Federal Ministry
for Economic Affairs
and Climate Action

MITTELSTAND
GLOBAL
ENERGY SOLUTIONS
MADE IN GERMANY

energy solutions – made in Germany

Karl Moosdorf

27.09.2022, Lisbon

Facilitator

eclareon

Building Efficiency
> Data and Facts

- 21 Mio. Buildings exist in Germany

Source: dena

Building Efficiency
> Data and Facts

- 21 Mio. Buildings exist in Germany
- Buildings consum 35% of the total energy in Germany

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Building Efficiency
> Data and Facts

- 21 Mio. Buildings exist in Germany
- Buildings consum 35% of the total energy in Germany
- The target for 2045 is neutrality in emmissions

Source: dena

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Building Efficiency
> Data and Facts

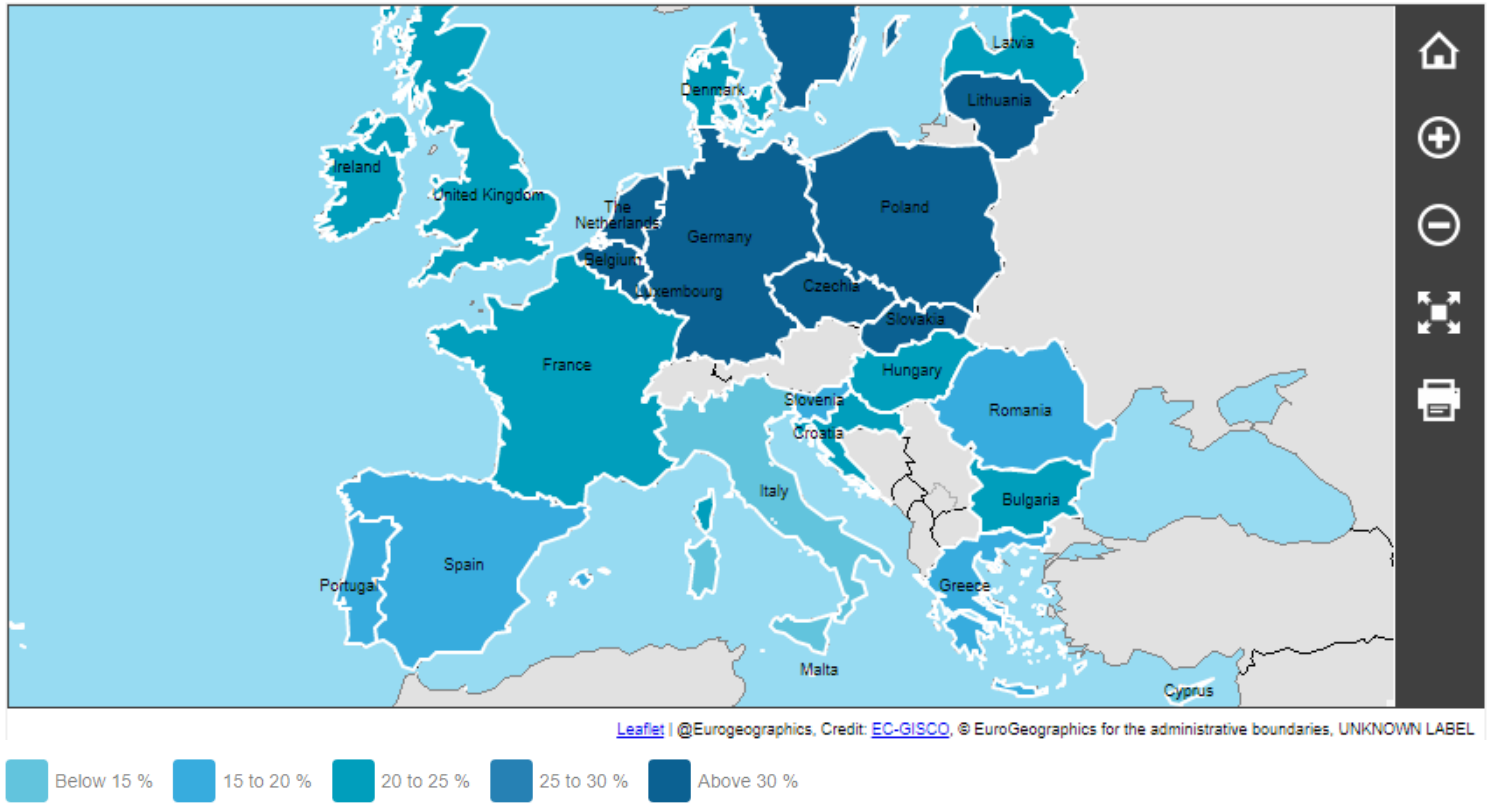
- 21 Mio. Buildings exist in Germany
- Buildings consum 35% of the total energy in Germany
- The target for 2045 is neutrality in emmissions
- The costs for heating, domestic hot water, lighting and cooling in 2014 reached 73 billion €

Source: dena

Building Efficiency
> Data and Facts

- Share of non-residential in total building floor area

- Germany: 31,6 %
- Portugal: 19,3 %



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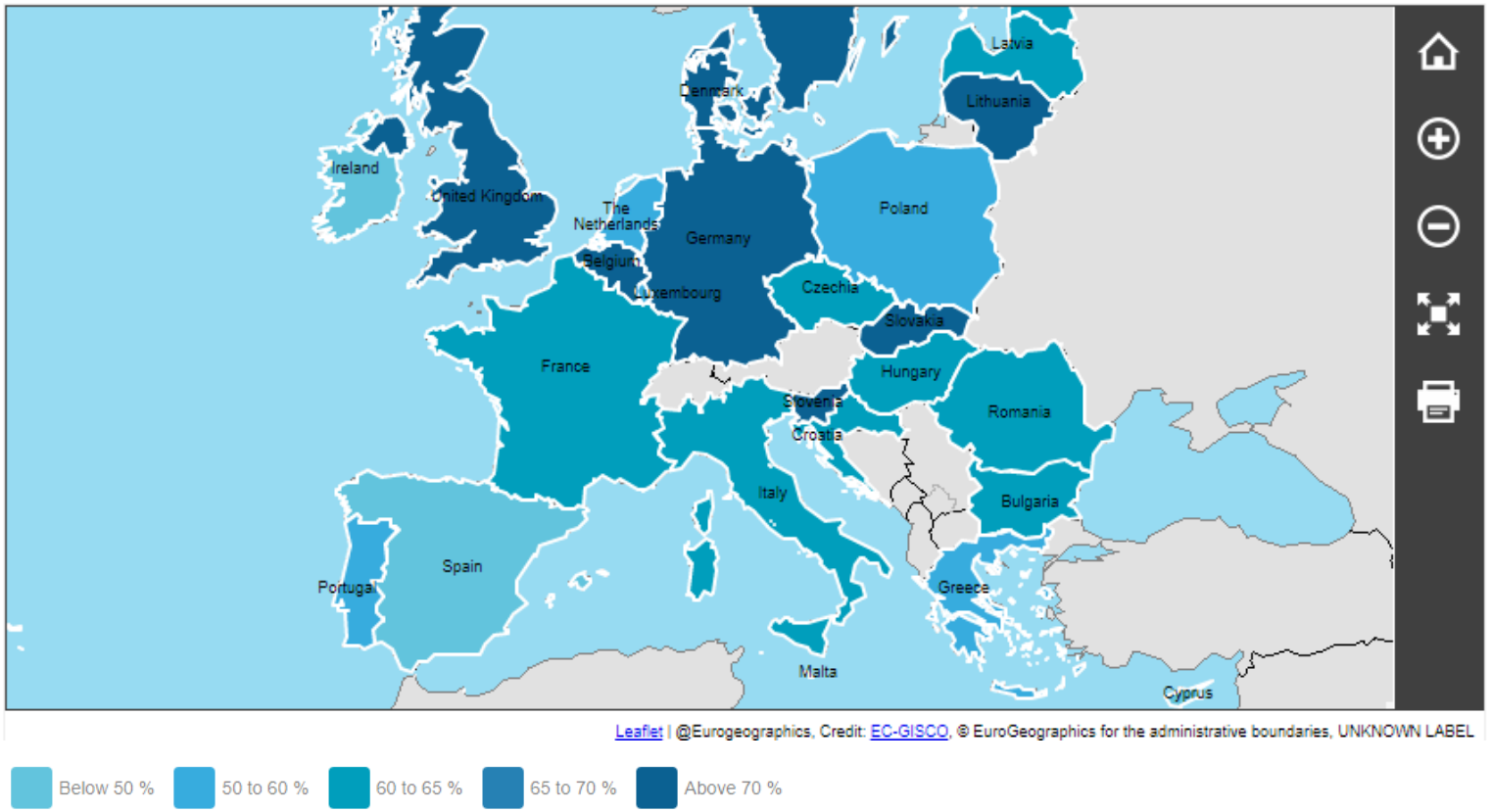
Building Efficiency
> Data and Facts

