

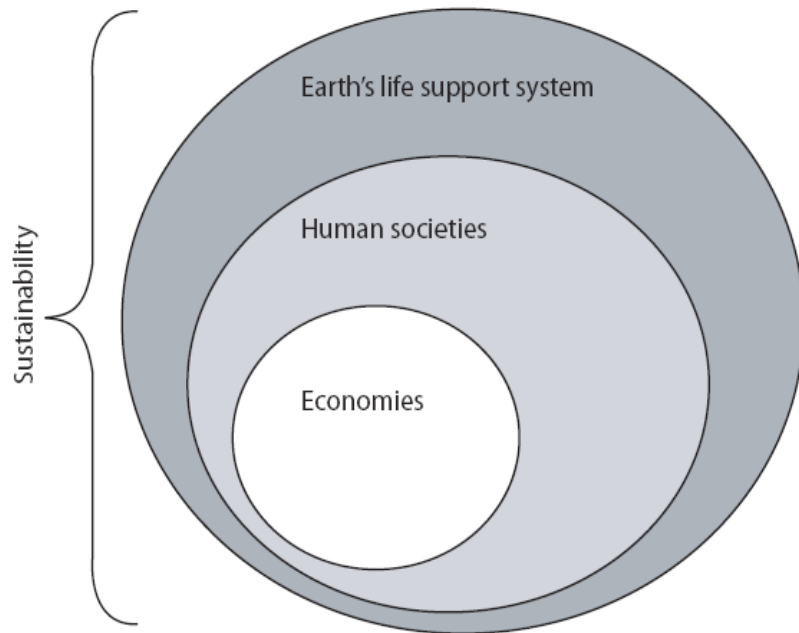
# What if there is no waste?

Circular economy

*Smpe*

# Paradigm change

**Old:**  
cartesian,  
industrialist and silo thinking;  
Human-centered;  
Either - or



**New:**  
holistic;  
Nature-centered;  
as well as



Lähde: Rockström&Wijkman: Bankrupting Nature (2012)

*Smpon*

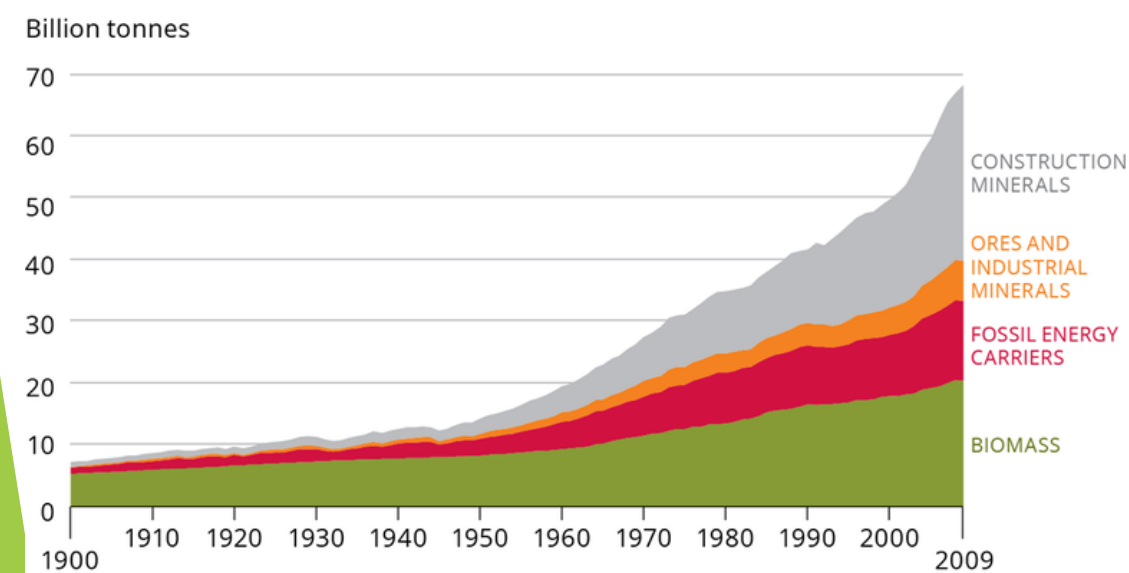
# Broad definition of resource

- Not only raw-material for industry, like oil or metals, but also
  - biodiversity
  - wellbeing of soil and water bodies,
  - clean air and
  - other ecosystem services

