

“Net Zero (Growth) by 2050”

Adel El Gammal, Secretary General, EERA



The largest energy research community in Europe

EERA coordinates energy research across 250 leading institutions in 30 countries

Mission

Catalyzing European energy research to achieve a
climate neutral society by 2050

To be
EU's privileged energy research authority

Vision

EERA Joint Programmes

EERA JPs cover the entire spectrum of CET related research fields - Technology and non-technology



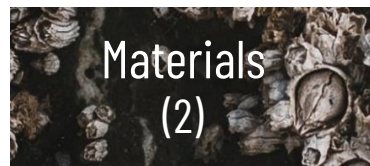
- ▶ Energy TranSition for Sustainable Society
- ▶ Energy Systems Integration
- ▶ Smart Grids

- ▶ Energy Efficiency in Industry
- ▶ Smart Cities
- ▶ Energy Digitalisation



- ▶ Wind
- ▶ PV
- ▶ Hydrogen & Fuel Cells
- ▶ Energy Storage
- ▶ CC(U)S

- ▶ Hydropower
- ▶ Bioenergy
- ▶ Geothermal
- ▶ Ocean
- ▶ CSP

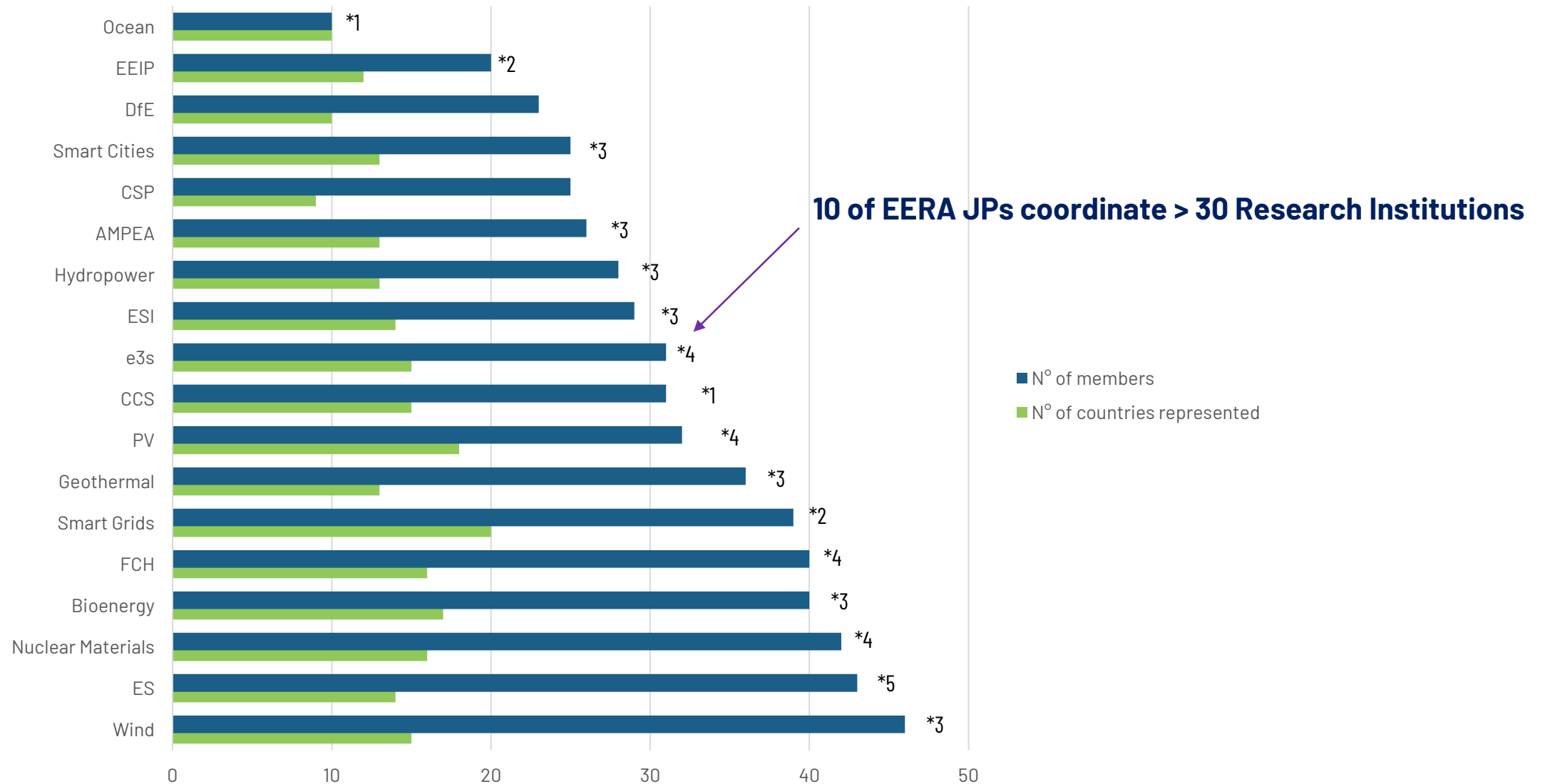