- Share of residential buildings built before 1980

- Germany: 74,6 %
- Portugal: 52,0 %



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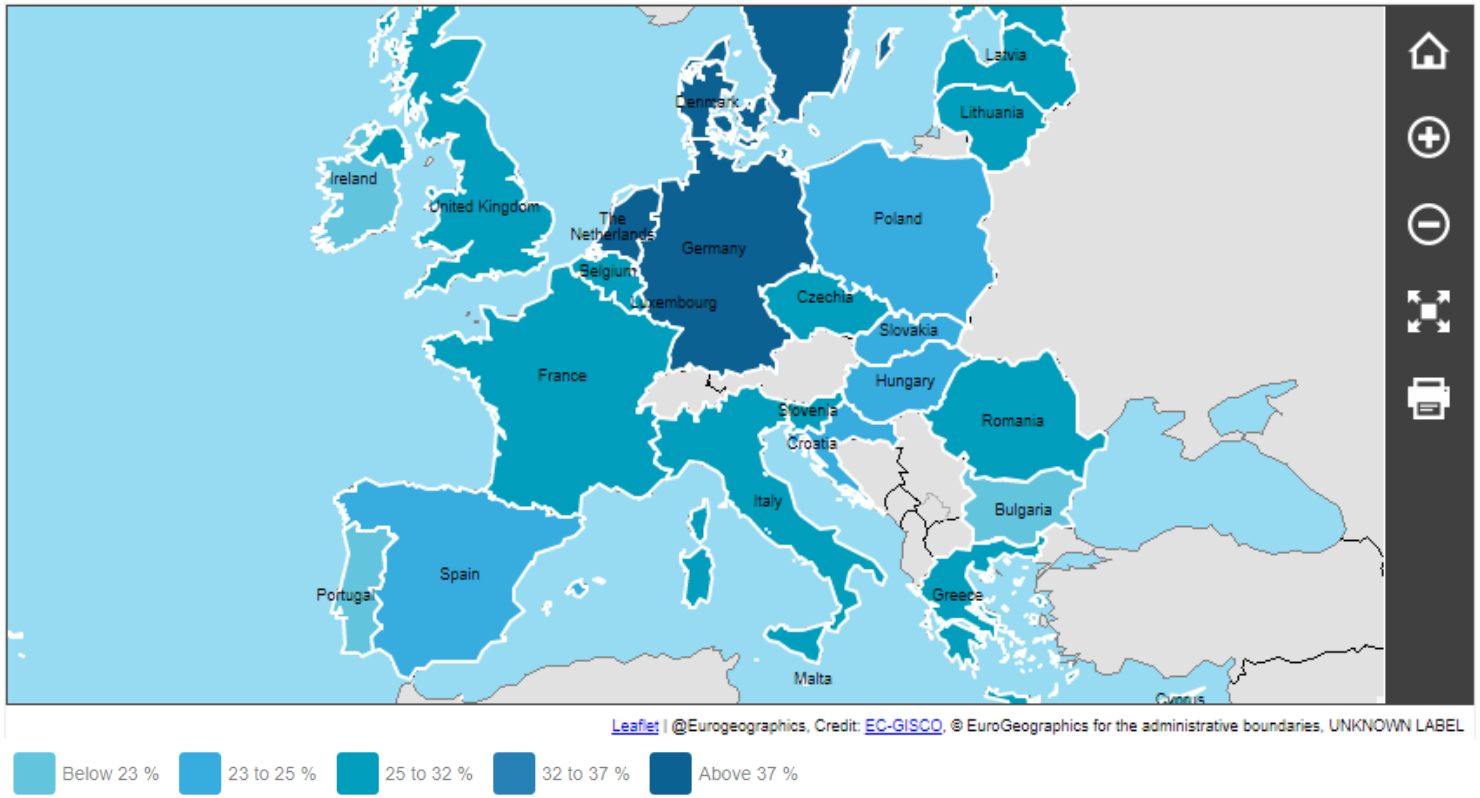
Building Efficiency
> Data and Facts

- Share of dwellings with single-person households

- Germany: 40,2 %
- Portugal: 20,0 %



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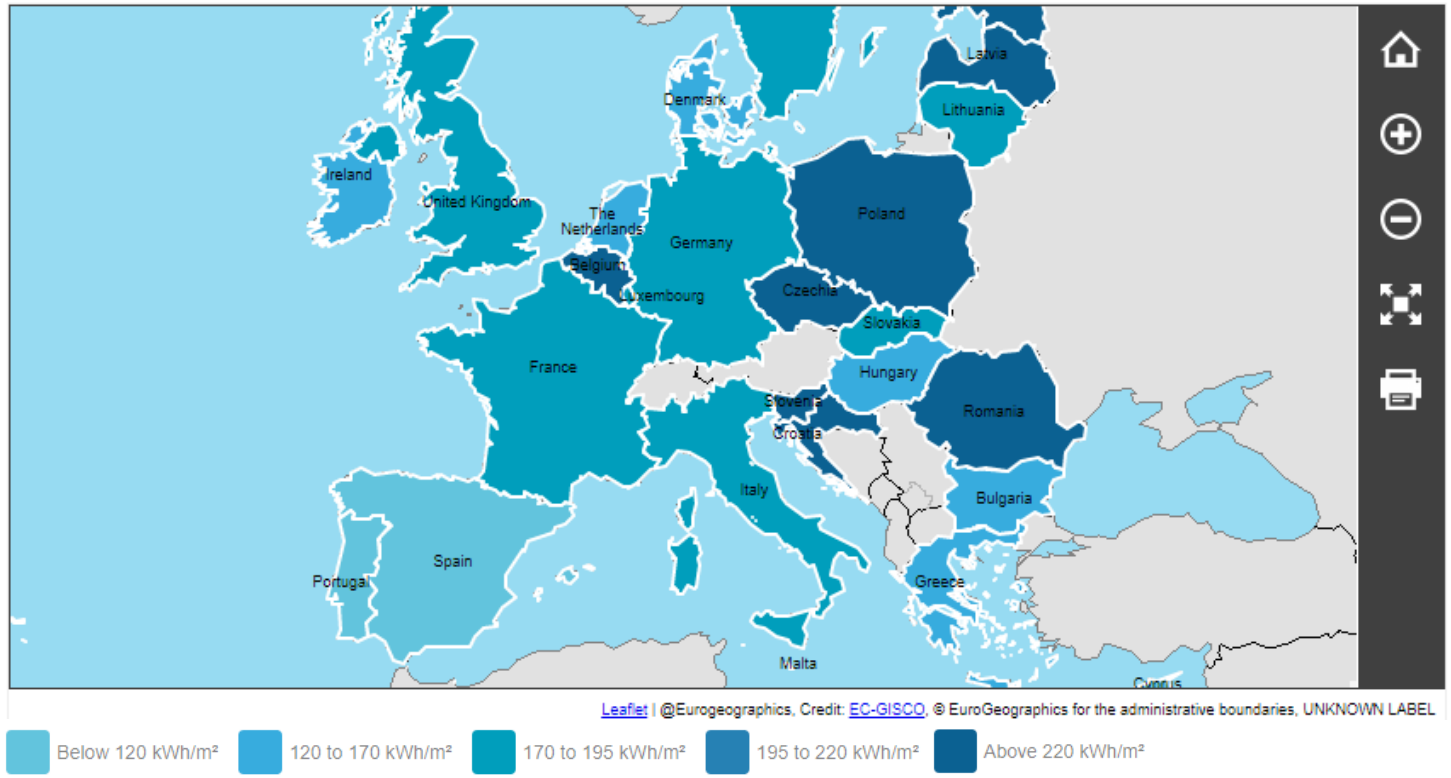
Building Efficiency
> Data and Facts

