

# EU Flagship Initiatives to Fast-Forward the European Energy Transition

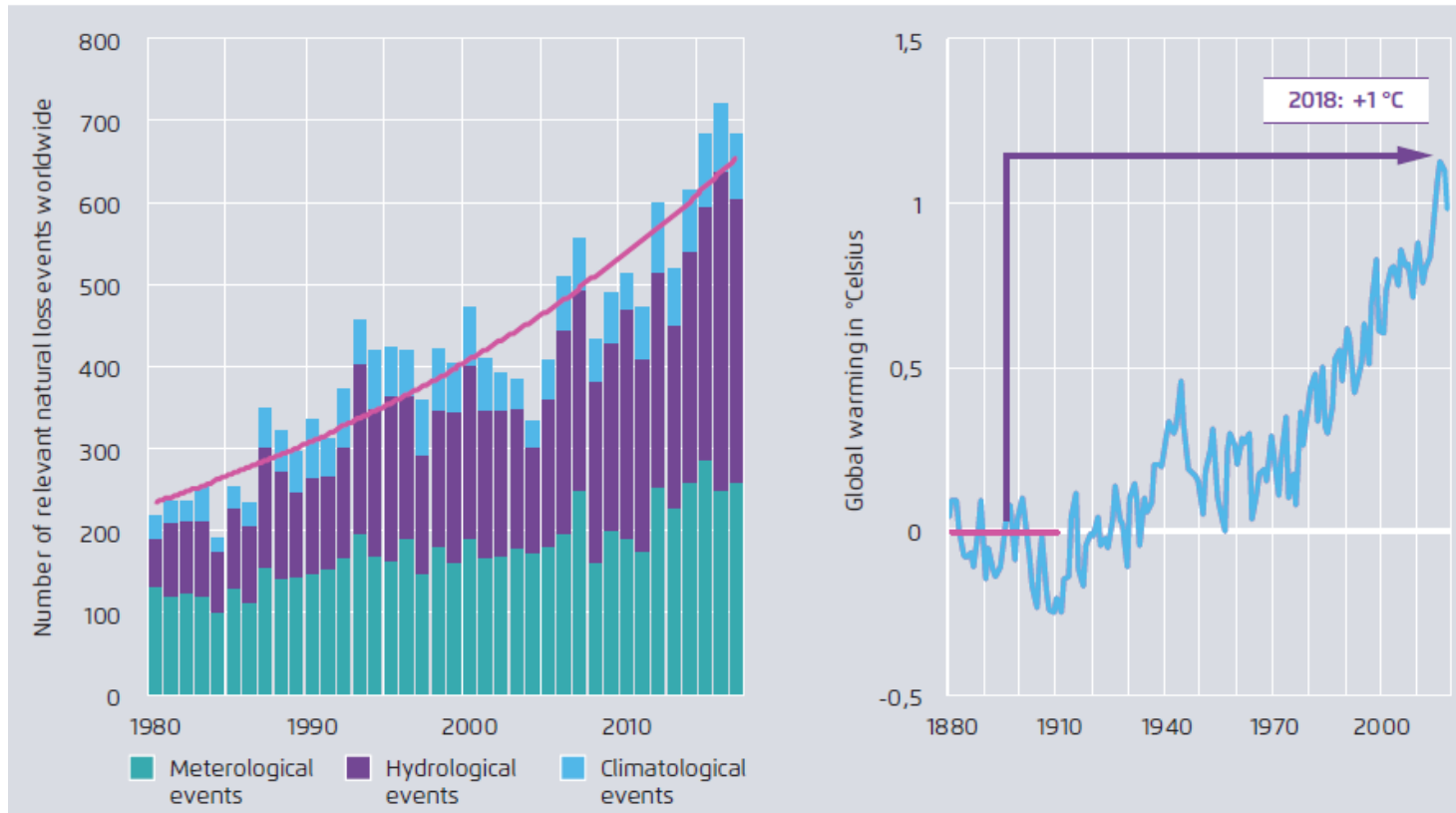
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HELSINKI, 22 NOVEMBER 2019

# Climate change is a reality. The planet has heated by >1 °C since industrialisation. Collective action so far is insufficient.

