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Introduction of Danish NZEB

BUILDING PARTNERSHIPS FOR ENERGY SECURITY

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Taking Building Codes Towards Zero



- Denmark has a long tradition on building codes
- Building codes level is set long time ahead
- This has many advantages:
 - Industry has time to prepare
 - Easy to get support for building codes in the future
 - Gives clear signals to the market

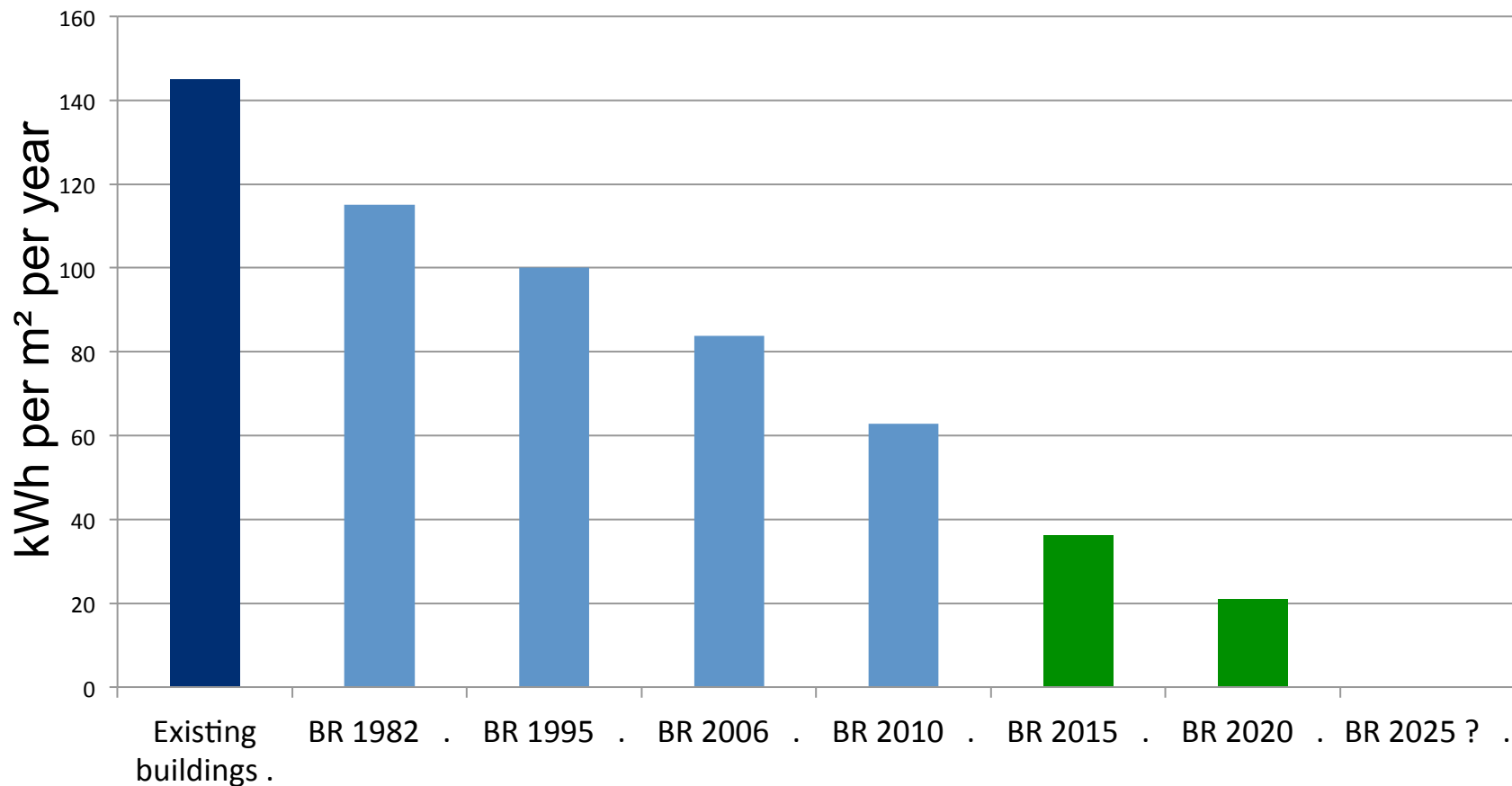
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Danish Performance Building Codes