- Energy consumption of residential per m² (normal climate)

- Germany: 199,7 kWh/m²
- Portugal: 69,6 kWh/m²



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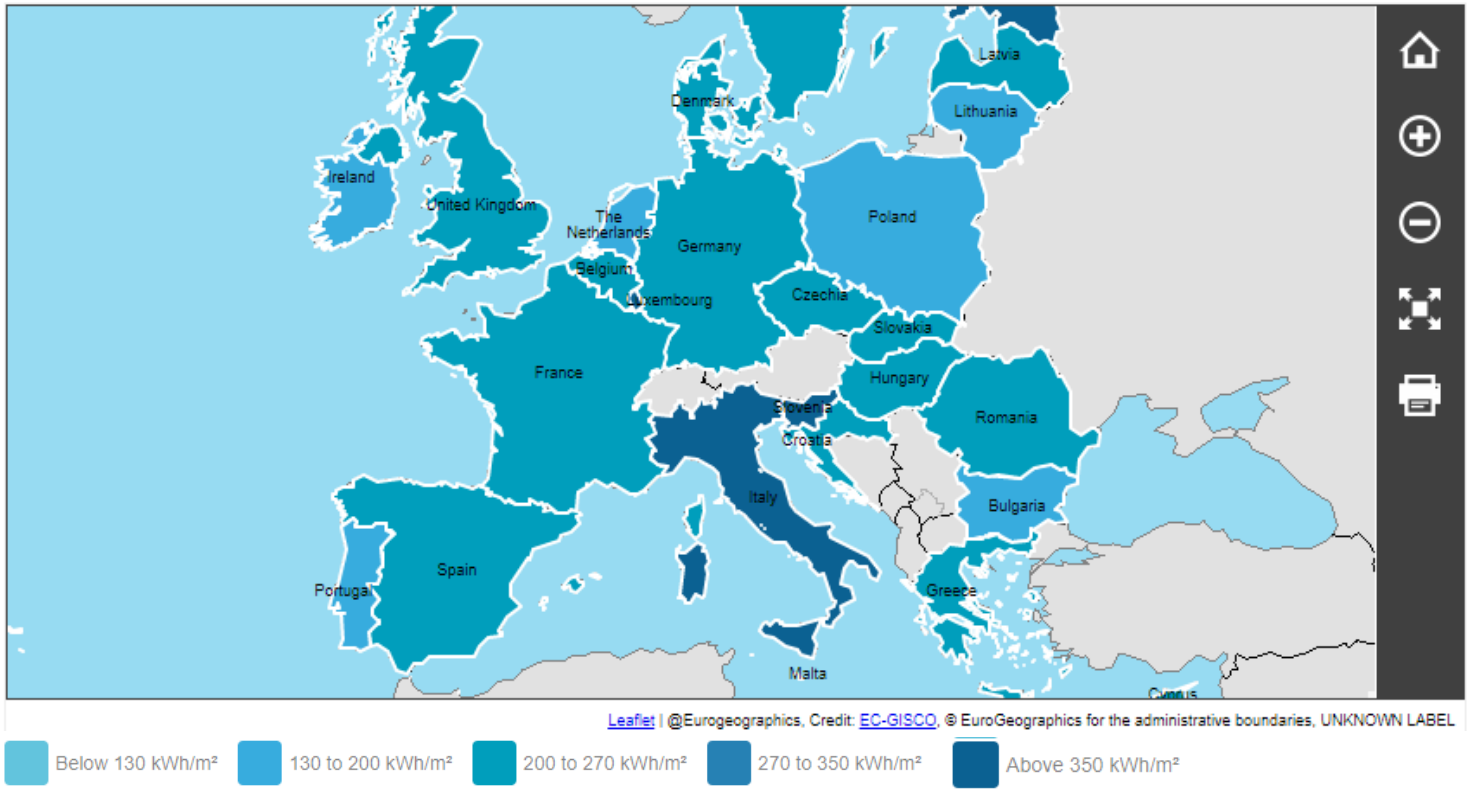
Building Efficiency
> Data and Facts

- Energy consumption in non-residential per m² (normal climate)

- Germany: 238,6 kWh/m²
- Portugal: 196,4 kWh/m²



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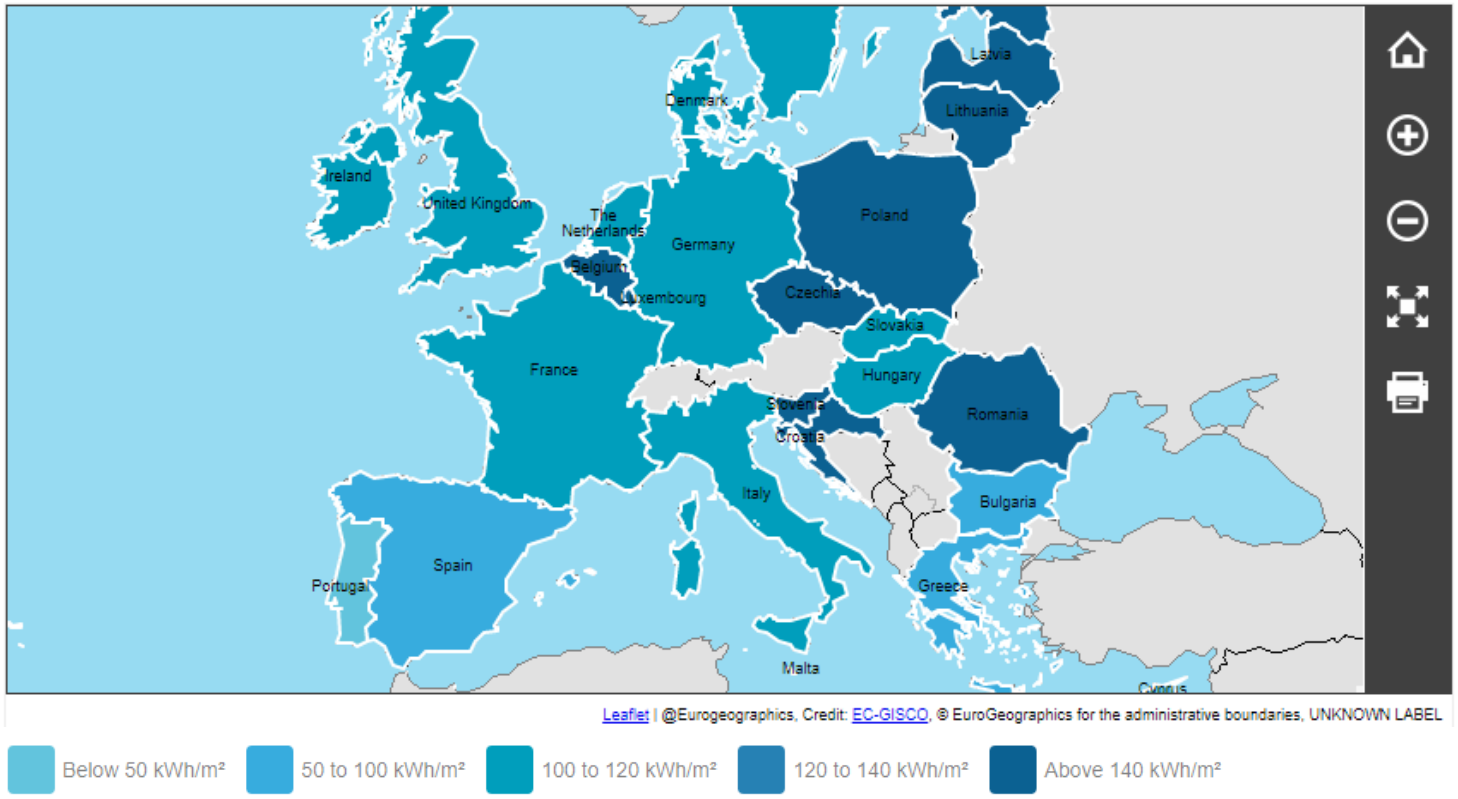
Building Efficiency
> Data and Facts

