tomme tabeller, og et informativt Annex B med de samme tabellene utfylt med default-verdier. Dersom man nasjonalt ønsker å fravike default-verdiene i Annex B, **skal** man fylle ut Annex A med nasjonale verdier.





Norge har ikke gjort dette

Eksempel på Annex A og Annex B: NS-EN ISO 52000-1:2017

Table A.16 — Weighting factors (based on gross or net calorific value)
(See 7.3.5, 9.5.1, 9.6.2, 9.6.5 and 9.6.6.3)

Energy carrier	f_{Pnren}	f_{Pren}	f_{Ptot}	[a]
Delivered from distant				
[a] [b]				
Delivered from nearby				
Delivered from on-site				
Exported				

[a] Add a column in case of other requirements, e.g., CO_2 requirement.
[b] Add the rows of the energy carriers.

Normativt Annex A

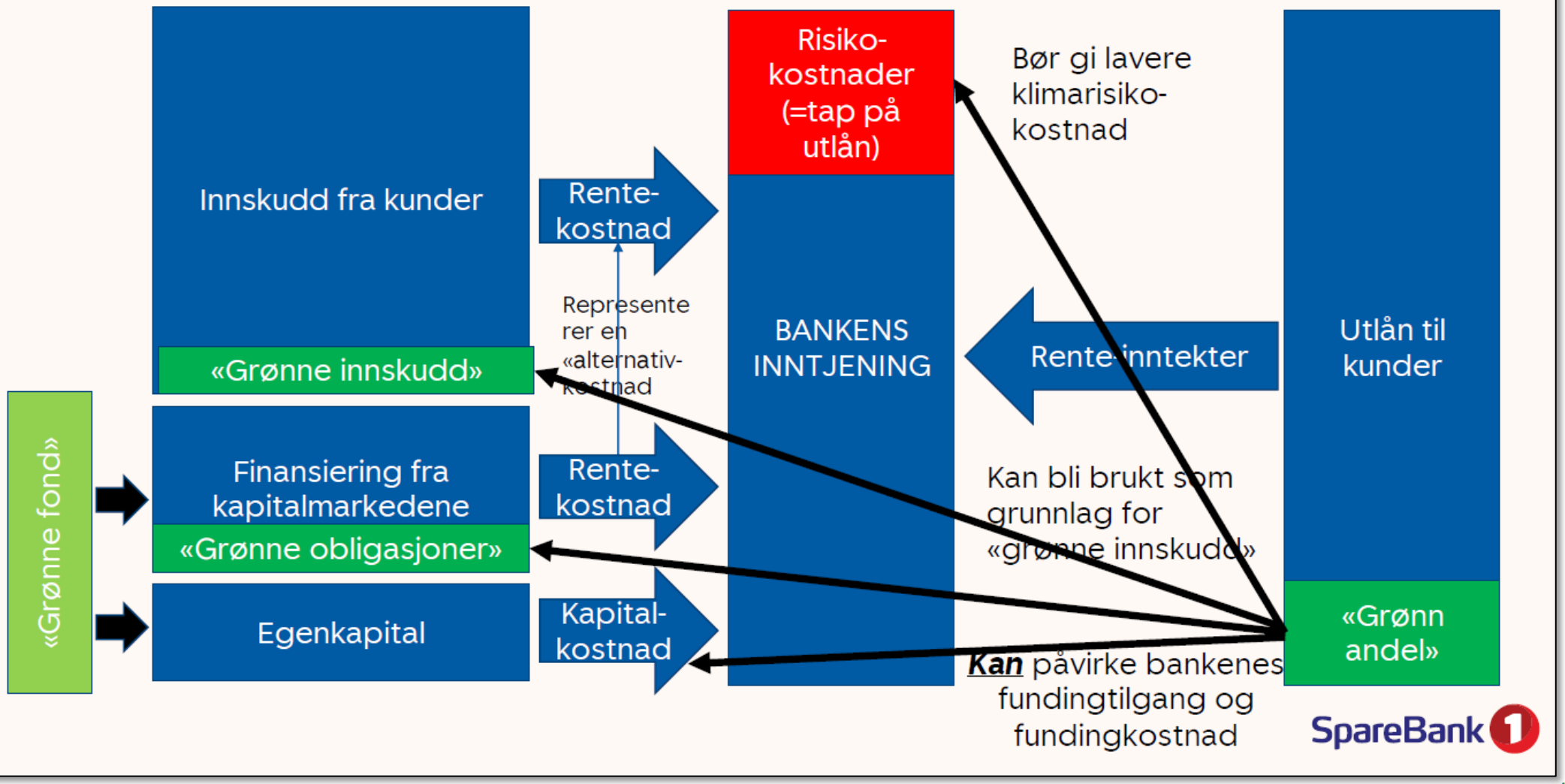
Table B.16 — Weighting factors (based on gross or net calorific value)
(See 7.3.5, 9.5.1, 9.6.2, 9.6.5 and 9.6.6.3)