Gross energy including heating, cooling, ventilation and hot sanitary water



Possible to get 2015 and 2020 already

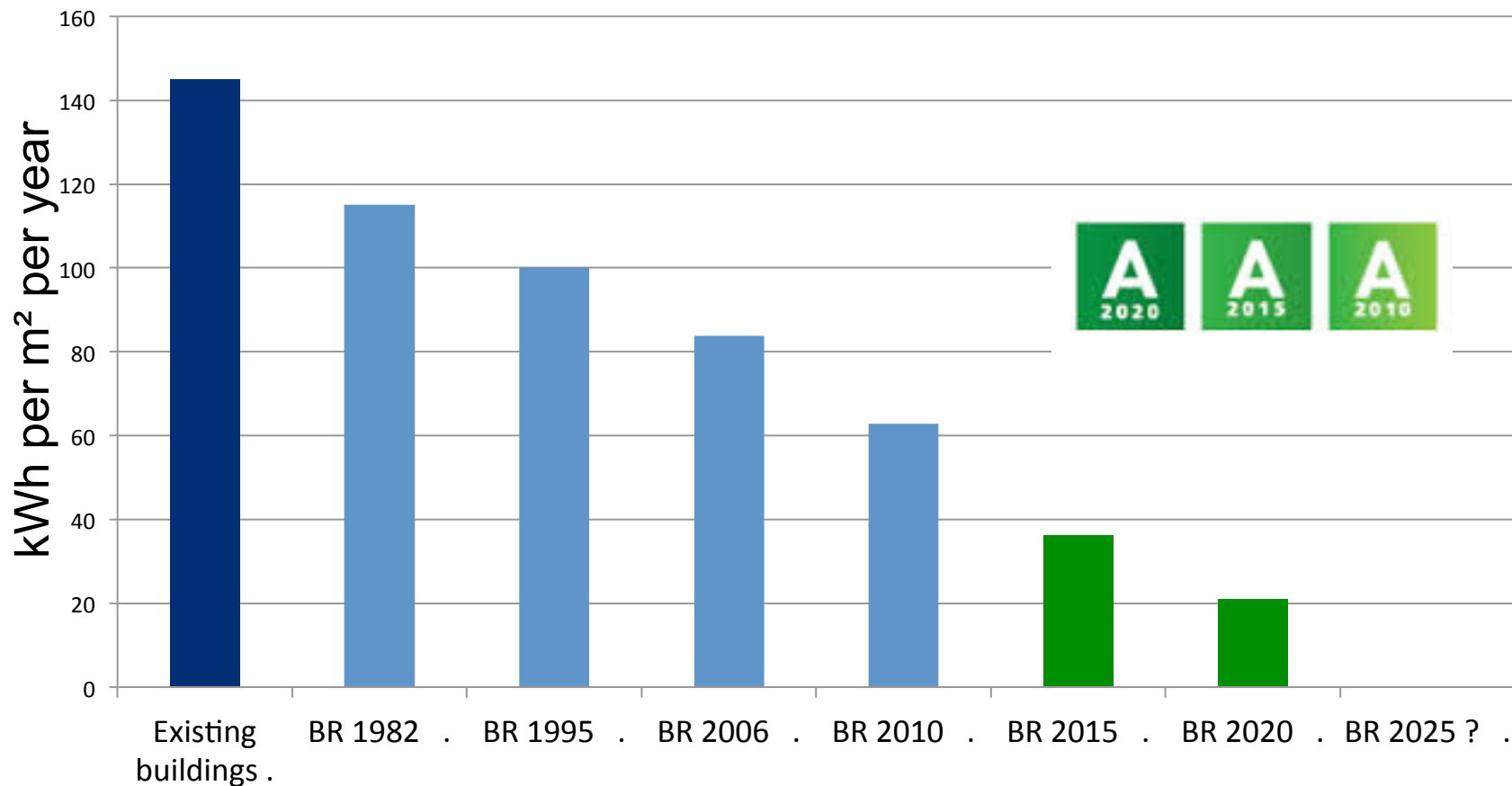


- Constructors or owners can go for future energy classes already
- Why go for yesterday when you can get tomorrow ?
- Certification of new buildings shared In 2010, 2015 and 2020
- Spur to go beyond minimum
- Possible to document



Danish Performance Building Codes

Gross energy including heating, cooling, ventilation and hot sanitary water



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Some countries have gone further



Selected National Targets for New Buildings

| Country | Target |
|----------------------|-----------------------------------------------------------|
| Denmark | 75% reduction by 2020 (base 2006) |
| Finland | Passive house standard by 2015 |
| France | By 2020 new building are energy-positive (under adoption) |
| Germany | By 2020 buildings should operate without fossil fuel |
| Hungary | Zero emissions buildings by 2020 |
| Ireland | Net zero energy buildings by (??) |
| Netherlands | Energy-neutral by 2020 (proposed) |
| Norway | Passive house standard by 2017 |
| UK (England & Wales) | Zero carbon in 2016 (residential) and 2018/19 (non res.) |

Source: ECEEE "Steering through the maze from 2011, nearly zero energy buildings achieving the EU 2020 target" and SBI (Danish Building Research Institute), "European National Strategies to move towards very low energy buildings",



Policies to implement



Examples on policies for implementation of targets

| Country/Year | 2009 | 2010 | 2012 | 2013 | 2015 | 2016 | 2020 |
|----------------|------|--------------------|--------------------|--------------------|--------------------|------|--------------------|
| Denmark | | -25% ¹⁾ | | | -50% ¹⁾ | | -75% ¹⁾ |
| France | | | LEB ²⁾ | | | | E plus |
| Germany | -30% | | -30% ³⁾ | | | | NFFB |
| Netherlands | | -25% | | | -50% | | ENB |
| United Kingdom | | -25% | | -44% ⁴⁾ | | NZEB | |

LEB: Low Energy Buildings. E plus: Energy positive buildings. NFFB: Buildings to operate without fossil fuels. ENB: Energy Neutral Buildings. NZEB: 0 net. CO₂, incl. heating, lighting domestic hot water and all appliances.