- Energy consumption of residential for space heating per m²
  (normal climate)

- Germany: 136,8 kWh/m²
- Portugal: 14,4 kWh/m²



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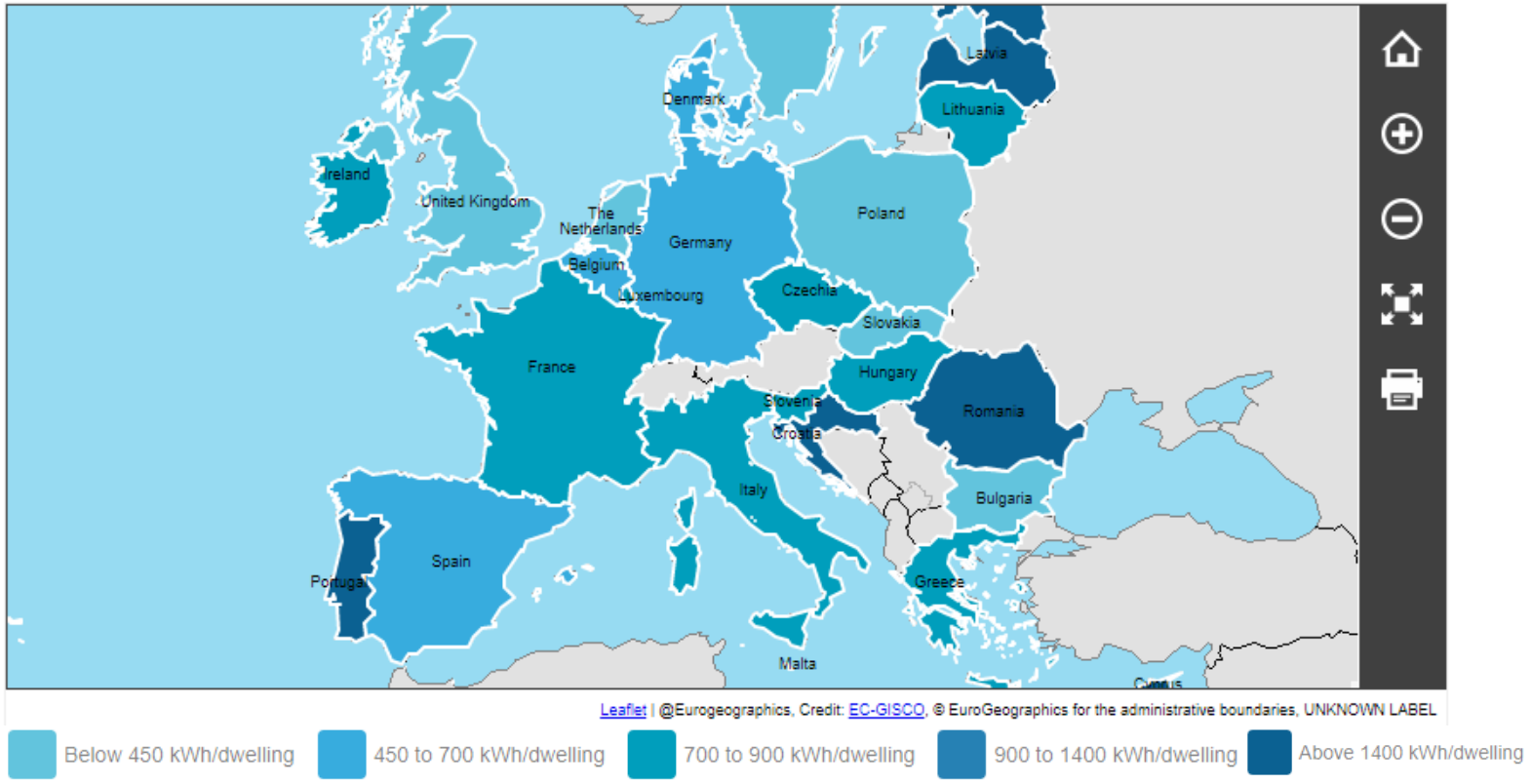
Building Efficiency
> Data and Facts

- Energy consumption of residential for cooking per dwelling

- Germany: 604,3 kWh/dw.
- Portugal: 3065,3 kWh/dw.



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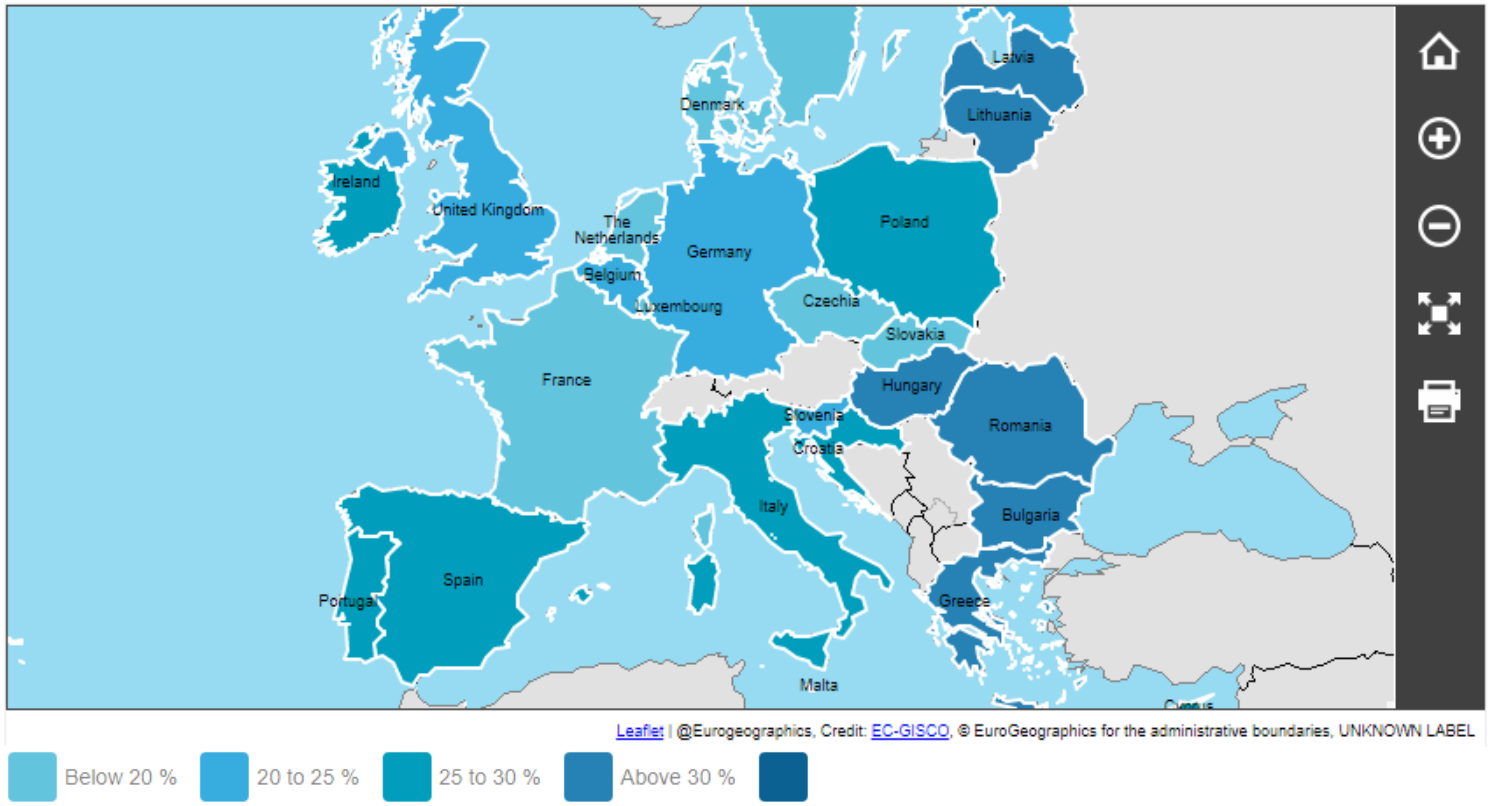
Building Efficiency
> Data and Facts