- ▶ Advanced Materials Energy Applications

- ▶ Nuclear Materials

EERA JPs is a driving leading edge Research

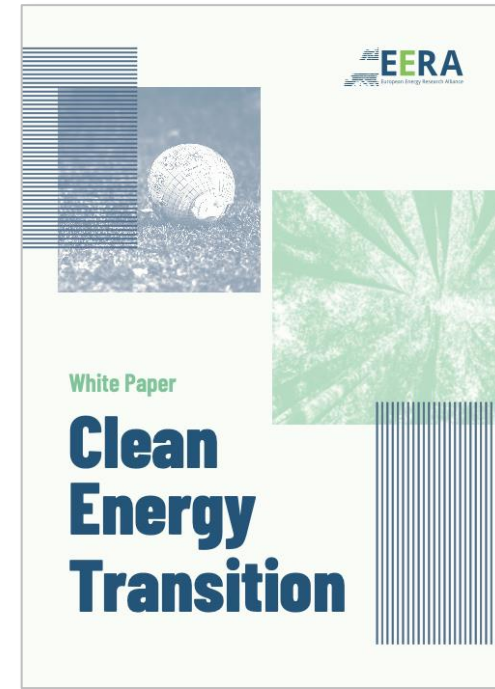
EERA JPs catalyze best available research across Europe



EERA thought leadership

EERA input has been core in structuring the CETP SRIA, and rethinking the SET Plan

A framework recommending a **top-down, systemic, cross-sectoral** and **societal** approach, which has been at the core of building the **SRIA of the CETP** and de-siloing the **SET Plan**.



October 2021

[Link to White Paper](#)

The World is **Energy Hungry**.

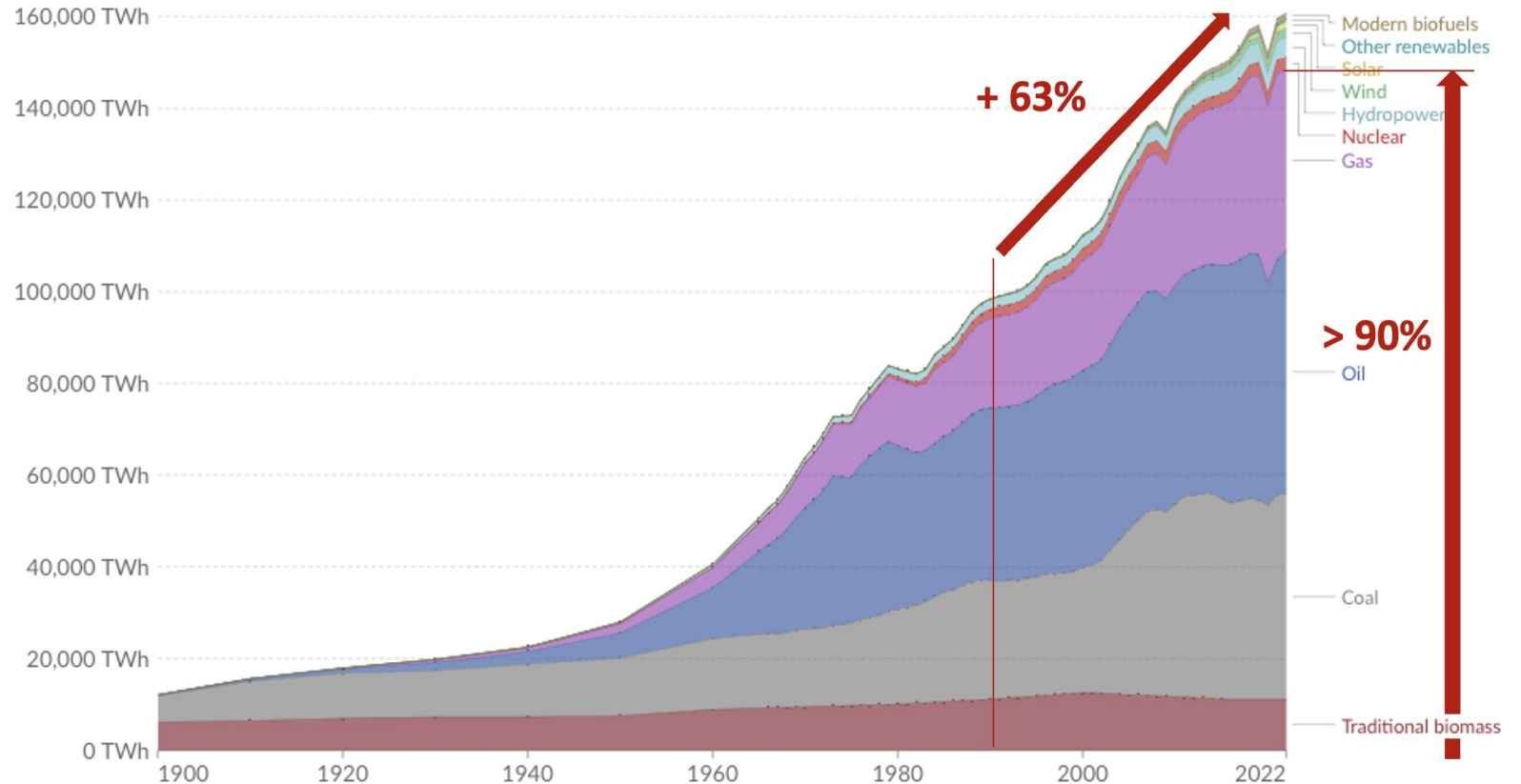
Despite scaling up renewable energy deployment, **Fossil Fuels still largely dominate** the primary energy consumption

Global direct primary energy consumption

Direct primary energy consumption does not take account of inefficiencies in fossil fuel production.