1) Percentage of the 2006 minimum level, 2) Effinergie standard, 3) Percentage of the 2009 minimum level, 4) Passive House level.

Source: SBI 2009:03: Towards very low energy buildings. Energy saving and CO₂ emission reduction by changing European building regulations to very low energy standards.



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Existing buildings follow new buildings

Existing Buildings follow New Buildings



- **New Buildings**
 - Energy efficiency was significantly increased in the 1970'es
 - Low energy building were introduced in the 1980'es
 - Passive houses came in in the 1990'es
 - Now we get the first near and zero energy building regulations
- **Existing Buildings**
 - Then we got the first energy improvements – double glazing !
 - Then we got the first real energy renovations
 - The first deep renovations in came in the new millennium
 - Soon we will see zero energy renovations take up some scale

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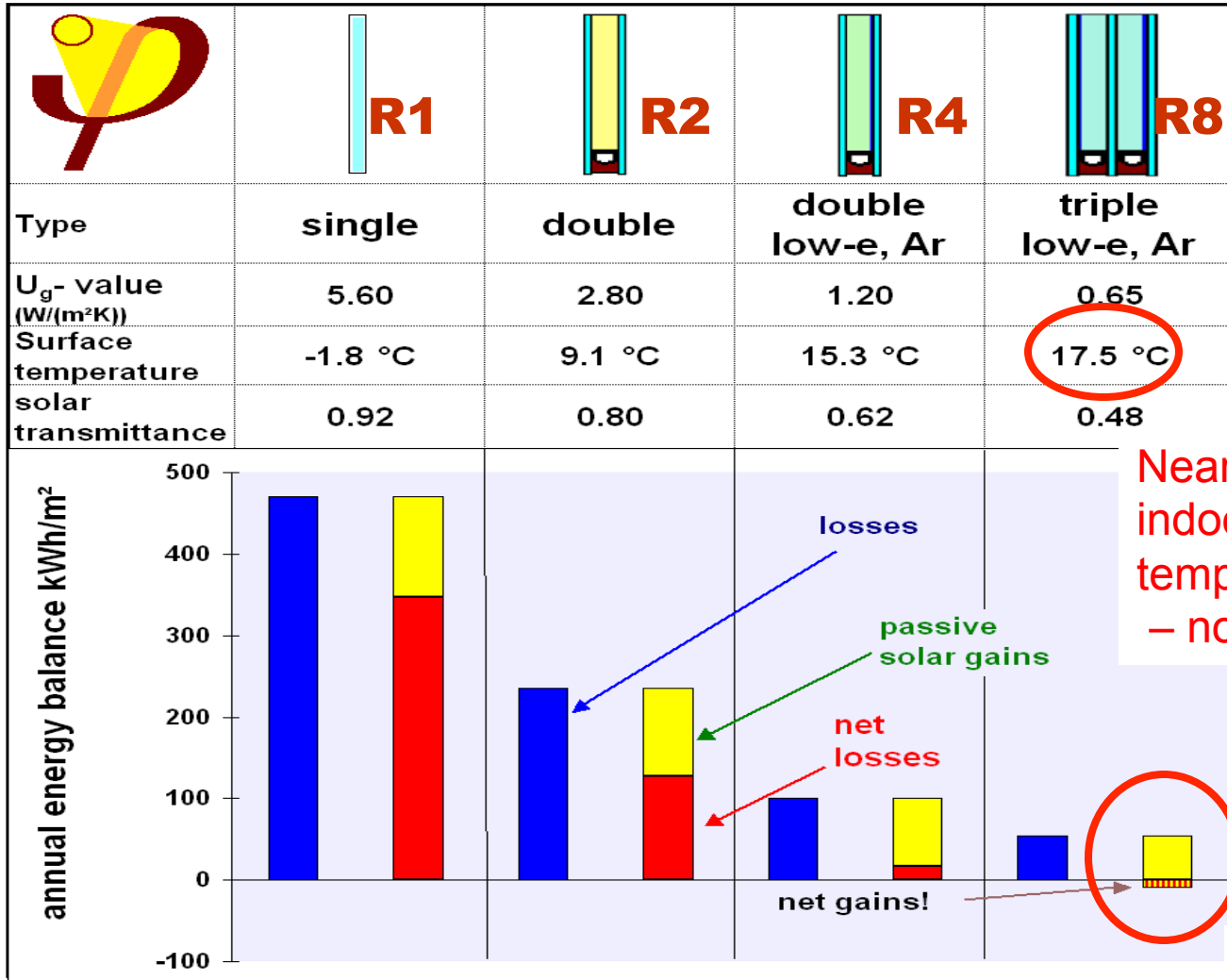


New buildings pace existing buildings and set standards also for these

Comfort Windows



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Nearly indoor temperature – not cold

Positive balance



Thank You for the attention

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