Climate change is real: since 1970 the rate of global warming has accelerated, and since 1980 extreme weather events have tripled

Figure 1



- The 2015 Paris Agreement obliges all countries to limit warming to well below 2°C.
- Currently, national pledges are in-sufficient to achieve this goal
- Decisive action in the next decade will determine whether irreversible tipping points in the climate system are avoided with some certainty.
- Societal pressure to reduce emissions is growing

**A comprehensive EU framework for 2030 is in place. Current EU targets imply cutting coal use by two thirds, reducing oil & gas by a quarter, increasing renewable electricity to 57% and continuous efficiency improvements**

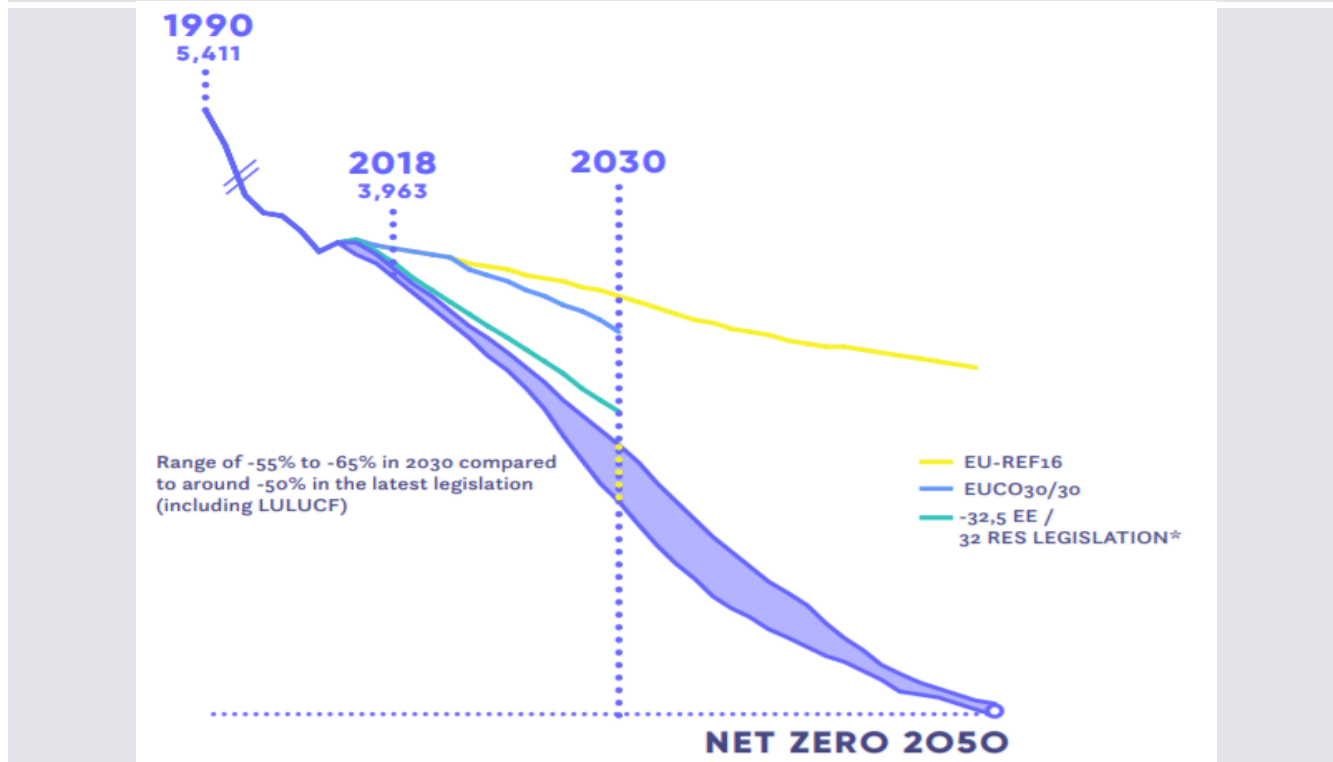


<b>Climate</b>	<b>Greenhouse Gas Emissions 2030</b> In 2030: 40 % reduction in GHG emissions compared to 1990 levels	
	<b>EU Emissions Trading System</b> In 2030: 43 % reduction compared to 2005	<b>Climate Action Regulation</b> In 2030: 30 % reduction compared to 2005
	A Europe-wide GHG emissions cap covering Large-scale facilities in power and industry, as well as domestic aviation	28 national GHG emissions reduction targets, stretching from -40 % to 0 %, covering sectors not covered by the ETS (Road & rail transport, buildings, small industrial facilities, agriculture, waste)
<b>Energy</b>	<b>Energy Efficiency 2030</b> 32.5 % decline in primary and final energy consumption compared to a 2007 Baseline	
	<b>Renewable Energy 2030</b> 32 % share of renewable energy in gross final energy consumption	
	National Energy and Climate Plans (NECPs) delivering the binding EU headline targets	

**Energy Union Governance**

# Achieving carbon neutrality by 2050 in a continuous transition from today onwards means reducing ghg emissions faster than required under current 2030 climate and energy targets

GHG emission reduction range in ECF/Climact net-zero scenarios



ECF/ Climact

- To avoid global warming tipping points, the EU must reduce greenhouse gas emissions to net zero by latest 2050.
- The EU Long Term Strategy shows net zero emissions by latest 2050 is possible by reducing energy-related emissions to almost zero and by significant negative emissions.
- Full implementation of the EU renewable energy and efficiency targets plus LULUCF would bring EU emissions to -48% in 2030.