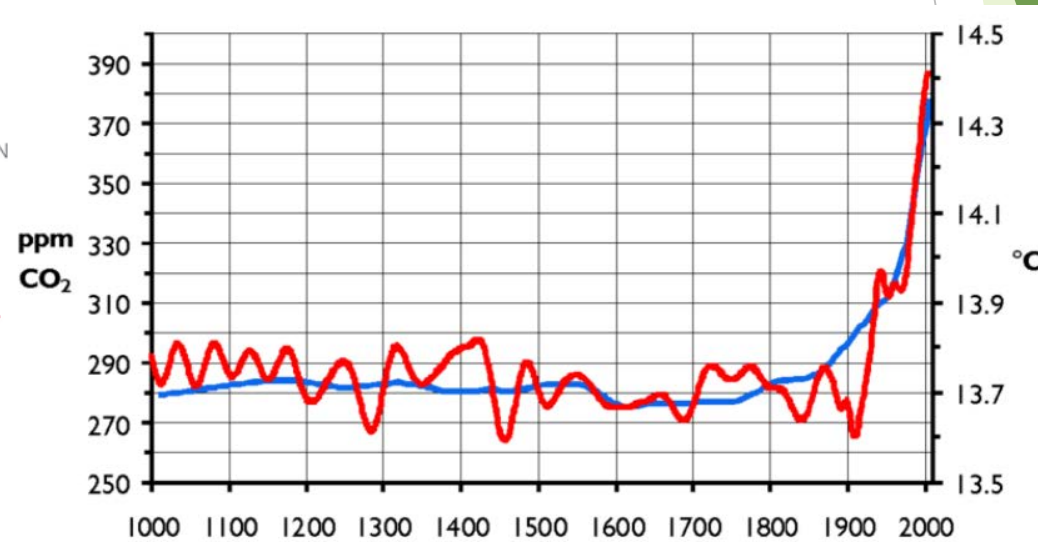


*Smpon*

# Demand for resources keeps on growing, climate change accelerates



Demand for resources  
Source: EEA, 2/2015

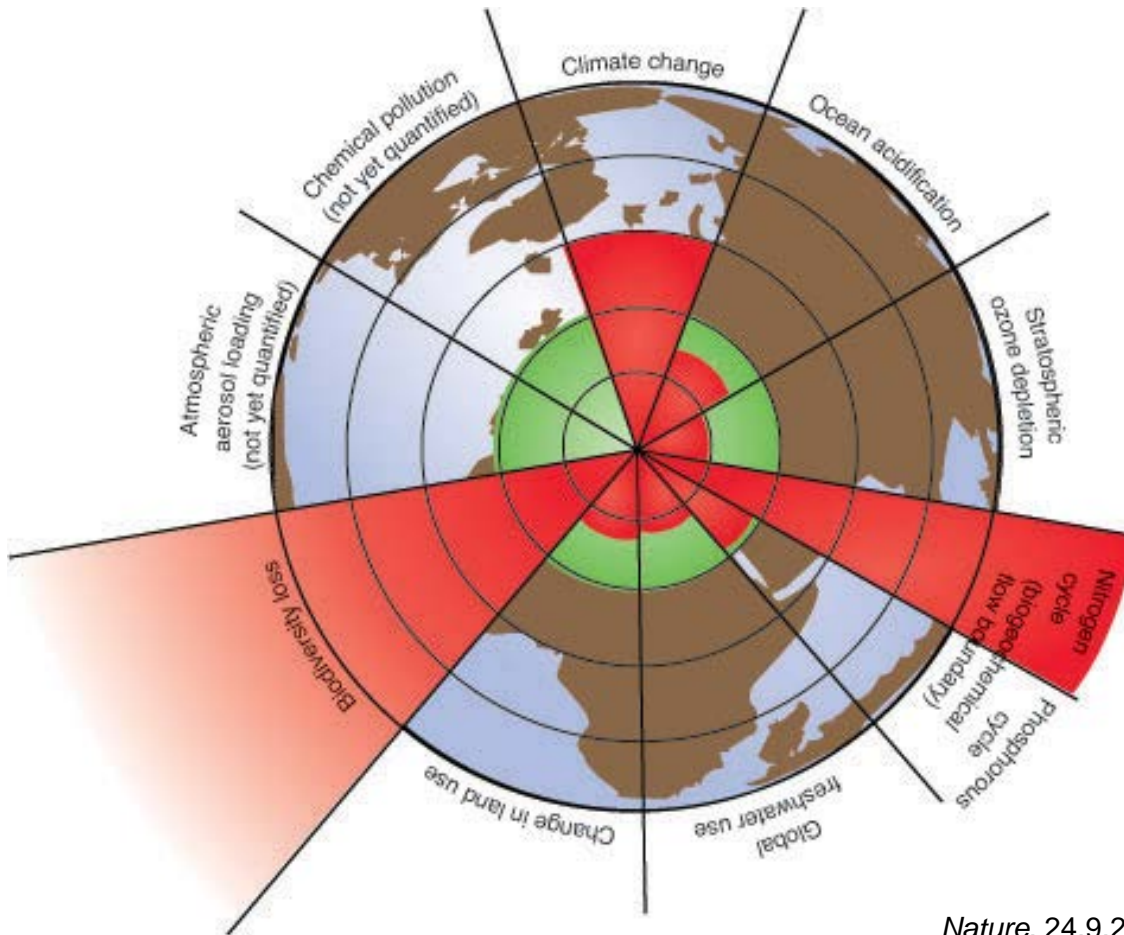


Climate change  
Source: Climateaudit.org

*Simon*

# Safe living environment?

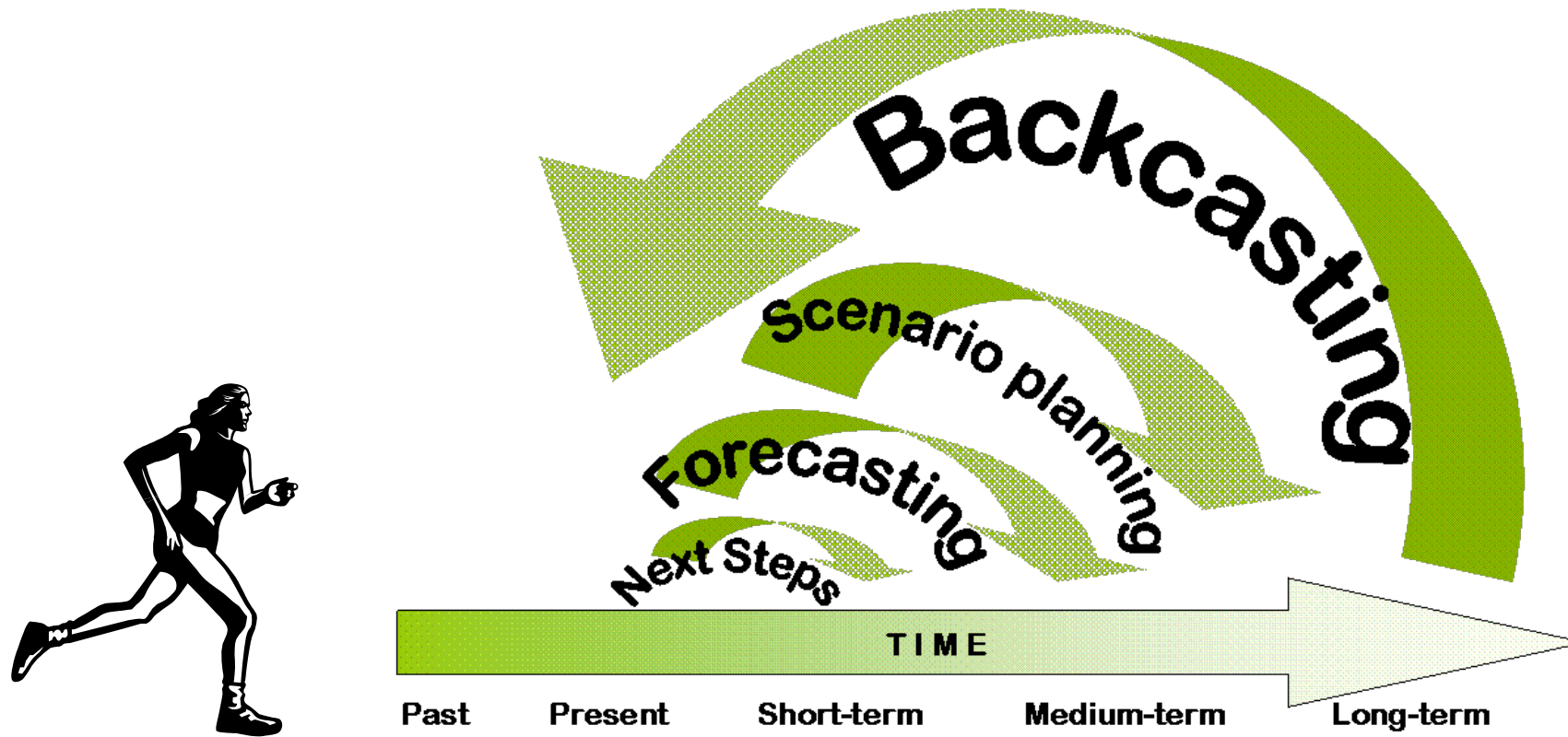
- ▶ Green: safe environment
- ▶ Red: we have already surpassed our planet's carrying capacity
  - ▶ Biodiversity loss
  - ▶ Climate change
  - ▶ Nitrogen cycle



Nature, 24.9.2009

*Simon*

Answer needs to be in line with the challenge



*Smpon*



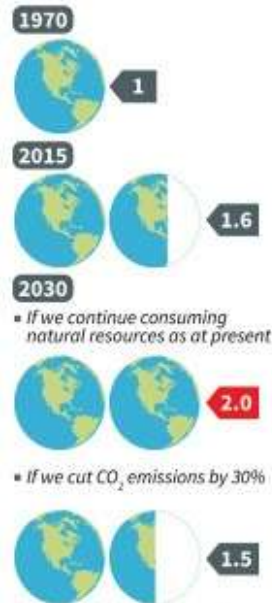
# We only have one planet

► Currently we are consuming resources corresponding one and a half Earths (1,7 2017) every year. With the same consumption rate we will need up to four Earths worth of resources in 2050. This is physically impossible: we only have one planet Earth.

## Earth Overshoot Day

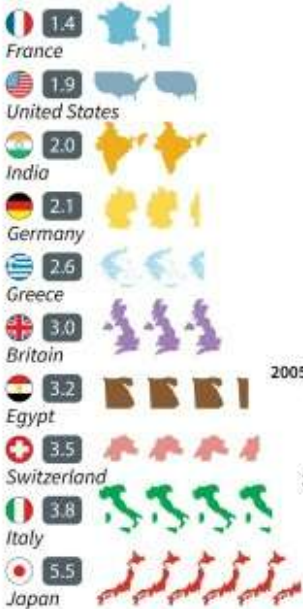
The date when humanity's use of natural resources in a given year (ecological footprint) exceeds what the Earth can regenerate in that year

▲ Number of Earths needed to sustain human activity



Source: Global Footprint Network

▲ Consuming more than they can generate (selected countries)



▲ Overshoot Day happens earlier each year

■ Days before overshoot is reached  
■ Days living over budget

In 2015, we used up the planet's annual resources by the 222<sup>nd</sup> day of the year (Aug 13)



Smpon

# What about competitiveness?

- ▶ Competition for scarce resources: doing more with less
- ▶ The potential of the circular economy in Europe by 2030 (EC):
  - ▶ 1% GDP growth
  - ▶ 2 million new jobs
  - ▶ 2-4% less greenhouse gas emissions
- ▶ Potential in Finland until 2030 (VTT):
  - ▶ € 1.7bn GDP growth
  - ▶ 5,000 new jobs
  - ▶ 2.6% less greenhouse gas emissions
- ▶ “The great disruptors”: Technology leaps  
Conductive Cycles: Energy and Resource Solutions as Definers of the Next Wave

A stylized, handwritten-style logo or signature in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Sigma' or a similar name.