- Share of population at risk of poverty or social exclusion

- Germany: 20,3 %
- Portugal: 27,5 %



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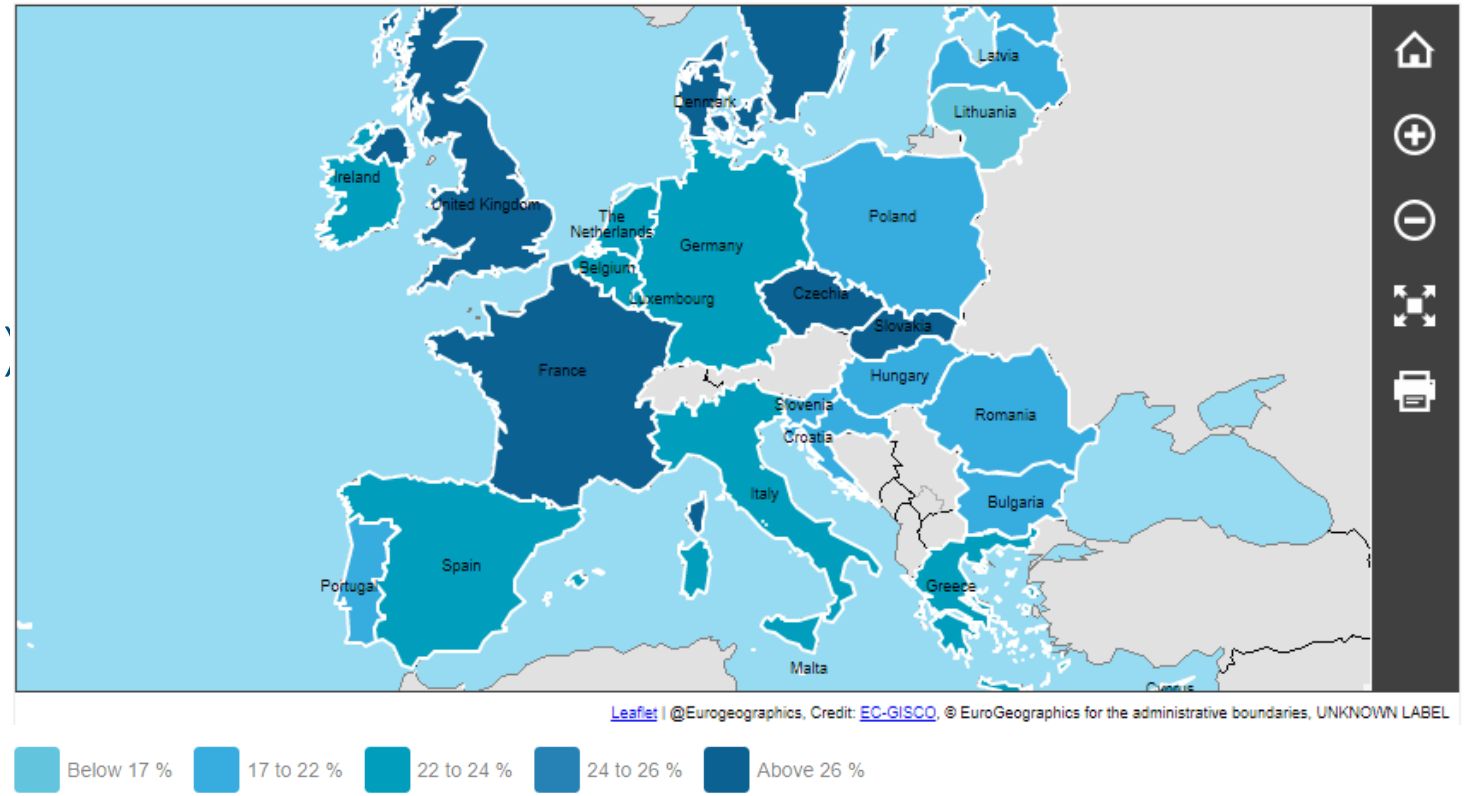
Building Efficiency
> Data and Facts

- Share of households expenditures on housing (housing, water, electricity, gas and other housing fuels)
- Germany: 25,2 %
- Portugal: 18,9 %



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Building Efficiency
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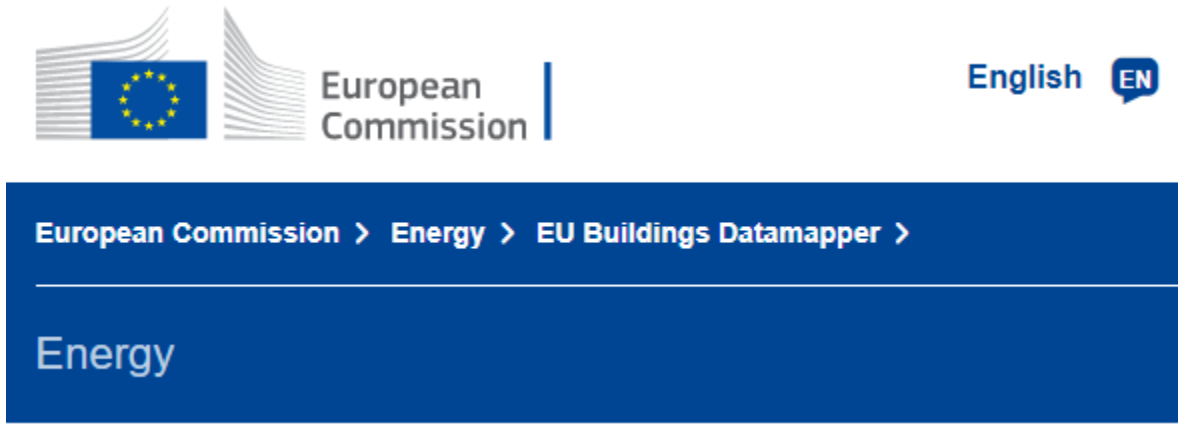


https://ec.europa.eu/energy/eu-buildings-datamapper_en

Building Efficiency
> Details

Lifecycle of a building DIN EN 15804

Module A		Module B	Module C	Module D
A 1 -3	A 4 - 5	B 1 - 7	C 1 - 4	D
A 1 – Exploration raw material A 2 – Transport A 3 – Production of building material	A 4 – Transport A 5 – Construction	B 1 – Utilization B 2 – Maintenance B 3 – Repairs B 4 – Substitution B 5 – Conversion / Renovation	C 1 – Demolition C 2 – Transport C 3 – Waste management C 4 – Disposal	D – Recycling
		B 6 – Energy consumption B 7 – Water consumption		