Our World In Data

All together Relative



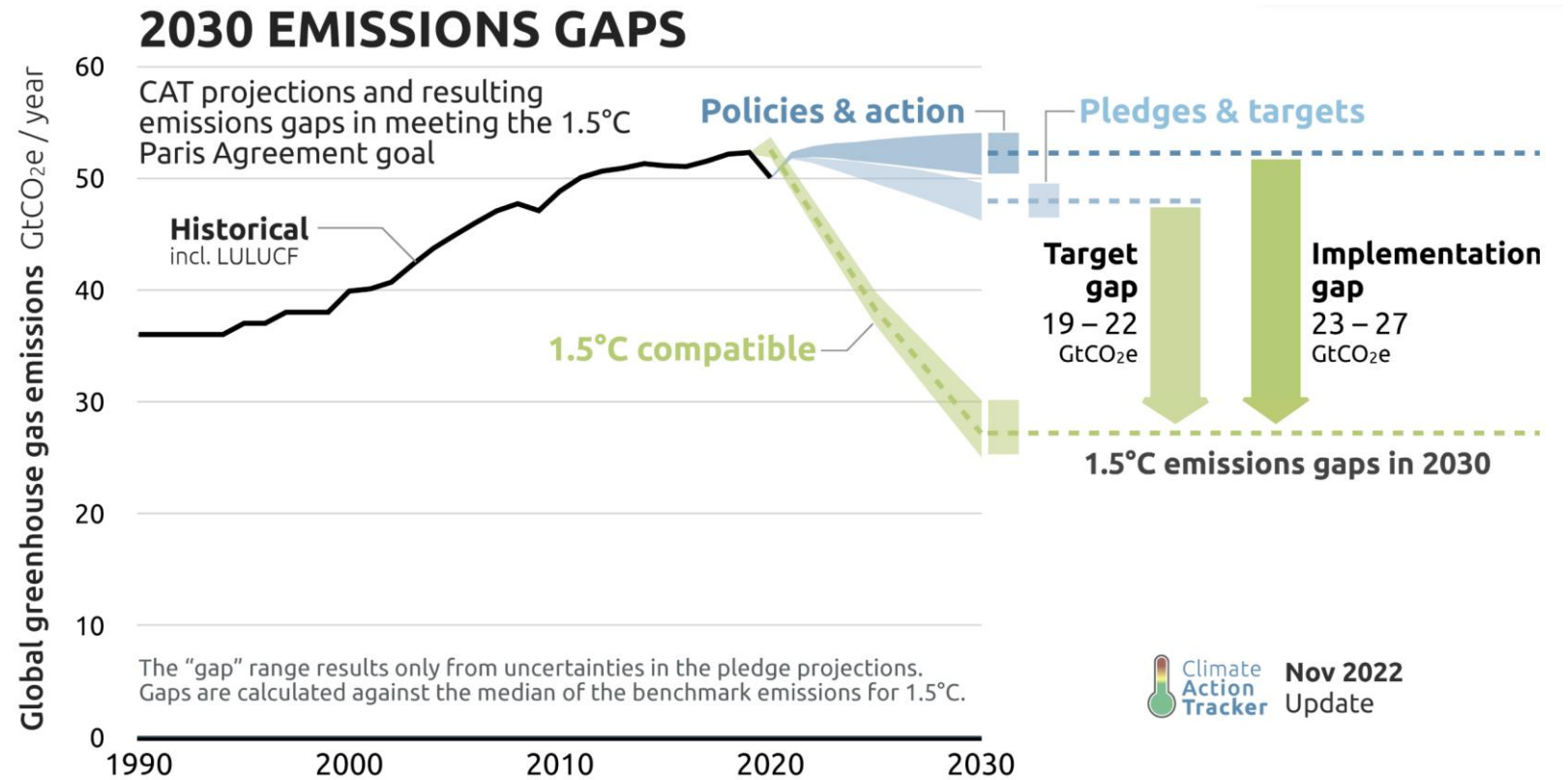
Source: Energy Institute Statistical Review of World Energy (2023); Vaclav Smil (2017)

OurWorldInData.org/energy • CC BY

The World is completely **off track** to meet Paris Agreement targets.

In **EU**, total emissions were in **2021** close to **30%** lower than in 1990.

The EU target is 55% emissions reduction by **2030**.