- Alternative scenarios (Öko Institute, ECF / Climact) suggest increasing the EU 2030 target to -55% to -65% is feasible to avoid steeper emission reductions after 2030.

# An increase in the EU's 2030 climate and energy targets means more rapid decarbonisation particularly in the power sector, but also in the buildings, transport and industry sectors

**Power:** Accelerated coal phase-out – perhaps even a complete coal phase in Europe by 2030 – combined with a more rapid scaling of renewable energies (tripling today's speed of scaling RES-e).

**Buildings:** The buildings renovation rate needs to increase by at least a factor of 3. All new buildings must meet a nearly zero-energy standard. In 2030, every third building in your street should have undergone an energetic modernisation.

**Transport:** Direct electrification is the cheapest way to reduce transport emissions. More than 40 million electrically chargeable cars and vans will be needed on the streets by 2030. Market uptake requires rapid roll-out of charging infrastructure.

**Industry:** The long technical lifetimes of plants in the industrial sector means the next investment decision will determine whether Europe can become carbon-neutral by latest 2050.

## EU Flagship Initiatives should address the social dimension of the transition, help overcome existing implementation bottlenecks and prepare the ground for increasing ambition

The Commission should cooperate with interested governments, regions and stakeholders to launch a range of „**EU Flagship Initiatives**“ that address the social dimension of the energy transition, help to overcome existing implementation bottlenecks and prepare the ground for increasing EU climate ambition. We propose the following 5 flagship initiatives:

- By 2025, 1 million buildings renovated using an industrialised approach
- By 2025, at least 10 million solar roof-tops added to houses and supermarkets throughout Europe
- By 2025, 100 cities with strategies for decarbonising heating and cooling networks
- By 2025, roll out „1 million charging stations“
- By 2025, convert one open-cast coal mine in each „Coal Region in Transition“ to a utility-scale solar PV park

The new EU Budget should financially support such initiatives and the Commission’s structural reform support service should provide on demand, tailored support.