Building Efficiency
> Details

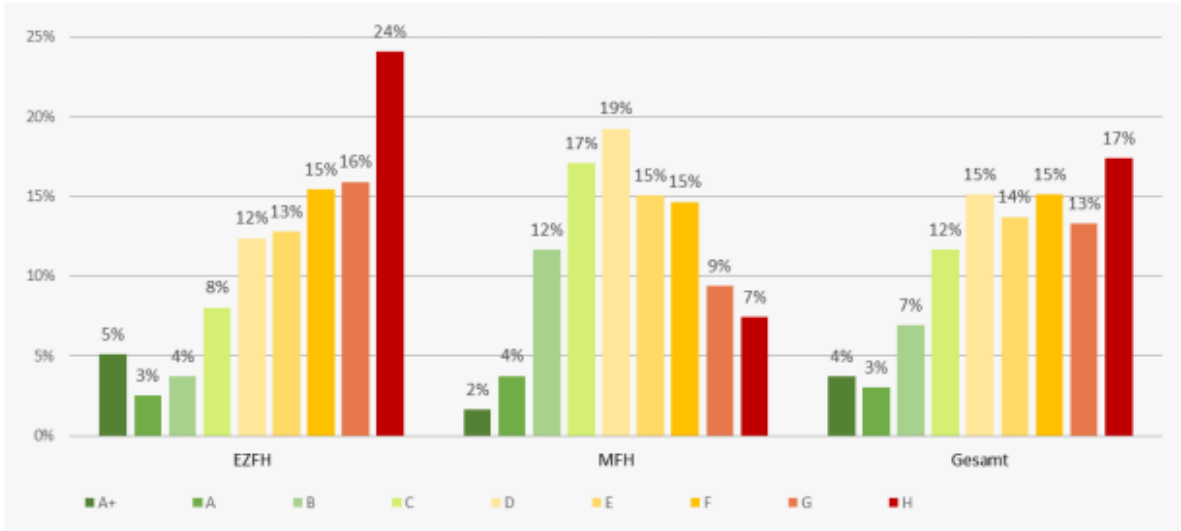
The EN 15804 is the EPD standard (EPD: Environmental Product Declaration) for the sustainability of construction works and services. This standard harmonises the structure for EPDs in the construction sector, making the information transparent and comparable. The first version was published in 2012, known as EN 15804+A1 “Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products”. However, a second version of the standard called EN 15804+A2 was published in 2019

Building Efficiency
> Details

Number of buildings in classification of needs of energy

EZFH = one or two family houses
MFH = multi family houses
Gesamt = Total

Abbildung 3: Häufigkeitsverteilung der Gebäudebestand nach Energiebedarfsausweisen



Quelle: Eigene Darstellung nach wissenschaftlicher Vorbereitung der LTRS

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Building Efficiency
> Details

Quelle: © iStock.com/gerenme

Building Efficiency
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Building Efficiency
> Definition

Energy efficiency (η) is the ratio between the useful output in products or services and the input, in energy terms.

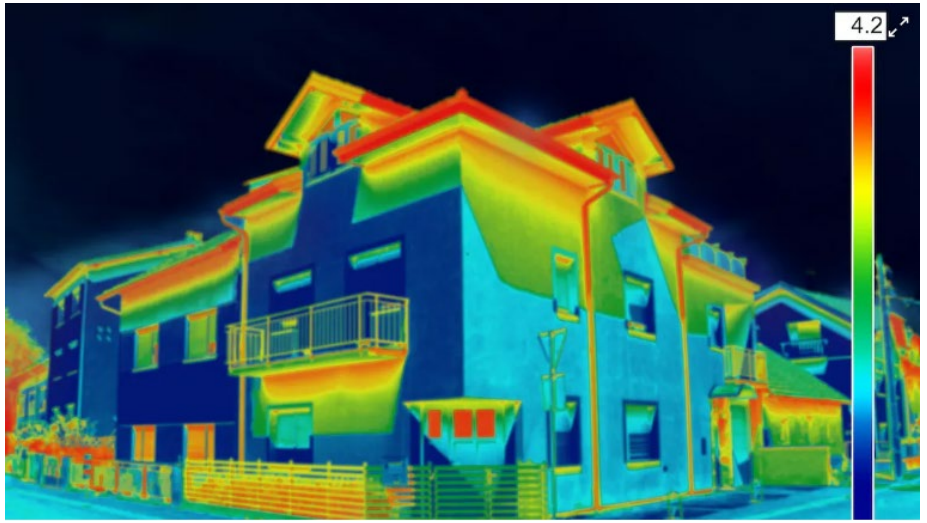
For example, insulating a building allows it to use less heating and cooling energy to achieve and maintain a thermal comfort.

Building Efficiency
> Definition

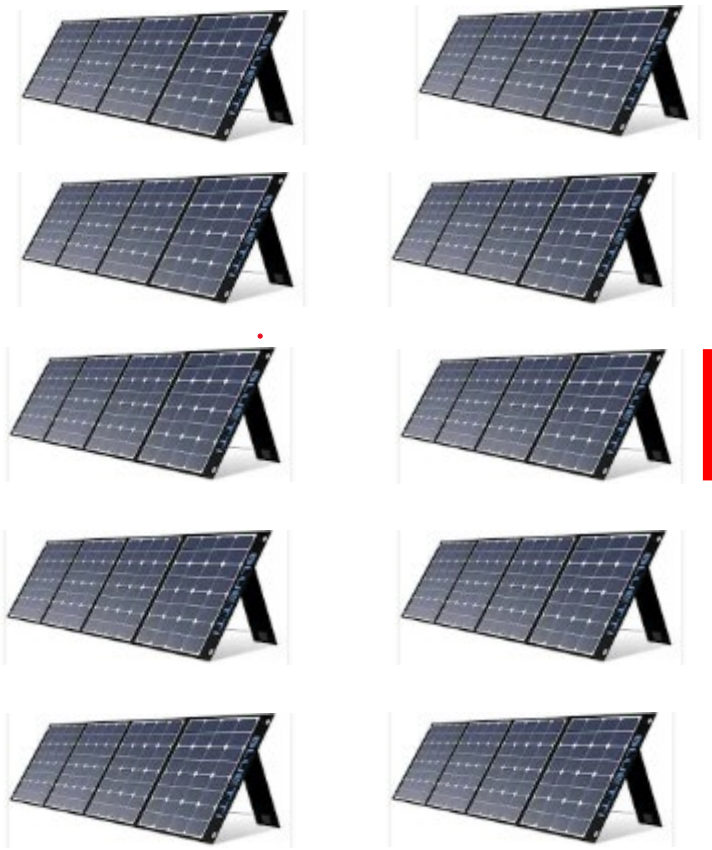
Means:

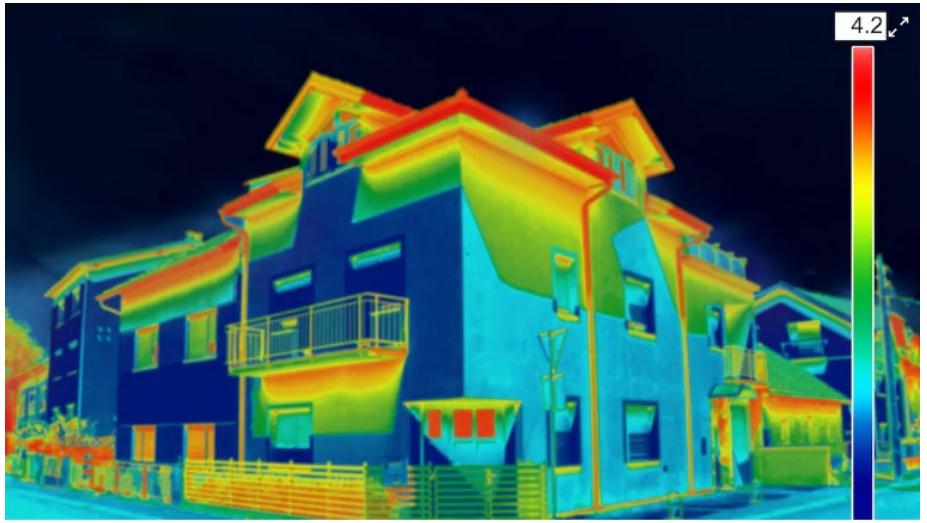
Scientifically the use of photovoltaics cannot influence the efficiency of a building

Building Efficiency
> Definition



Building Efficiency
> Definition





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Building Efficiency
> Definition

By definition the use of PV- modules is not contributing to the energy efficiency of a building.