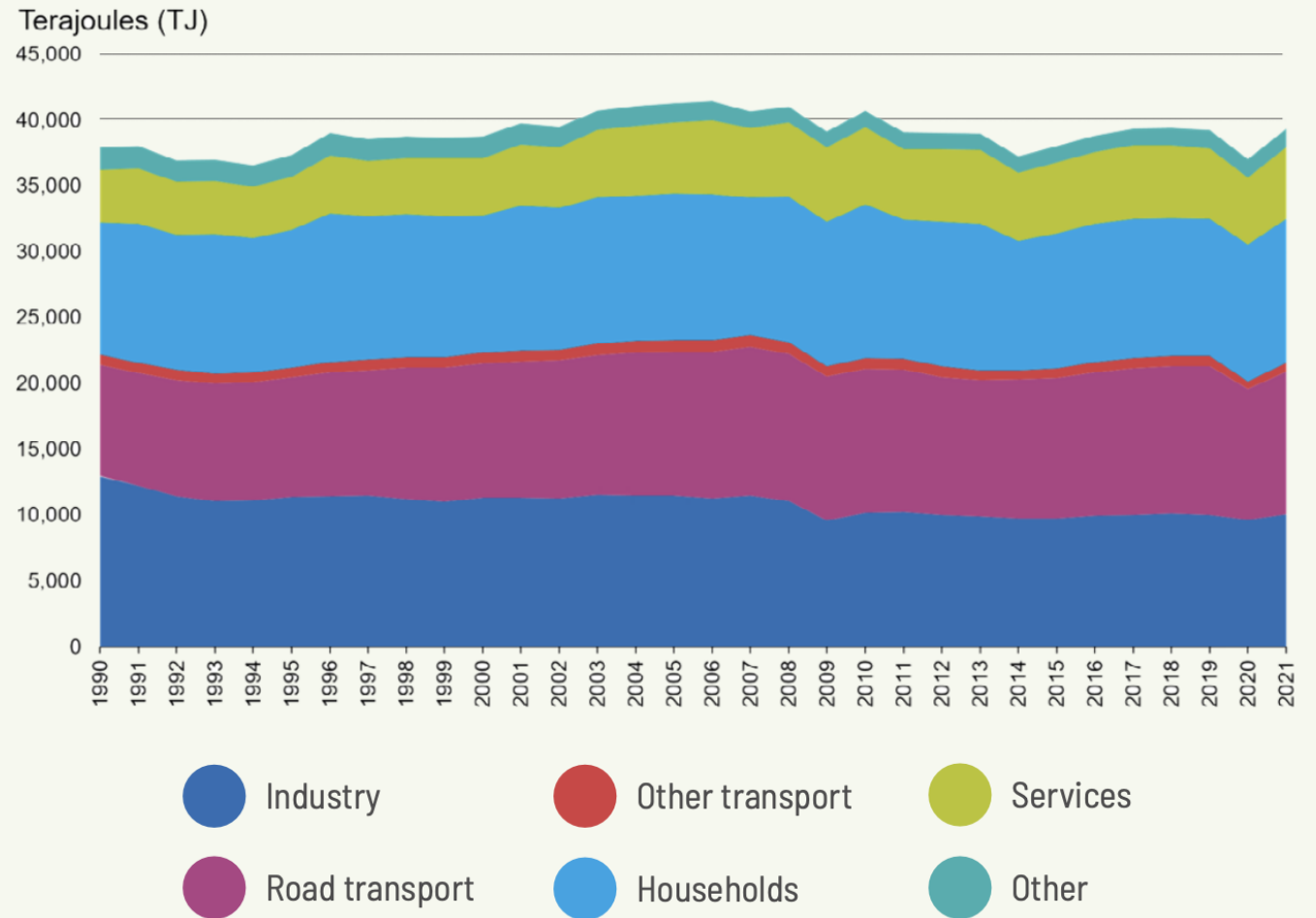


In EU, the total final energy consumption **has remained almost constant compared with 1990.**

In 2021 (rounded figures):
 Households: 28%
 Industry: 26%
 Transport 29%
 Services 14%

Final energy consumption by sector, EU, 1990-2021 [11] (terajoules)

(Source: Eurostat (nrg_bal_c))