# Resource efficiency

- Circular economy
  - ▶ 1. Non-renewable materials circulate in closed systems; renewables are used within the limits of sustainable use
  - ▶ 2. Waste is "designed out"
  - ▶ 3. Waste created is recycled efficiently and used in the production of new products
  - ▶ 4. Virgin raw materials used only, when recycled materials are not available.
- Cascading use of resources
- Waste hierarchy
- Extended producer responsibility
- Industrial symbiosis
- Sustainable procurement standards
- New business models

A stylized, handwritten-style logo or signature in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.

# EP own initiative report on Circular Economy (2015):

1. Objectives and Indicators
2. Product policy
3. Waste policy
4. Other measures

A stylized, handwritten-style signature or logo in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.

# Objectives and Indicators

- Objectives and indicators control our behaviour
- Reliable information is essential
- Ambitious targets: The EU needs to improve resource efficiency by 30% by 2030. Objectives must also be set for each Member State and integrated into the European Semester.

A stylized, handwritten-style signature or logo in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.

# Product policy

- ▶ Many requirements are already being imposed on products, for example, for their safety. Energy efficiency requirements are regulated by the so-called ecodesign directive.

The background of the slide features a series of overlapping, semi-transparent green triangles of various shades, creating a dynamic, abstract pattern on the right side. A black, handwritten-style signature is positioned in the lower right area, partially overlapping the green shapes.

Smper

# Waste policy

- ▶ No new landfills or incinerators with EU money. Public support should be directed to the construction of recycling facilities.
- ▶ Ban on new landfills.
- ▶ Restrictions on the disposal of waste at landfills: In 2025, a ban on the disposal of recyclable waste or bio-waste. In 2030, no waste can be landfilled.
- ▶ Increasing landfill and incineration charges.
- ▶ Raising the recycling target to 70% (municipal waste and industrial waste).
- ▶ Recycling of bio-waste mandatory in Europe.
- ▶ The objective is to reduce marine littering in Europe by 50%.

A stylized, handwritten-style signature or logo in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.

# Other measures, incl.

- ▶ Greening public procurement.
- ▶ Reducing environmentally harmful subsidies.
- ▶ Action Plan for Nutrient Recycling.
- ▶ Indicators and targets for resource efficiency in buildings.
- ▶ Assessing existing legislation from a resource efficiency perspective.

A stylized, handwritten-style logo in black ink, possibly representing the word 'Smpa' or a similar acronym, located in the bottom right corner of the slide. The logo is set against a background of overlapping green geometric shapes.



# Commission circular economy initiatives

- ▶ Plastics strategy
- ▶ Waste package
- ▶ Communication: options to address the interface between chemical, product and waste legislation
- ▶ Ecodesign directive
- ▶ Communication: Monitoring framework for the circular economy

A stylized, handwritten-style logo or signature in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar, set against a background of overlapping green geometric shapes.

# Circular Economy Action Plan

- ▶ Package Contents:
  - ▶ Legislative proposal to reform EU waste policy
  - ▶ Action Plan
  - ▶ Sectoral proposals: plastics, food waste, critical raw materials, construction and demolition waste, biomass and bio-based products, product design / eco-design
  - ▶ Horizontal proposals: innovation, investment

# Plastic Strategy

- ▶ There are no good plastics or bad plastics
  - ▶ There are only good and bad uses for plastic
- ▶ Europe uses 49m tonnes of plastic a year
  - ▶ 39% packaging
  - ▶ 19.7% buildings
  - ▶ 8.9% cars
  - ▶ 5.8% electronics
- ▶ Only 9% of all plastic ever discarded since 1950 has been recycled
- ▶ by 2030:
  - ▶ all plastic packaging recycable
  - ▶ limitations for the use of microplastics



*Smper*

# Ban on single-use plastics

- ▶ Ban on certain single-use plastics in 2021
  - ▶ plastic straws, single-use plastic plates and cutlery, cotton bud sticks made of plastic
  - ▶ Oxo-degradable plastics and food containers and expanded polystyrene cups
- ▶ New recycling target
  - ▶ Plastic bottles 90 % by 2029
  - ▶ plastic bottles will have to contain at least 25 % of recycled content by 2025 and 30% by 2030
- ▶ Extended responsibility for producers
  - ▶ tobacco
  - ▶ fishing gear

A stylized, handwritten-style signature or logo in black ink, located in the bottom right corner of the slide. It appears to be a cursive signature, possibly reading 'Smpa' or similar, set against a background of green geometric shapes.