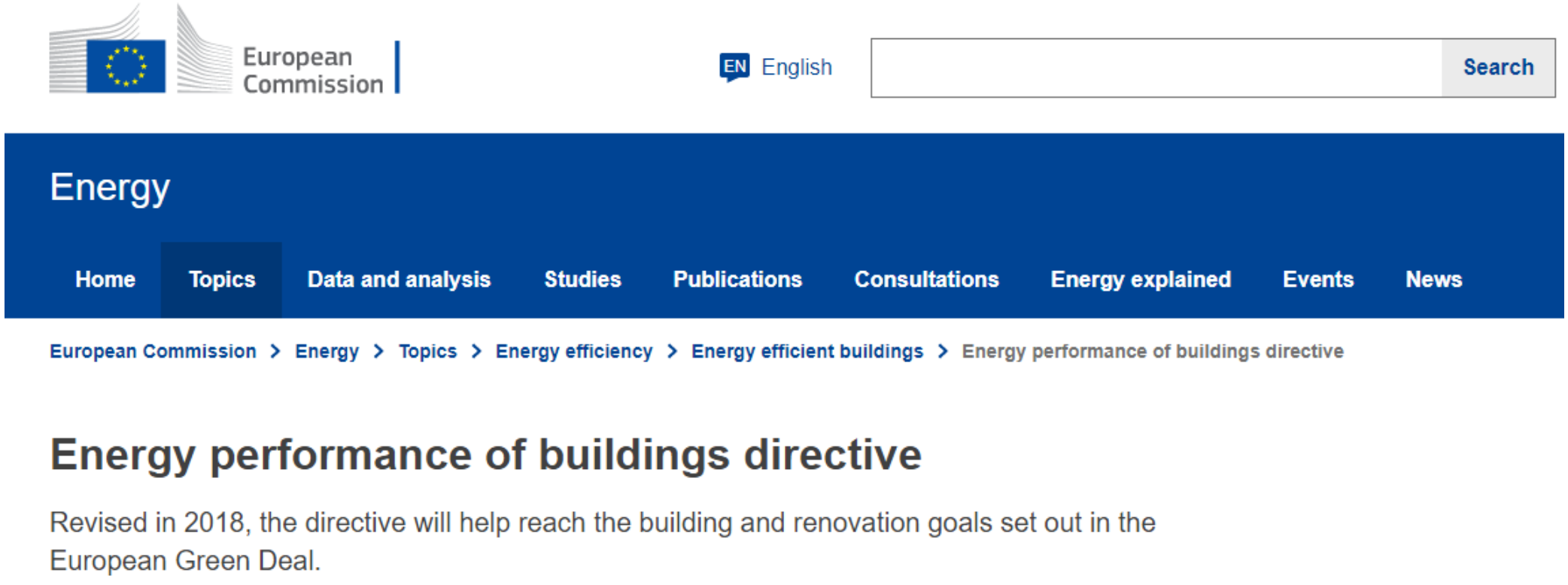
But:

Of course, the use of renewable energy makes the climate balance of a building much better.

Buildings integrated PV (BIPV) as a part of a buidling can directly contribute to the energy efficiency.

Legally also the use of external PV is accepted as a contribution to the building‘s efficiency

Building Efficiency
> More information



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Building Efficiency
> BIPV - examples

https://www.pv-magazine.de/2020/11/06/ppa-fuer-photovoltaik-fassadenanlage-in-marburg/

Building Efficiency
> BIPV - examples

Building Efficiency
> BIPV - examples

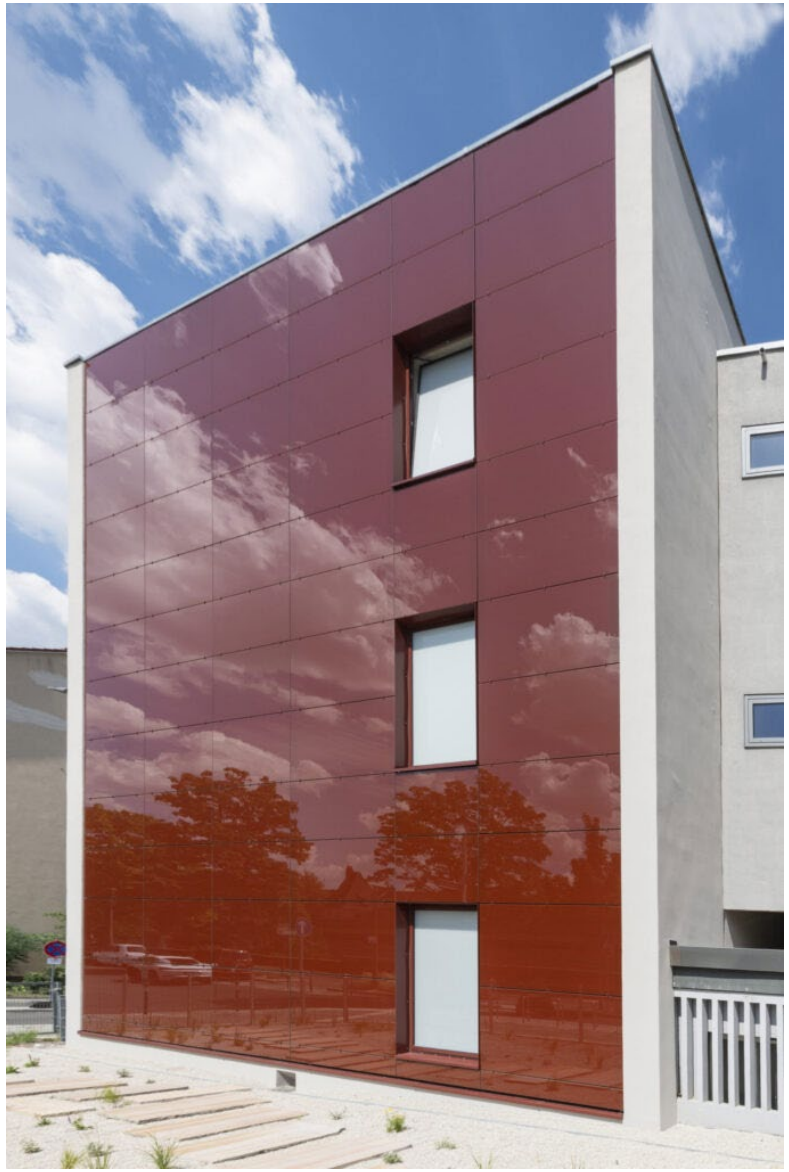

Foto: Allianz BIPV

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Building Efficiency
> BIPV - examples

Foto: Allianz BIPV

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Building Efficiency
> BIPV - examples