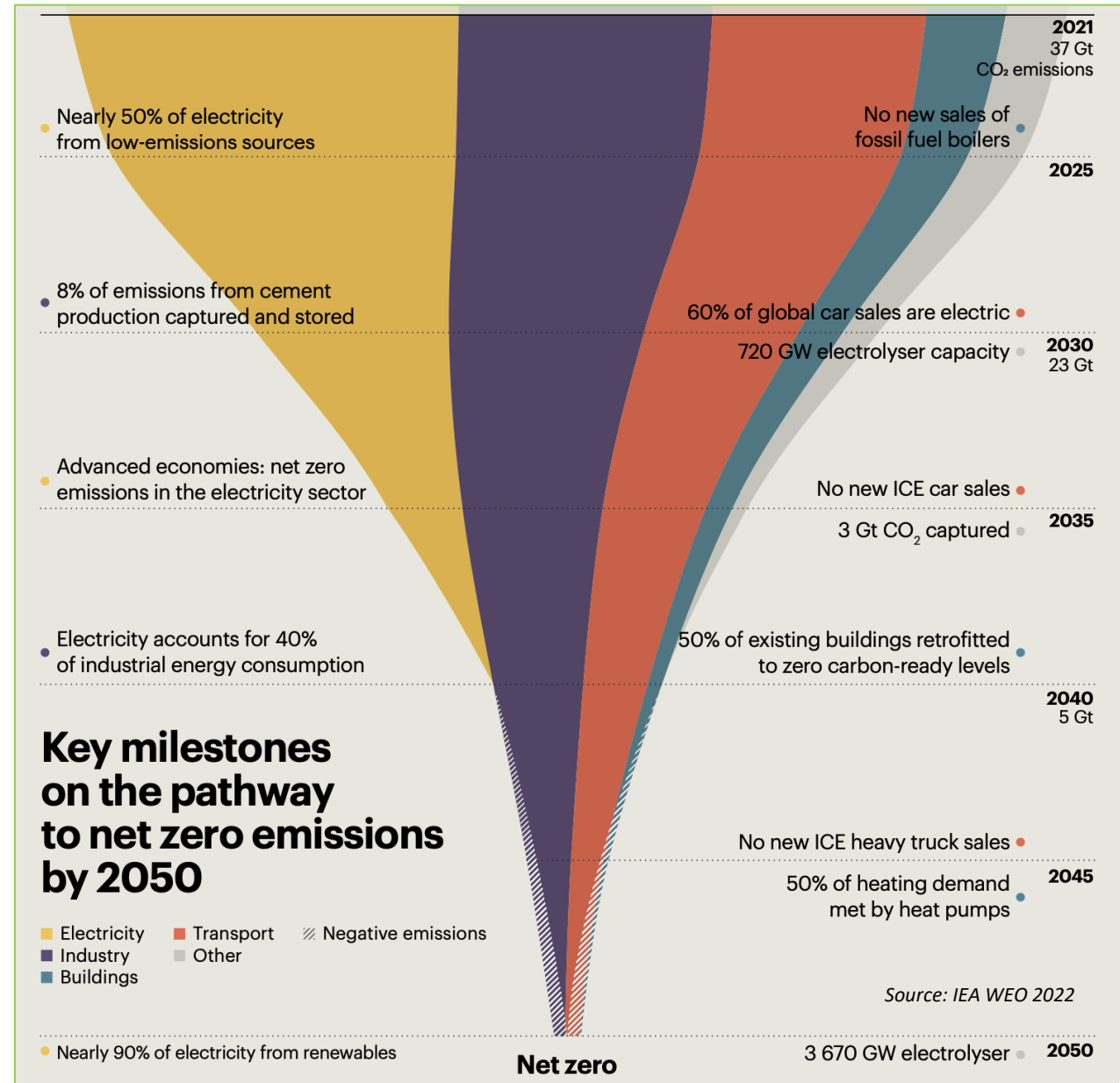
A Plan exists.
Some consider it is still
achievable.

**But is any of these
milestones realistic?**

In Europe

...

And Globally ?



Central messages of the report

Decarbonization rates of the supply side of the economy is **not compatible with climate targets**

Energy demand reduction should not be solely limited to fossil fuels in crisis times.

Driving long-term energy demand reduction is essential to accelerate the CET



Central messages of the report

Demand reduction strategies should structurally be integrated at the core of CET policymaking in Europe,

And should address **all energy-consuming sectors** (inc. households, industry and transport)

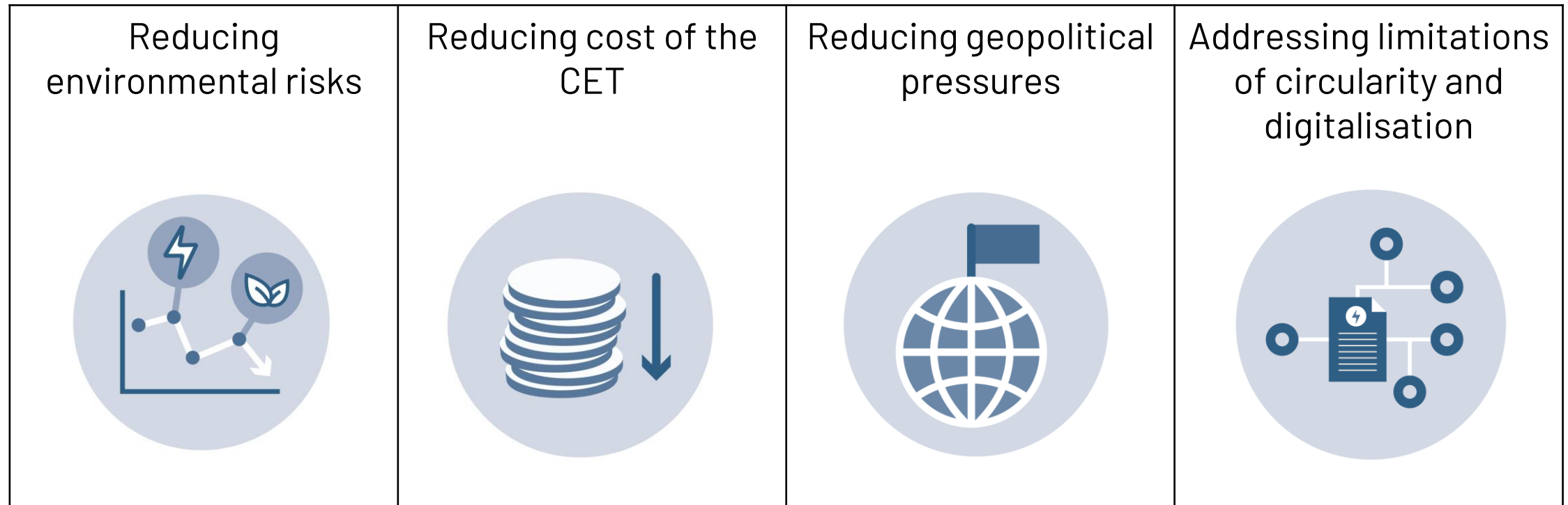
... While **in parallel accelerating development and deployment of low-carbon energy technologies.**