	Energy carrier Delivered from distant		f_{Pnren}	f_{Pren}	f_{Ptot}	K_{CO2e} (g/kW h)
1	Fossil fuels	Solid	1,1	0	1,1	360
2		Liquid	1,1	0	1,1	290
3		Gaseous	1,1	0	1,1	220
4	Bio fuels	Solid	0,2	1	1,2	40
5		Liquid	0,5	1	1,5	70
6		Gaseous	0,7	1	1,7	130
7	Electricity [c]		2,3	0,2	2,5	420
	Delivered from nearby					
8	District heating [a]		1,3	0	1,3	260
9	District cooling		1,3	0	1,3	260
	Delivered from on-site					
10	Solar	PV electricity	0	1	1	0
11		Thermal	0	1	1	0
12	Wind		0	1	1	0
13	Environment	Geo-, aero-, hydrothermal	0	1	1	0
	Exported					
14	Electricity [b] [c]	To the grid	2,3	0,2	2,5	420
15		To non EPB uses	2,3	0,2	2,5	420

[a] Default value based on a natural gas boiler. Specific values are calculated according to M3–8.5.
[b] It is possible to differentiate between different sources of electricity like wind or solar.

Default-verdier i informativt Annex B

Taksonomien og finansiell verdikjede



Kilde: Are Jansrud, SpareBank 1 Østlandet

Hva kan vi gjøre for å kunne bruke taksonomien for norske bygg?

OED:

- Innføre det reviderte bygningsenergidirektivet (2010/31/EU) med endringer i 2018.

KMD/DiBK:

- Tilpasse nye TEK-krav til bygningsenergidirektivet,
  - innføre primærenergi som indikator
  - vise hvordan norsk beregningsmetodikk samsvarer med ISO 52000-1, 52003-1, 52010-1, 52016-1 og 52018-1

KLD/Enova

- Tilpasse energimerkeordningen til bygningsenergidirektivet, og bl.a. innføre primærenergi som indikator

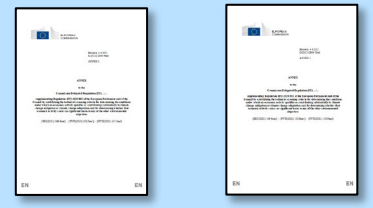
Standard Norge:

- Utvikle en ny norsk standard NS 3031 tilpasset de nye europeiske CEN-standardene, og trekke tilbake SN/NSPEK 3031:2020 som ikke er i samsvar med disse CEN-standardene

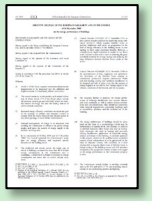
Taksonomien, bygningsenergidirektivet (EPBD), norske forskrifter og norske standarder

Taksonomikriteriene viser til det reviderte bygningsenergi-direktivet

Taksonomien. Annex I og II



2002/91/EC



Mandat M/343

Nye standarder

2010/31/EU

Mandat M/480

ca 50 stk nye og reviderte standarder

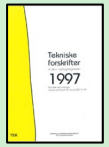
2018/844

2018-endringen av direktivet vis[illegible] beregningsmetodikk i fem standard[illegible]

2002 — 2007 — 2010 — 2017 — 2020

TEK

TEK07



TEK10

TEK17

Forsl[illegible]

Må følge bygningsenergi-direktivet

Ny TEK22

Energimerking

Energi-merking

Enova: Forslag ny energimerking

Standard Norge

NS 3031:2007

NS 3031:2014

Må utvikle ny NS 3031 tilpasset CEN-standardene

SN/TS 3031:2016

SN/NSPEK 3031:2020

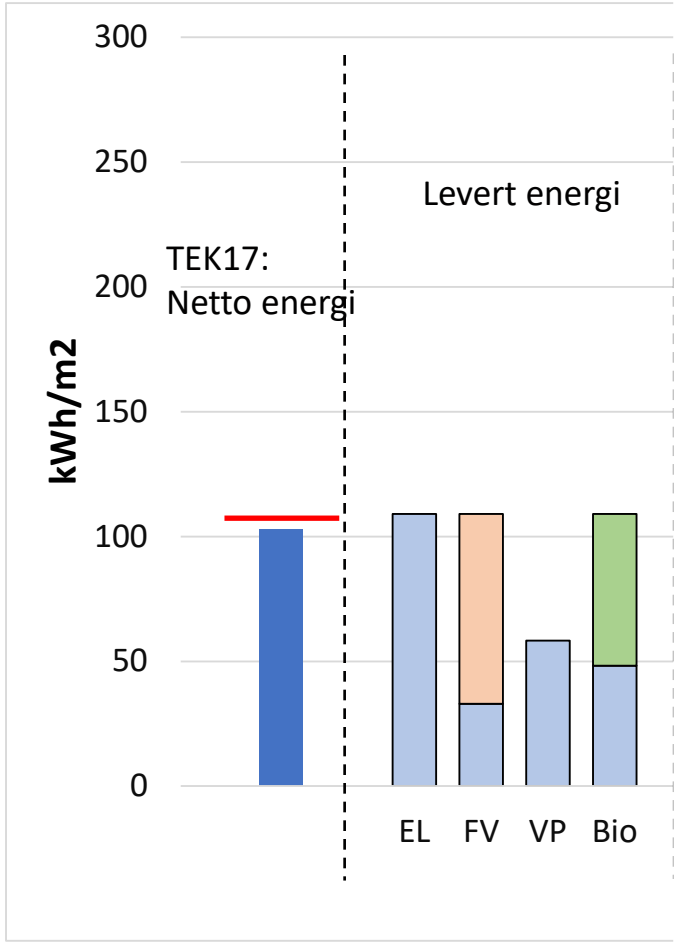
SN/NSPEK 3031 er særnorsk og følger ikke CEN-standardene