# What needs to be done?

- ▶ Radical reduction in the production of plastics
- ▶ Application of *Waste hierarchy* across the board
- ▶ Ban on single-use plastic in packaging
  - ▶ all packagins should be reusable and recyclable
  - ▶ only bio-based, bio-degradable and non-toxic - free of EDCs
- ▶ Mandatory product and material passports:
  - ▶ information about product source and previous use, chemical composition, and health and environmental risks associated with its intended use
- ▶ Total ban on the incineration of plastics

A stylized, handwritten-style signature or logo in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.

# What needs to be done?

- ▶ Extension of the Ecodesign Directive
  - ▶ ensure all products are upgradable, reusable, repairable and recyclable
  - ▶ apply producer liability measures
  - ▶ include resource efficiency principle as a horizontal measure
  - ▶ extend to packaging
  - ▶ incorporate measures to demand monomaterials or effectively reusable composite materials

A stylized, handwritten-style logo or signature in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.



# What needs to be done?

- ▶ Need for UN Treaty at the global level
- ▶ Need for EU policy coherence
  - ▶ increased investment into plastic waste ocean clean-up, development of waste management systems in developing countries
  - ▶ Phase-out perverse incentives

A stylized, handwritten-style signature or logo in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.

# What needs to be done?

- ▶ Limit free development of plastic polymers in a way that will efficiently and effectively support the upgradeability, reuse and recycling of plastics
- ▶ Accelerate the development of and encourage uptake of molecular recycling of plastics
- ▶ Investments in the development of alternative materials
  - ▶ alternative fibers
- ▶ Developing the prevention of micro-plastics entering waterways

A stylized, handwritten-style logo or signature in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Sigma' or a similar name, set against a background of overlapping green geometric shapes.

# Measures for Micro-Plastics

- ▶ Advance research and requirements for effective waste water management and treatment
- ▶ Incentivise urgent substitution of synthetic or other materials in textiles that cause micro-plastics with bio-based and fully recyclable materials
- ▶ Increase research in to whether plastics in tyres could be replaced or how generation of micro-plastics from tyres could be reduced or eliminated

# Waste package – trilogue result

- ▶ Municipal waste recycling target
  - ▶ 2025: 55 %
  - ▶ 2030: 60 %
  - ▶ 2035: 65 %
- ▶ Packaging recycling target
  - ▶ overall target:            2025: 65 %        2030: 70 %
- ▶ Biowaste obligatory 31.12.2023
- ▶ Textiles obligatory 1.1.2025
- ▶ Hazardous household waste 1.1.2025
- ▶ max. 10 % municipal waste landfilled in 2035

A stylized, handwritten-style logo in black ink, possibly representing the word 'Smpa' or a similar acronym, located in the bottom right corner of the slide. The logo is set against a background of overlapping green geometric shapes.

# Ecodesign directive

- ▶ Energy efficiency standards for products
- ▶ Extended producer responsibility
- ▶ Dealing with planned aging
- ▶ Green public procurement
- ▶ Designing out waste
  - ▶ use and re-use longer, repair easily and finally recycle
- ▶ Next steps
  - ▶ Should be extended to other aspects of resource efficiency, besides energy efficiency, like recyclability
  - ▶ Should be extended to packaging and products that don't use energy
  - ▶ Extending product warranty periods.



*Smper*

# Circular economy monitoring platform

- ▶ A set of indicators to move into a circular economy
  - ▶ In the instrument cluster, 10 indicators that measure the four phases of the circular economy
    - ▶ Production and consumption
    - ▶ waste treatment
    - ▶ Secondary raw materials
    - ▶ Competitiveness and Innovation
- ▶ Public administration and food waste indicators will be further developed

A stylized, handwritten-style logo or signature in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.



# Goals for the next legislative term

- ▶ Sustainable finance
- ▶ Sustainable buildings strategy
- ▶ Textile strategy
- ▶ Common food policy
- ▶ Monitoring framework for the circular economy



*Simon*

# Greening the finance

- ▶ The need for investment in renewable energy and low carbon technologies is required by 180 billion annually in the EU by 2030
- ▶ By changing incentives, investments can be directed towards environmentally and climate-sustainable projects and innovations
- ▶ This requires knowledge of environmental risks and impacts
- ▶ Indicators to compare and measure together:
  - ▶ greenhouse gas emissions, other emissions, energy consumption, use of renewable energy sources, water consumption, land use, and impact on biodiversity
- ▶ Sustainability indicators into all financial legislation
  - ▶ business accounting, benchmark indices, credit ratings, stock market rules