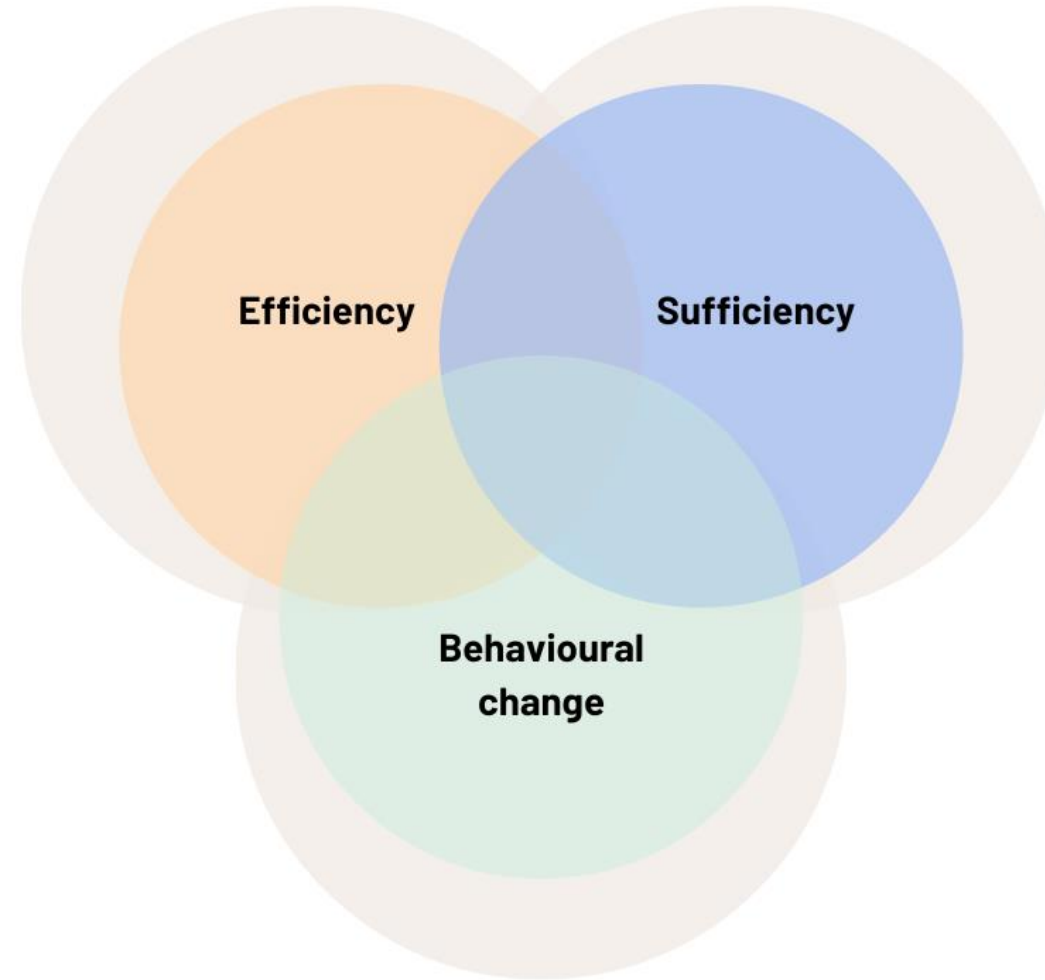
Impacts of energy demand reduction

In developed economies, evidence shows long-term structural energy demand reduction is possible **without compromising the level of wellbeing.**