## Flagship Initiative 1: Renovate 1 million buildings on an industrial scale by 2025

The EnergieSprong concept building process

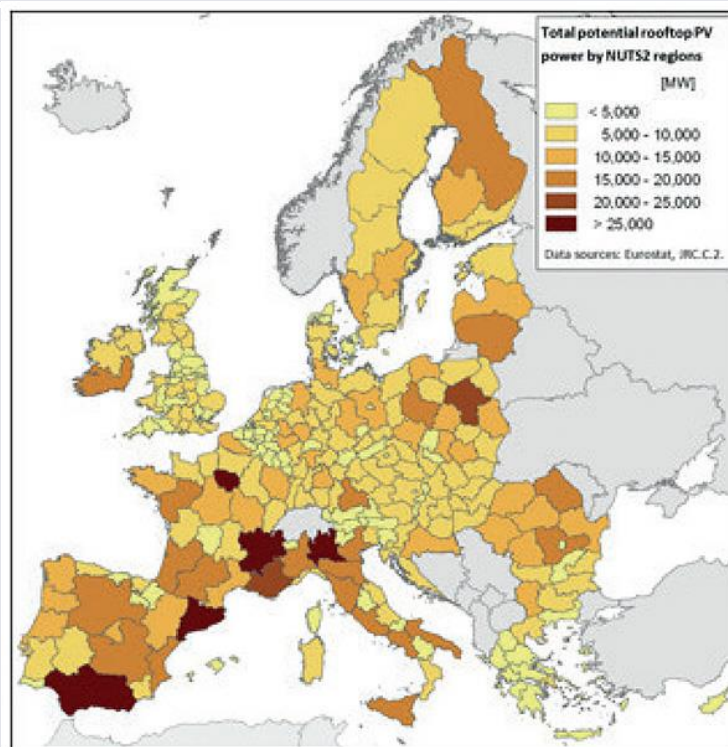


dena (2018): Energiesprong Deutschland Sanierung

- The renovation of the existing building-stock progresses at 1% per year. It must be more than doubled to reach the current 2030 targets.
- The current small-scale approach is a key bottleneck for accelerating the building renovation rate; Knowledge, service provider, materials and financing must be newly organised for each project.
- Industrialised approaches to scale up deep retrofits of existing buildings and minimize disruption to customers (e.g. the Dutch Energiesprong model) are feasible, affordable and scalable and should be expanded.
- The European Commission should launch and co-fund 5–10 pilot projects per member state in partnership with national agencies, cities, and industries