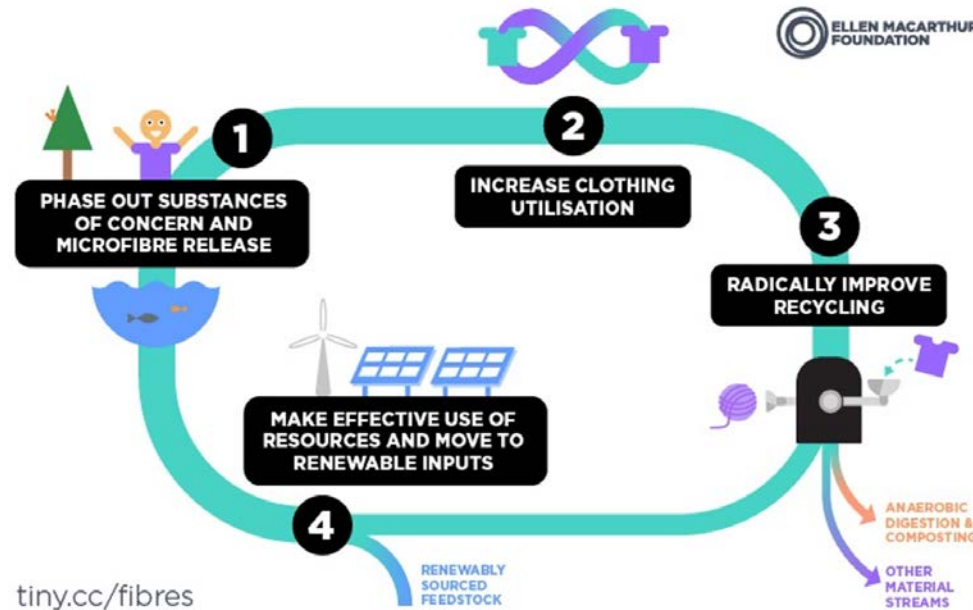
A stylized, handwritten-style signature or logo in black ink, located in the bottom right corner of the slide. It appears to be a cursive representation of the word 'Smpa' or similar.

# Sustainable buildings strategy

- ▶ 90 % of the residential housing of 2050 already exists
- ▶ about half of all material mined in EU is used in buildings
- ▶ buildings are responsible for 1/3 of water use
- ▶ substantial part of waste in urban areas is from building, renovation and demolition work
- ▶ By improving building in EU, it is possible to reduce
  - ▶ 42% of energy consumption
  - ▶ approximately 35 % GHG emissions
  - ▶ over 50% raw material use

# Textile strategy

- ▶ Textile waste
  - ▶ Finland 71 million kg/year
  - ▶ EU 3 million tons/year
  - ▶ US 15.1 million tons/year
- ▶ fiber based recycling of textiles as the ultimate goal
- ▶ to closed loops of the use of textiles



# EU common food policy

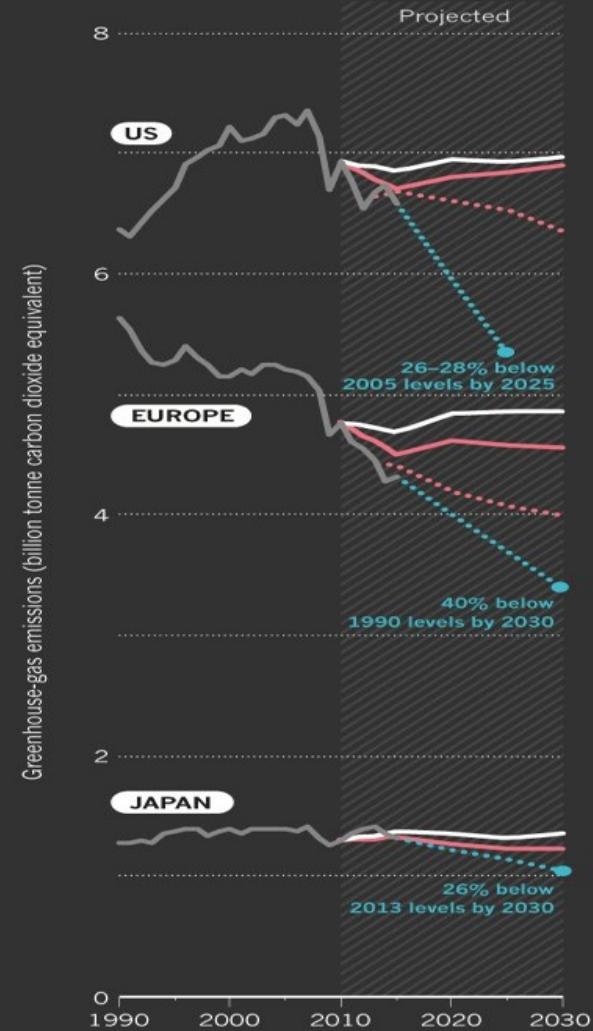
- ▶ Common agricultural policy CAP
  - ▶ almost half of EU budget
  - ▶ supports production that is unhealthy and harmful to the environment
    - ▶ tobacco, sugar, bull fighting
- ▶ Current food system produces  $\frac{1}{4}$  of global greenhouse gas emissions, that drive climate change
  - ▶  $\frac{1}{3}$  of all food is wasted
  - ▶ negative effect on soil health, biodiversity, animal welfare, human health
- ▶ Common food policy would combine different policy areas and levels of governance - take into account all the different aspects of food production, so that the food we produce is safe, healthy, ecological and ethical

We are not even close on meeting Paris agreement targets

## CLIMATE SHORTFALL

Emissions trajectories for three advanced industrialized regions show that enacted and pledged policies will be unable to deliver the ambitious cuts to emissions agreed under the 2015 Paris framework.

— Historical emissions — Business as usual\*  
— Enacted policies\* — Pledged policies (reported)  
... Target emissions (nationally determined contributions)



\*Estimated using the global-warming mitigation assessment model DNE21+ (Ref. 1).