Energy Demand reduction has **several additional key benefits**



Three demand reduction strategies

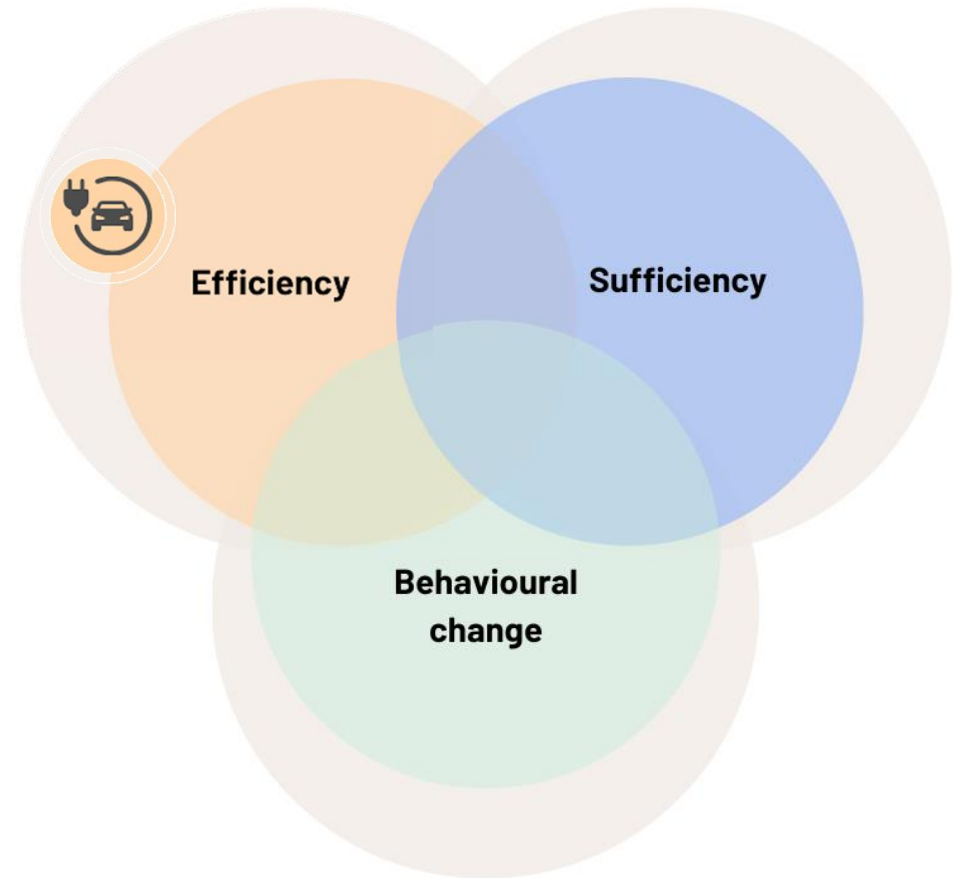


Three demand reduction strategies

ENERGY EFFICIENCY

Is the demand reduction strategy most recognised by policymakers.

However, energy efficiency per se **does not guarantee an absolute reduction in energy use.**

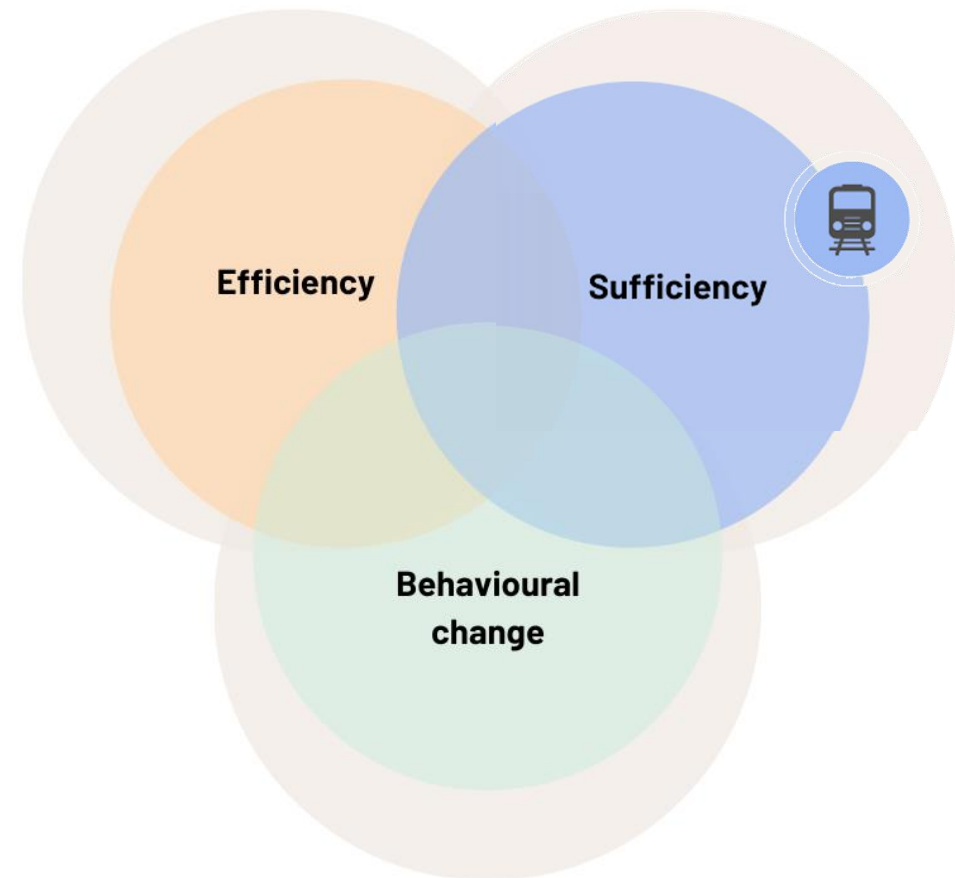


Three demand reduction strategies

ENERGY SUFFICIENCY

Addresses the limitations of energy efficiency.