## Flagship Initiative 2: Add 10 million solar rooftops by 2025

Rooftop PV Potential in MW per NUTS2 region

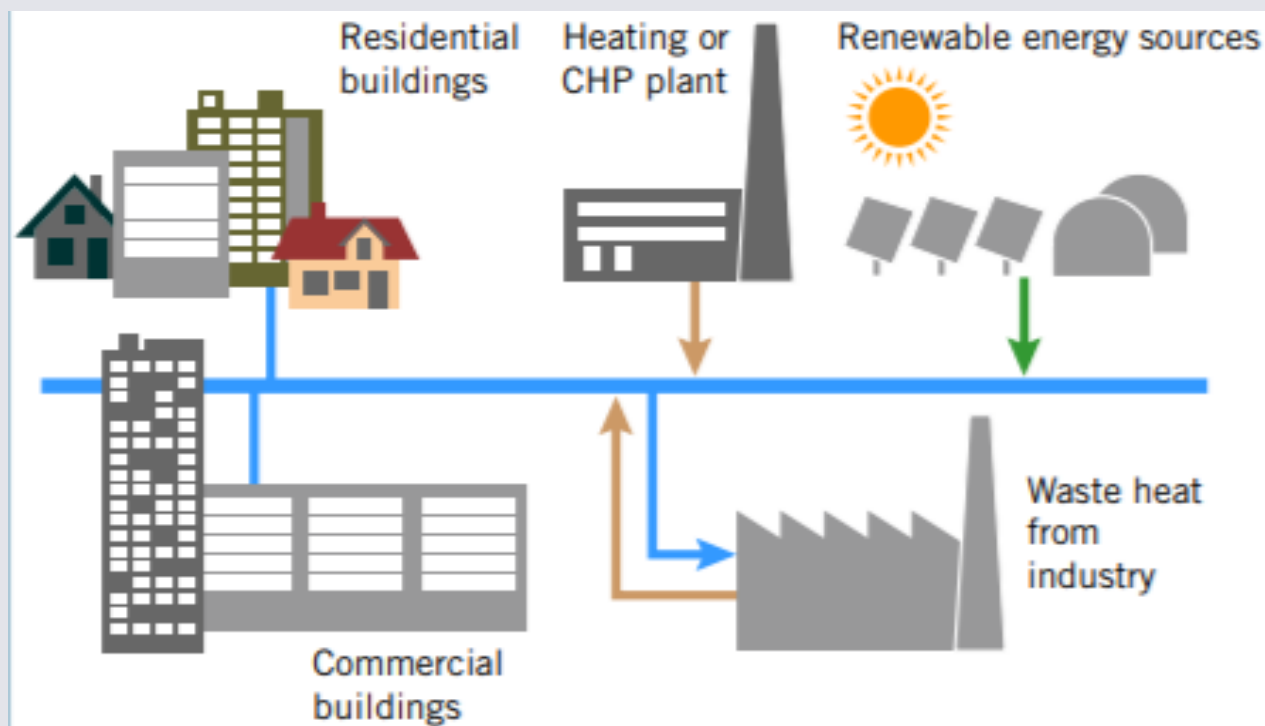


- In 2015, only 4.7 million households in Europe (of 219 million in total) produced power with rooftop PV. Europe's has a total potential of at least 25 million by 2030. The costs for solar PV have fallen dramatically, while rooftop PV can generate up to three times as many jobs and three times as much value creation as largescale PV installations. The initiative would prioritize socially and economically disadvantaged households in member states with low solar PV uptake.
