

Green Deal challenges growing cities

Future-proofing cities – STARDUST solutions and next steps 7.6.2023

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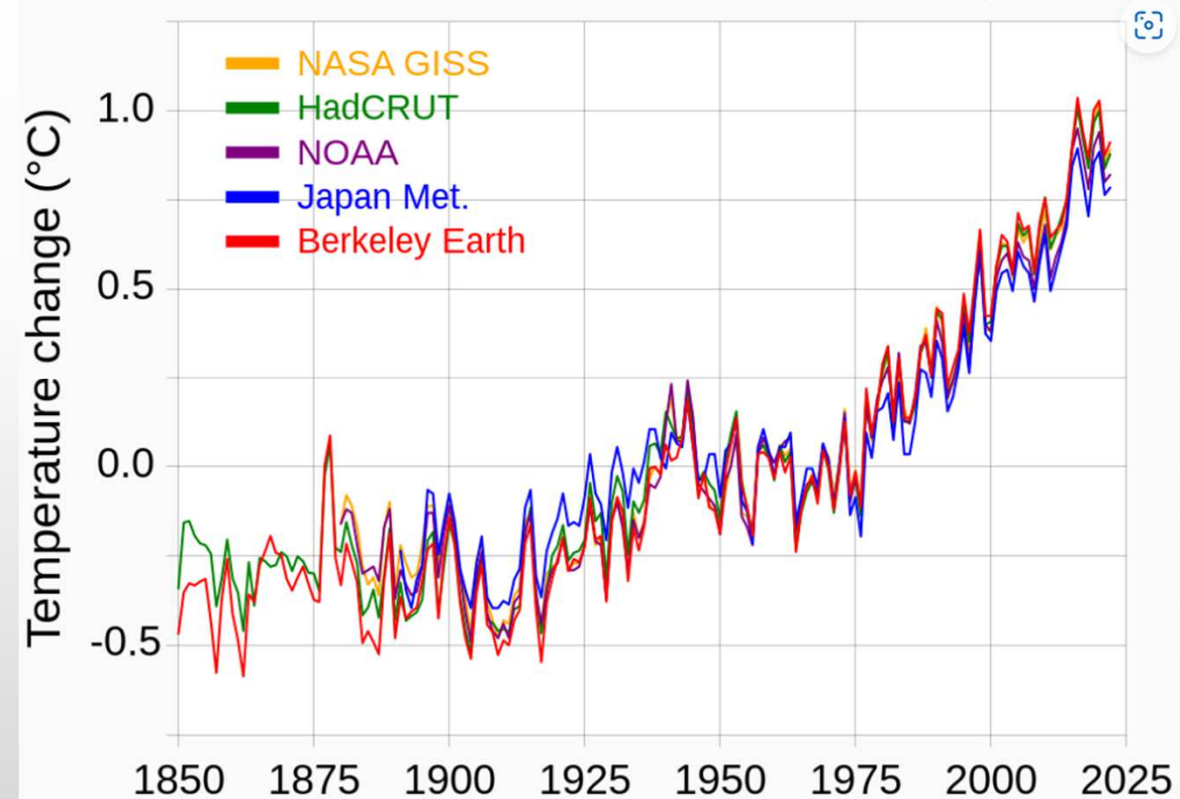
STARDUST
Enlightening
european cities

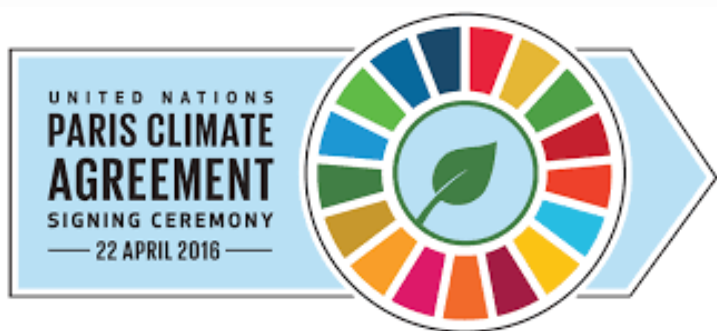
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774094





Global average temperature change





Renewable Energy Directive (RED) ✓

Energy Efficiency Directive (EED) ✓

Energy Performance of Buildings Directive (EPBD) ?





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Renewable Energy Directive (RED)