It targets **long-term energy savings** by offering alternative ways of achieving a **similar level of comfort and services with minimal energy consumed.**

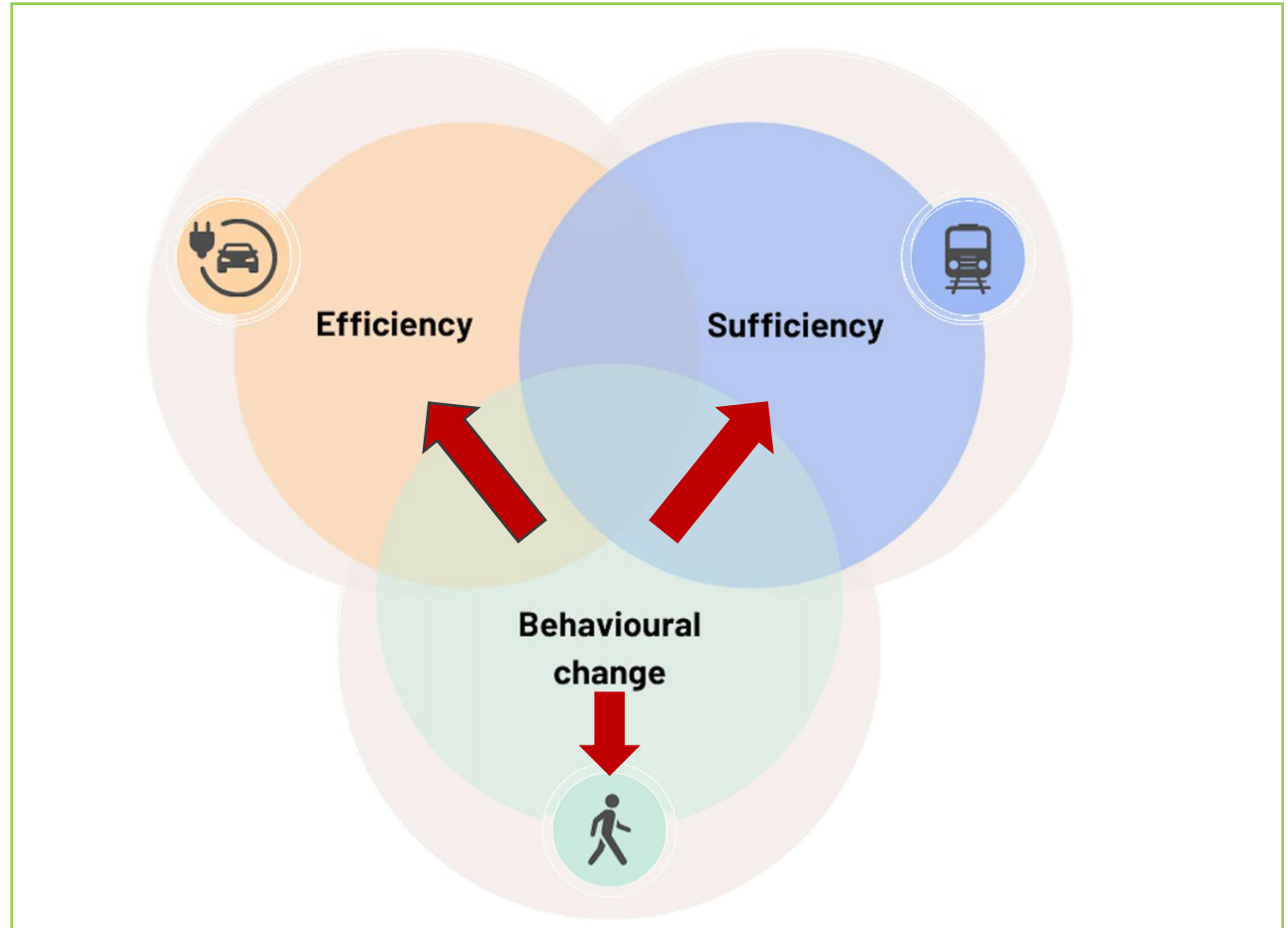


3 demand reduction strategies discussed in the report

BEHAVIOURAL CHANGE

Is the cornerstone of energy demand reduction.

Its potential remains largely untapped, but increasing knowledge is being developed on its drivers and barriers.



Policy recommendations



1. INTEGRATE LONG-TERM ENERGY DEMAND REDUCTION INTO THE EU'S CLEAN ENERGY TRANSITION STRATEGY



2. SET TARGETS FOR ENERGY DEMAND REDUCTION



3. INTEGRATE ENERGY SUFFICIENCY INTO LONG-TERM DEMAND-REDUCTION POLICY



4. ENCOURAGE INVESTMENT IN ENERGY DEMAND REDUCTION



5. MAKE CITIZEN ENGAGEMENT AND COMMUNITY EMPOWERMENT PRINCIPLES WORK



Thank you
www.eera-set.eu