- The Commission would partner with regional governments and agencies to develop custom packages that combine (i) a review of administrative and regulatory conditions for developing and integrating rooftop solar PV; (ii) the creation of a financing strategy with the use of EU funds; and (iii) the dedicated support of training programmes for new installers.



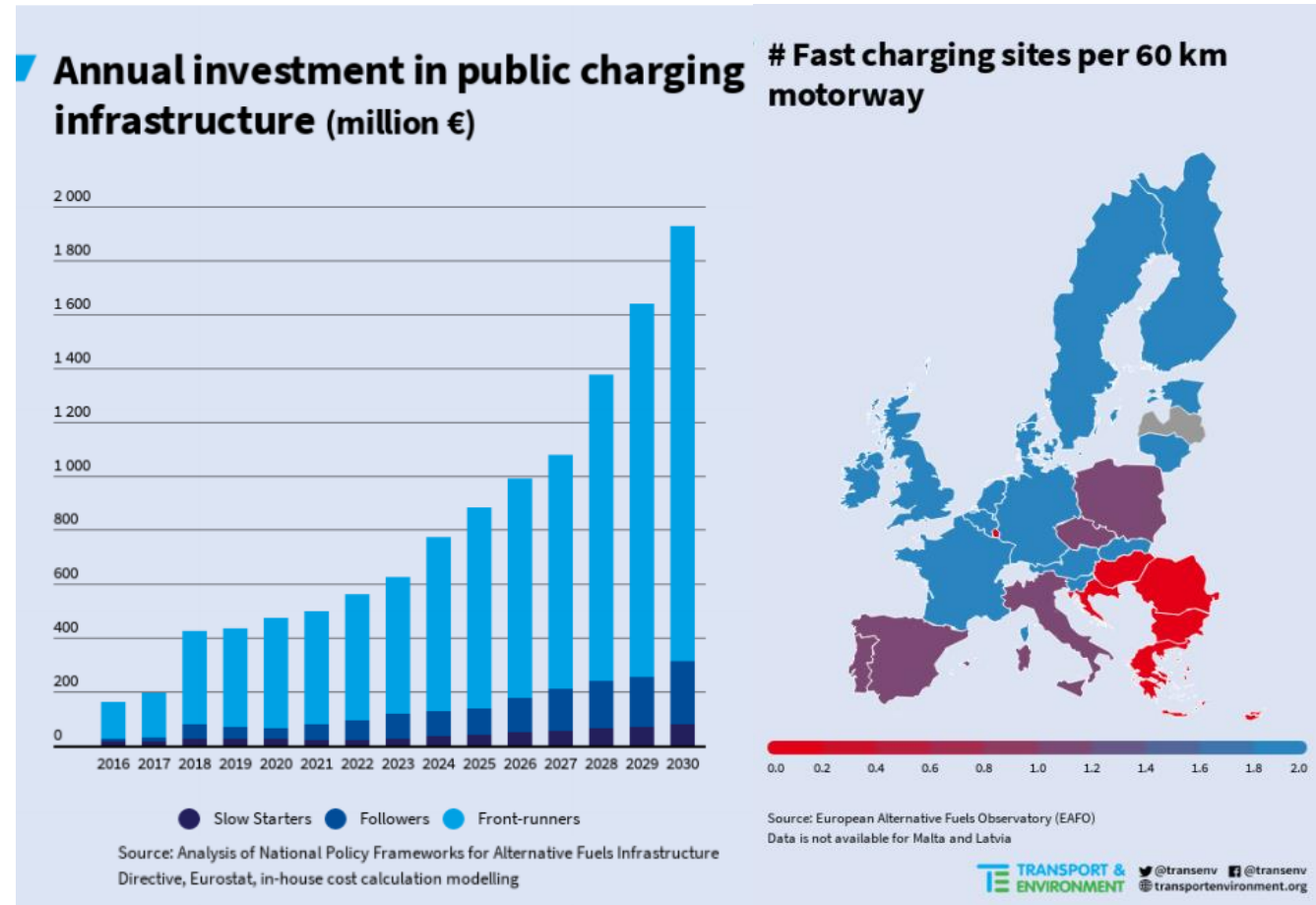
## Flagship Initiative 3: Help 100 cities in Europe launch strategies for decarbonising their district heating & cooling networks by 2025