2021 BOLIGKONFERANSEN 8.-9. SEP

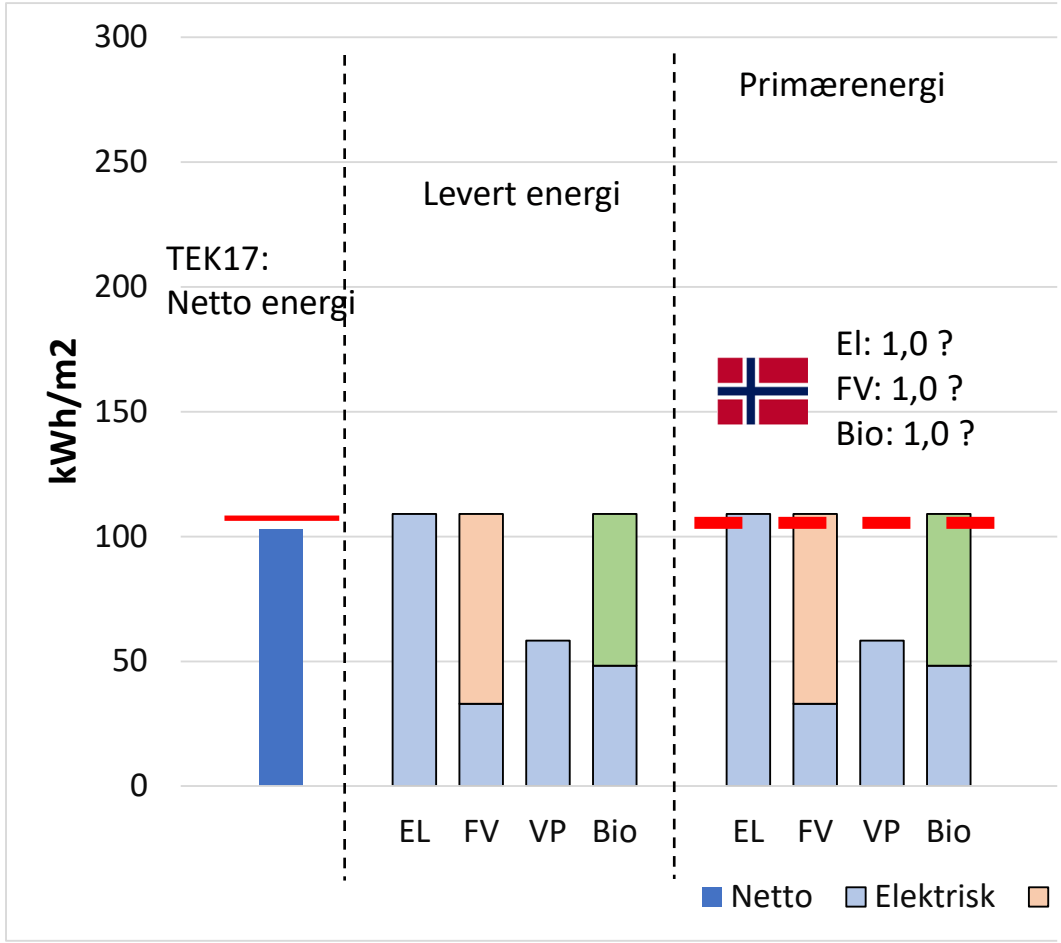
Valg av norske primærenergifaktorer?

	Elektrisitet	Fossil gass	Fjernvarme	Biobrensel
NS-EN ISO 52000-1:2017 (defaultverdi i annex B)	2,5	1,1	1,3	1,2
Svenske byggeregler	1,8	1,8	0,7	0,6
Danske byggeregler	1,9	1,0	0,85	1,0
Norge	1,0 ?	1,0 ?	1,0 ?	1,0 ?

Eksempel: Netto energi, levert energi og primærenergi for ulike oppvarmingsløsninger (direkte elektrisk, fjernvarme, varmepumpe og bioenergi)



Eksempel: Netto energi, levert energi og primærenergi for ulike oppvarmingsløsninger (direkte elektrisk, fjernvarme, varmepumpe og bioenergi)



Eksempel: Netto energi, levert energi og primærenergi for ulike oppvarmingsløsninger (direkte elektrisk, fjernvarme, varmepumpe og bioenergi)