Press
release

30 March 2023

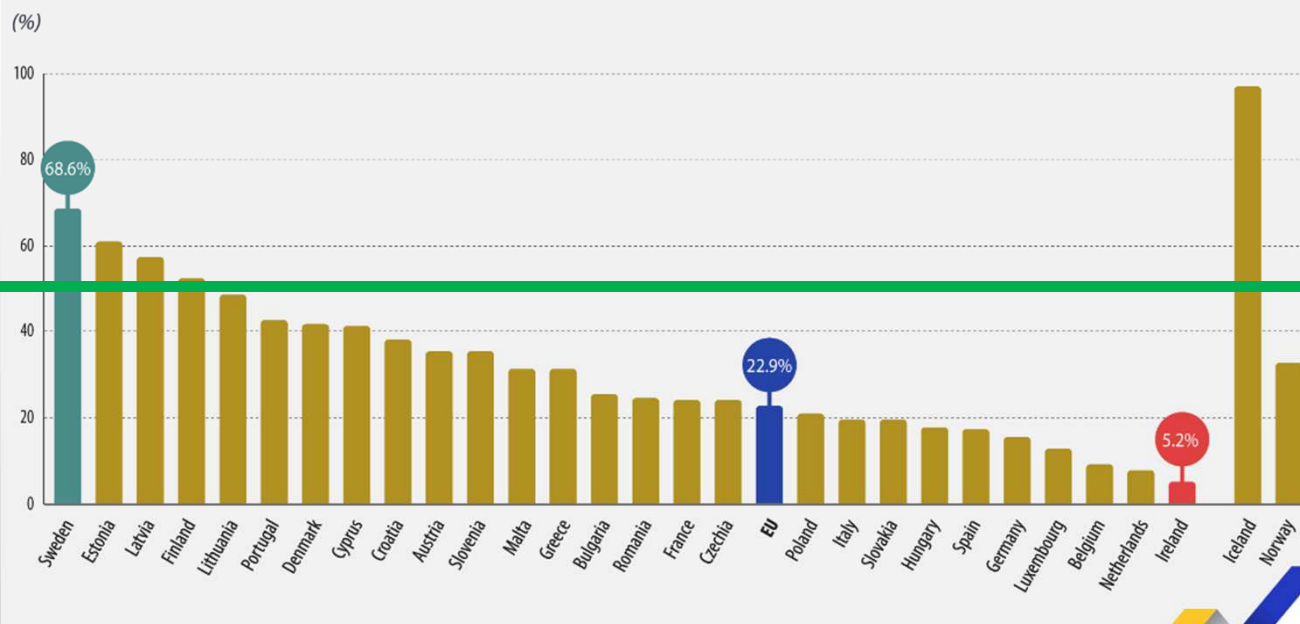
Council and
Parliament
reach
provisional
deal on
renewable
energy
directive



49 %
in
2030

- The share of renewable energy in the EU's **overall energy consumption** to **42.5 %**.
- An indicative target for buildings (heating, cooling) is of at least a **49 %** renewable energy share **in 2030**.

Share of energy from renewable sources for heating and cooling, 2021



Press
release

10 March 2023

**Council and
Parliament
strike deal on
energy
efficiency
directive**



A more energy efficient public sector

Public sector: national, regional or local authorities like municipalities

- Reducing its final energy consumption by 1.9 % annually
- Renovating buildings equal to 3 % of public building floor space per year



Energy classes in EPCs:

- the worst 15 % to energy class G or not ?

Minimum energy performance for each existing building:

- EU Commission E-class E (non-res 2030/res 2033)
- EU Parliament E-class D (non-res 2030/res 2033)
- EU Council Exceeding the weakest 25 % threshold (non-res 2034)
Only average D (res 2033)

EU Presidency 1-6.2023 Sweden
EU Presidency 7-12.2023 Spain



Zero-emission new buildings

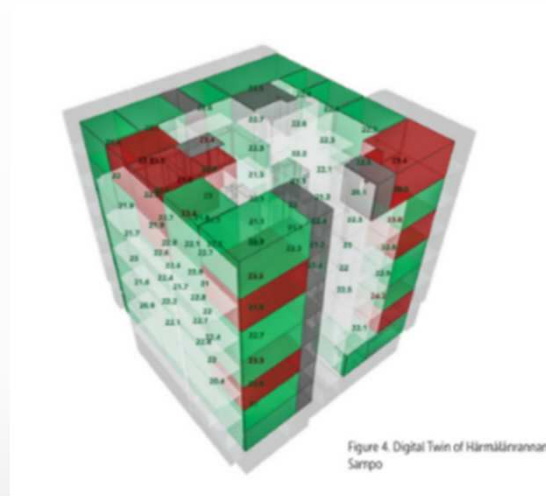
- Public buildings from 1.1.2028
- All new buildings from 1.1.2030

Minimum energy performance

- All new buildings should be “solar ready”

New feature to EPC

- Life-cycle GWP by a numeric indicator



- 40 private apartments completed in the 2020. The real building has a digital twin.
- Various options for generating and storing solar energy were explored.
- Decision was solar panels on the rooftop without batteries, due the legislation at the time of construction.



As Oy Auringonsäde A	2022
As Oy Auringonsäde B	2022
ASO Mangrove (num 5)	10/2022
ASO Mangrove (num 6)	10/2022
As Oy Auringonkukka	6/2023
As Oy Auringonpaiste	11/2023

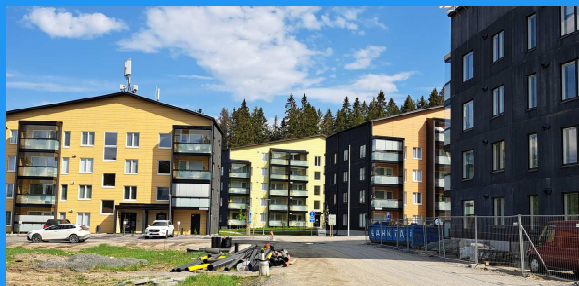


- Six buildings completed in the 2022-2023.
- Housing companies own jointly solar power plant outside the city in rural area.
- Ilokkaanpuisto project developed with Tampere Utility company a net zero concept in which energy production from sunny days is banked for use in the dark months of winter.



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... kuuluu parhaaseen A ryhmään



Energy mean

GSHPs
PV farm outside city

District heating
PV panels on rooftop

E-value $\text{kWh}_e/\text{m}^2/\text{a}$

27-32

73

E-class

A

A

GWP $\text{kgCO}_{2e}/\text{a}$

9.9-16.0

13.9



- **We are excited what kind of solution either Sweden during June 2023 or Spanish during autumn will end up with EPBD in terms of content**
- **Based on preliminary information, the challenge will be more enormous on the part of existing buildings than in new buildings**
- **Stardust new building cases show that future construction is already here. Technology and competencies exist. Still, awareness of clients is needed.**

THANK YOU

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