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Building Efficiency
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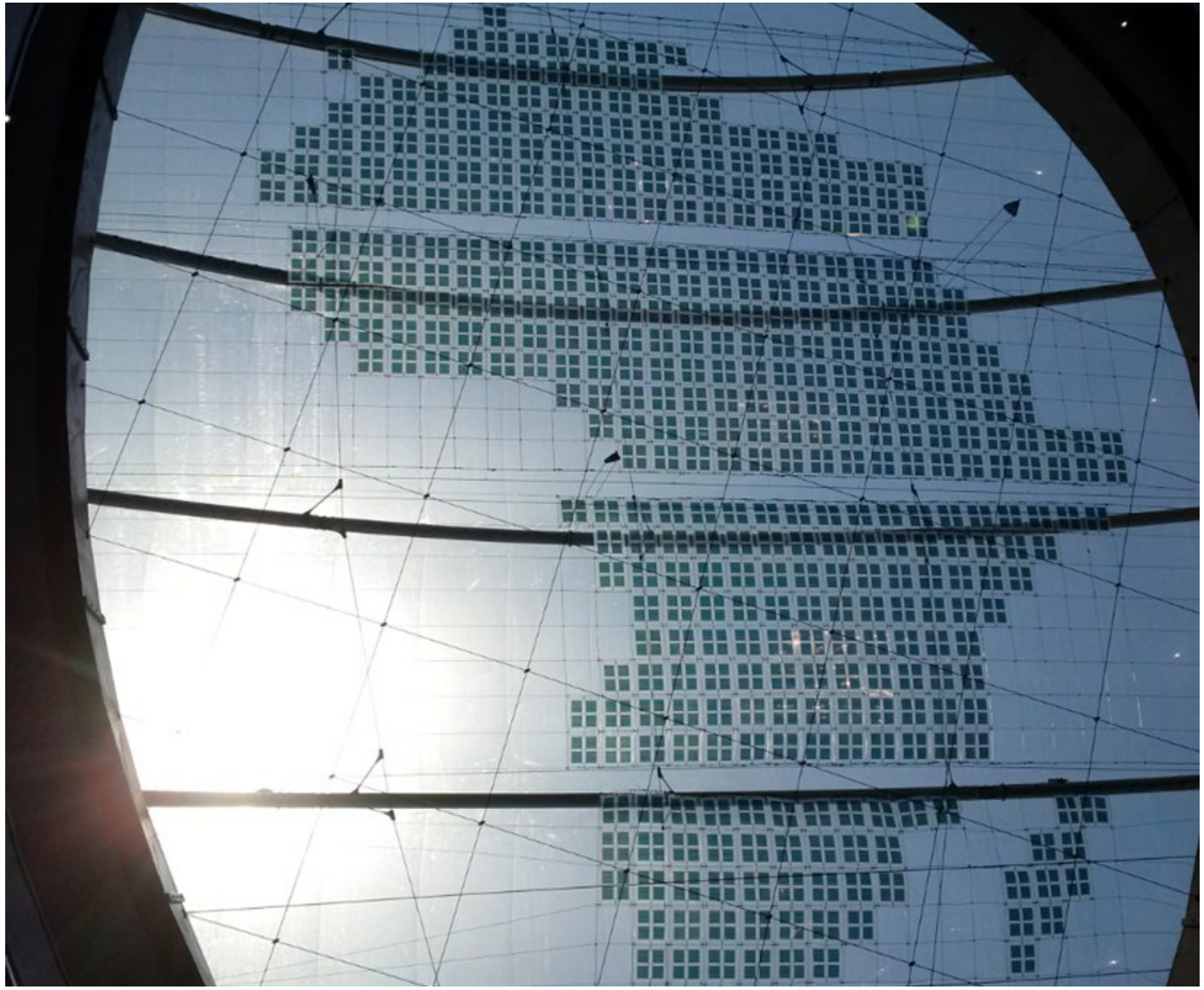

Foto: Allianz BIPV

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Building Efficiency
> BIPV – think PV

Where to start?

Foto: Karl Moosdorf

Building Efficiency
> BIPV – think PV

One of the keys:
The architect

Foto: Karl Moosdorf

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Building Efficiency
> BIPV – think PV

Think PV !

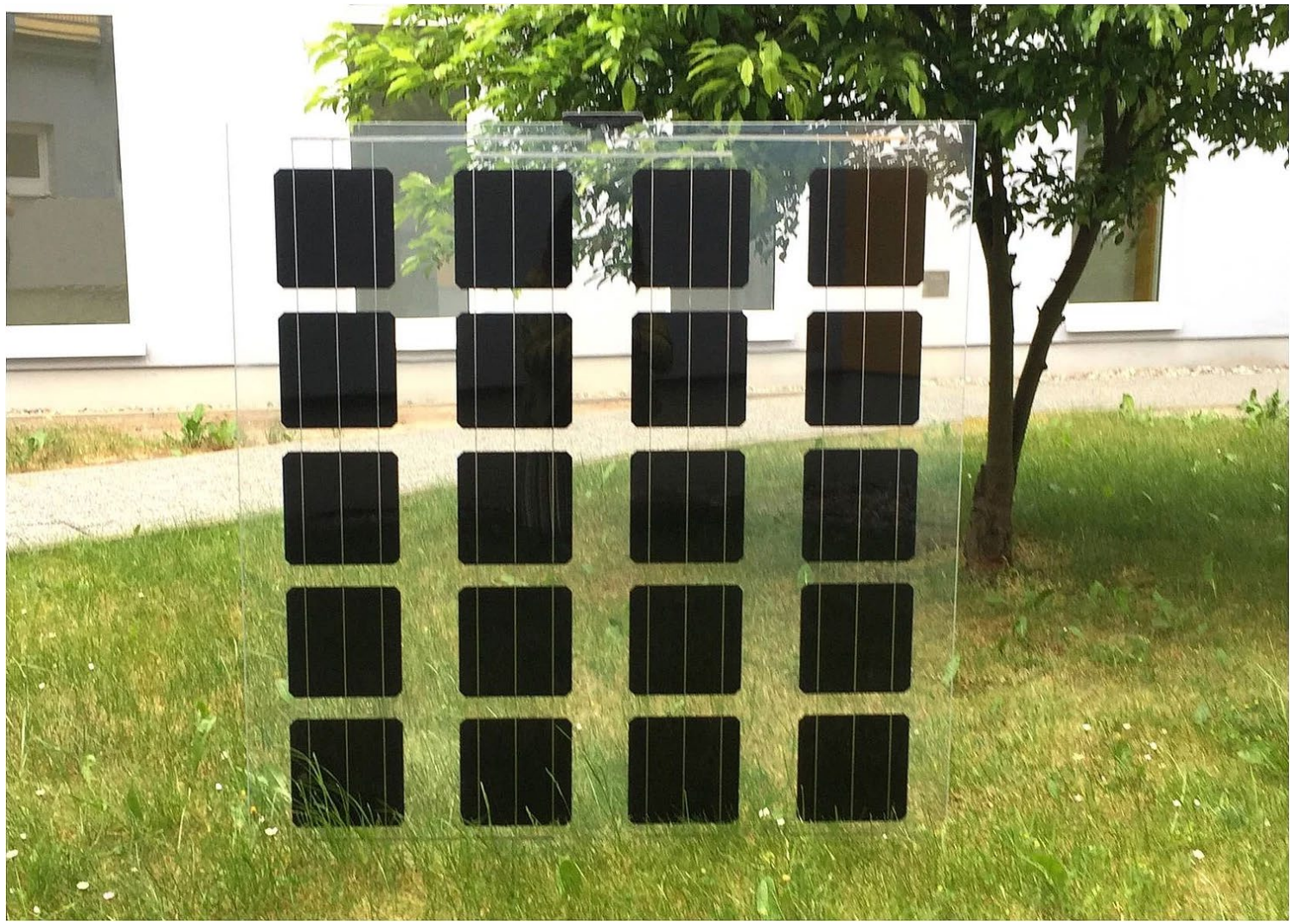

Foto:aleo solar GmbH

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Building Efficiency
> BIPV – think PV

Think PV !

Foto:SI Module GmbH

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Building Efficiency
> Mais é melhor

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Building Efficiency
> Details

Thank you for your attention!

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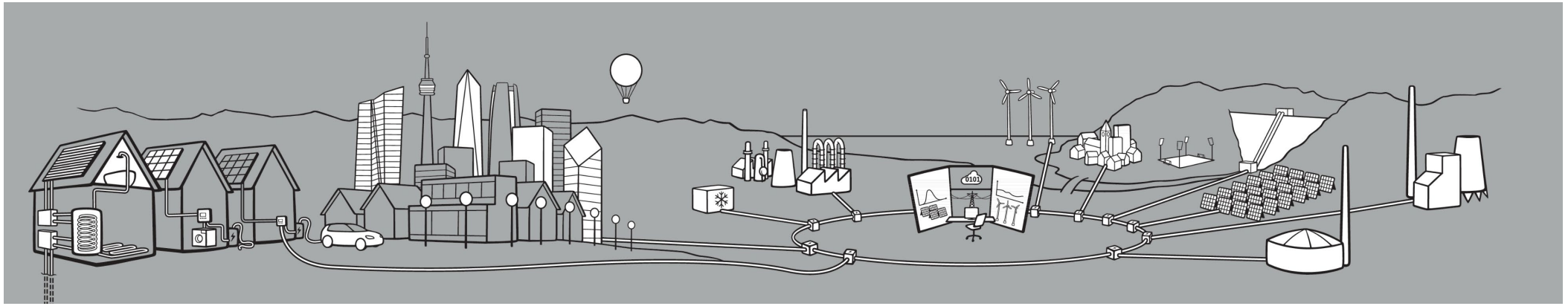

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