District heating system with multiple supply options



- The new EU Directives on Renewable Energy and on Energy Efficiency require that member states progressively achieve both (1) improved energy efficiency and (2) an increase in the share of renewable energy and waste heat and cold within their overall heating and cooling mix. District heating and cooling networks could contribute significantly to both of these objectives.
- Although decisions regarding heating and cooling infrastructure planning and investment are made at the local level, the Commission can play an important role in supporting and encouraging cities and regions, especially by fostering the development of long-term planning, the better integration of EU infrastructure, and the targeted use of EU funds.

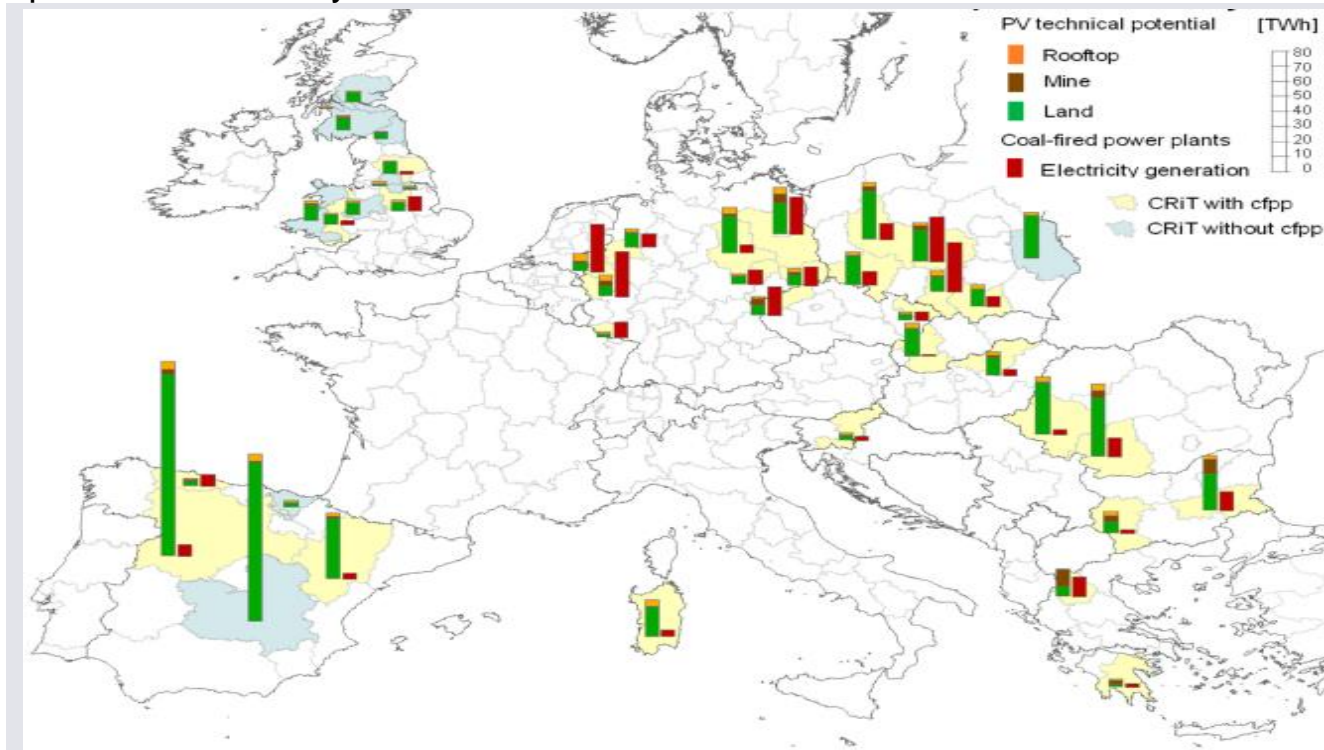
## Flagship Initiative 4: Roll out „1 million charging stations“ by 2025



- The Commission should conduct an early and broad review of the effectiveness of the new CO<sub>2</sub> emission standards for cars. On that basis it should propose by 2022 a further increase in ambition to ensure that by 2030 the majority of all new passenger cars are zero- and low-emission vehicles (ZLEV) and consider introducing binding ZLEV sales mandates.
- Achieving the EU CO<sub>2</sub> Standards for cars, vans and lorries already agreed for 2030 would already require 11 million full battery electric, fuel-cell or plug-in hybrid vehicles on European roads, requiring around 1.1 million publicly accessible charging stations compared to 140,000 today. The Commission should thus also put forward a #RechargeEU initiative with the aim of having 1 million zero-emission recharging or refueling stations by 2025.

## Flagship Initiative 5: Convert one open-cast coal mine per „Coal Region in Transition“ to a large-scale solar PV park by 2025

Estimated electricity generation of coal-fired power plants in CRiT and technical potential of solar systems





Source: A. Jäger-Waldau et.al., Sustainability 2019, 11, 3703

- Solar PV systems in mining sites are a viable option to help Coal Regions in Transition replace coal as a major source of economic activity by renewable electricity production
- The electricity generation potential from solar PV in open-cast mines in Europe's „Coal Regions in Transition“ could fully substitute current electricity generation by coal-fired power plants as the available area in those regions is abundant.
- Existing examples for such conversion projects include a 18 MW solar park next to the lignite power plant in Visonta, Hungary.

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# Thank you for your attention!

Questions or Comments? Feel free to contact me:

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Agora Energiewende is a joint initiative of the Mercator Foundation and the European Climate Foundation.

# European Energy Transition 2030: The Big Picture

Ten Priorities for the next European Commission to meet the EU's 2030 targets and accelerate towards 2050

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“European Energy Transition 2030: The Big Picture” takes the agreed EU climate and energy targets for 2030 seriously. We use best available data and analysis to explain in a concise and accessible format the following questions:

- 1) Where do we stand?** – What is the State of the European Energy Transition?
- 2) Where do we need to be?** – What would an energy system look like in 2030 that fully implements recently adopted EU legislation? What is the scope to go further?
- 3) How do we get there?** – What are concrete next steps for reaching and potentially over-shooting the EU's 2030 climate and energy targets? How should a concrete political agenda for the next phase of the European Energy Transition look like?