# How EU has done?

## Country summary

COUNTRY SUMMARY

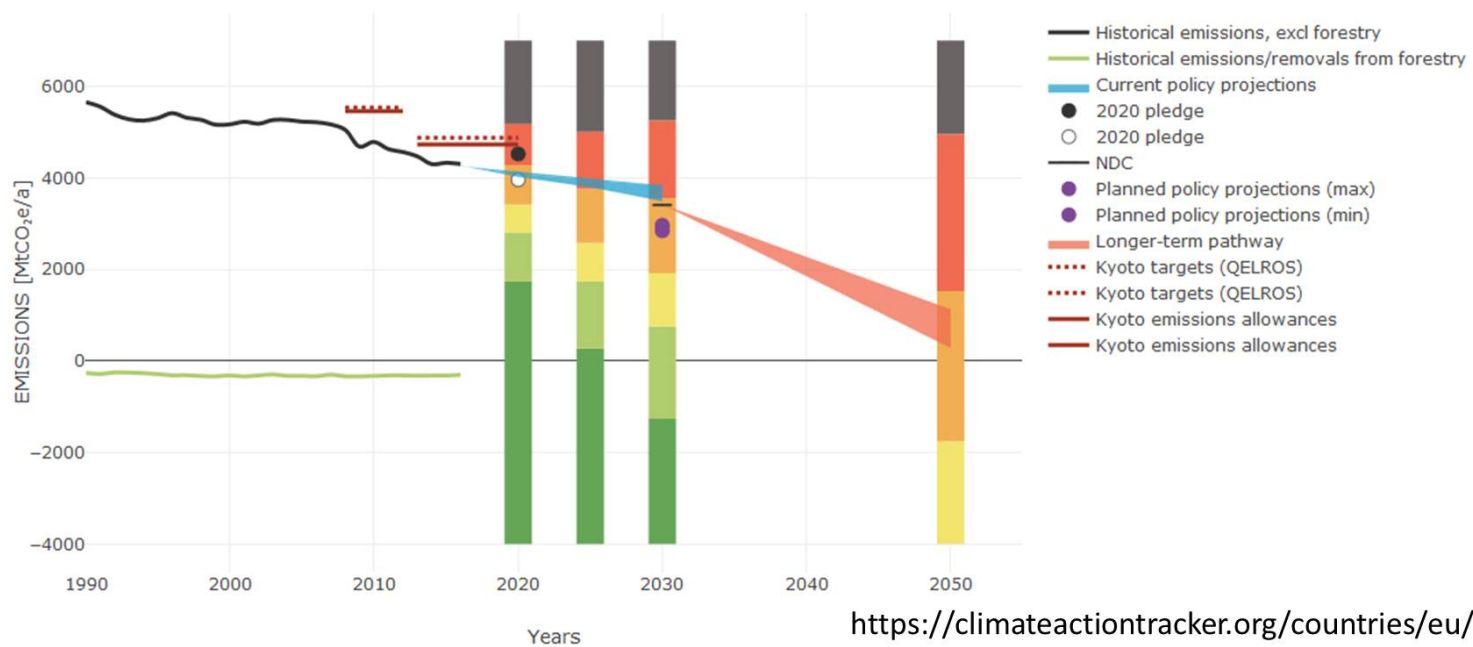
PLEDGES AND TARGETS

FAIR SHARE

CURRENT POLICY PROJECTIONS

ASSUMPTIONS

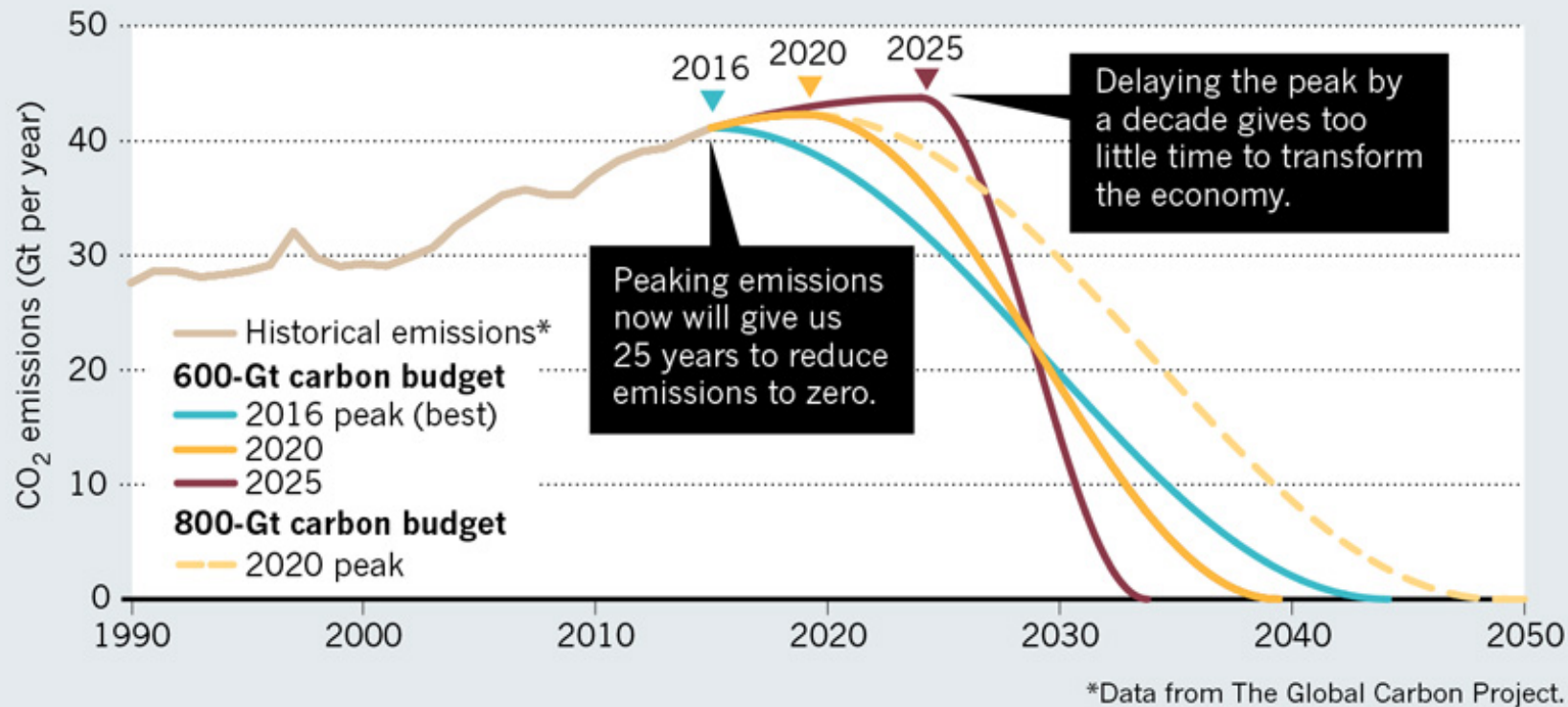
SOURCES



# If we do not act fast, we are running out of time

## CARBON CRUNCH

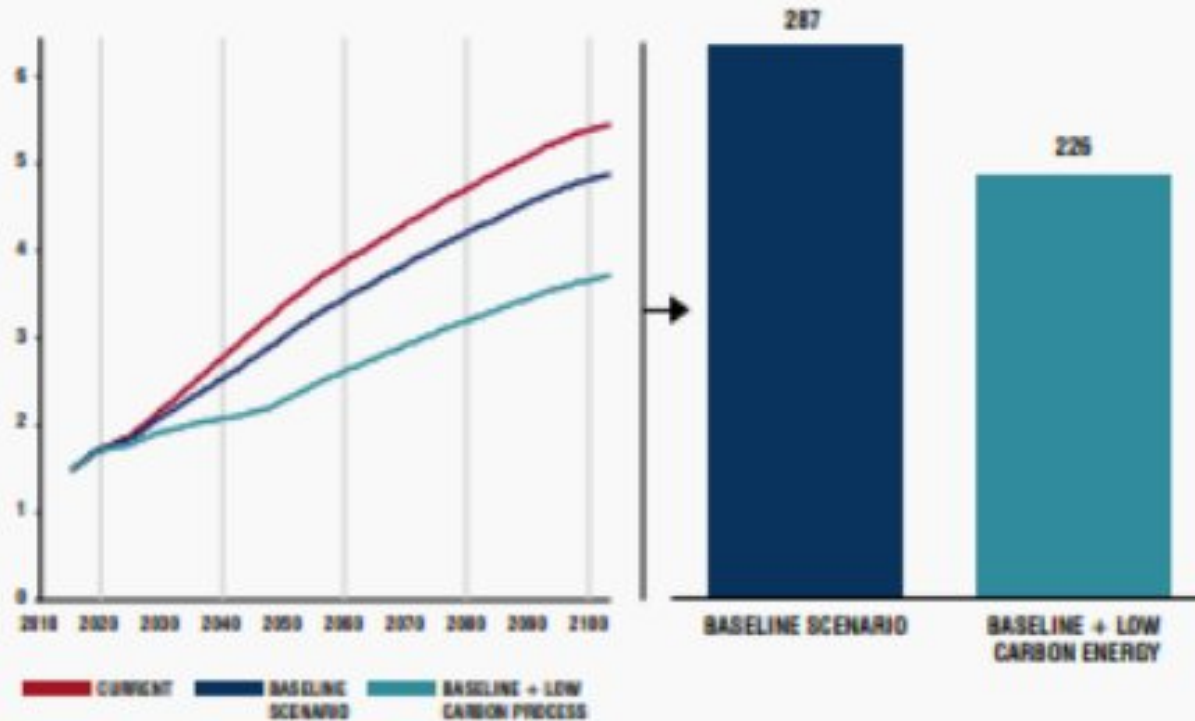
There is a mean budget of around 600 gigatonnes (Gt) of carbon dioxide left to emit before the planet warms dangerously, by more than 1.5–2°C. Stretching the budget to 800 Gt buys another 10 years, but at a greater risk of exceeding the temperature limit.



## PLASTICS ALONE RISK EXCEEDING THE CARBON BUDGET QUOTA AVAILABLE FOR INDUSTRIAL EMISSIONS

CO<sub>2</sub> EMISSIONS, PLASTICS PRODUCTION  
Gt CO<sub>2</sub> PER YEAR, 2015-2100, GLOBAL

CUMULATIVE CO<sub>2</sub> EMISSIONS, PLASTICS PRODUCTION  
Gt CO<sub>2</sub>, 2015-2100, GLOBAL



SOURCE: MATERIAL ECONOMICS MODELLING

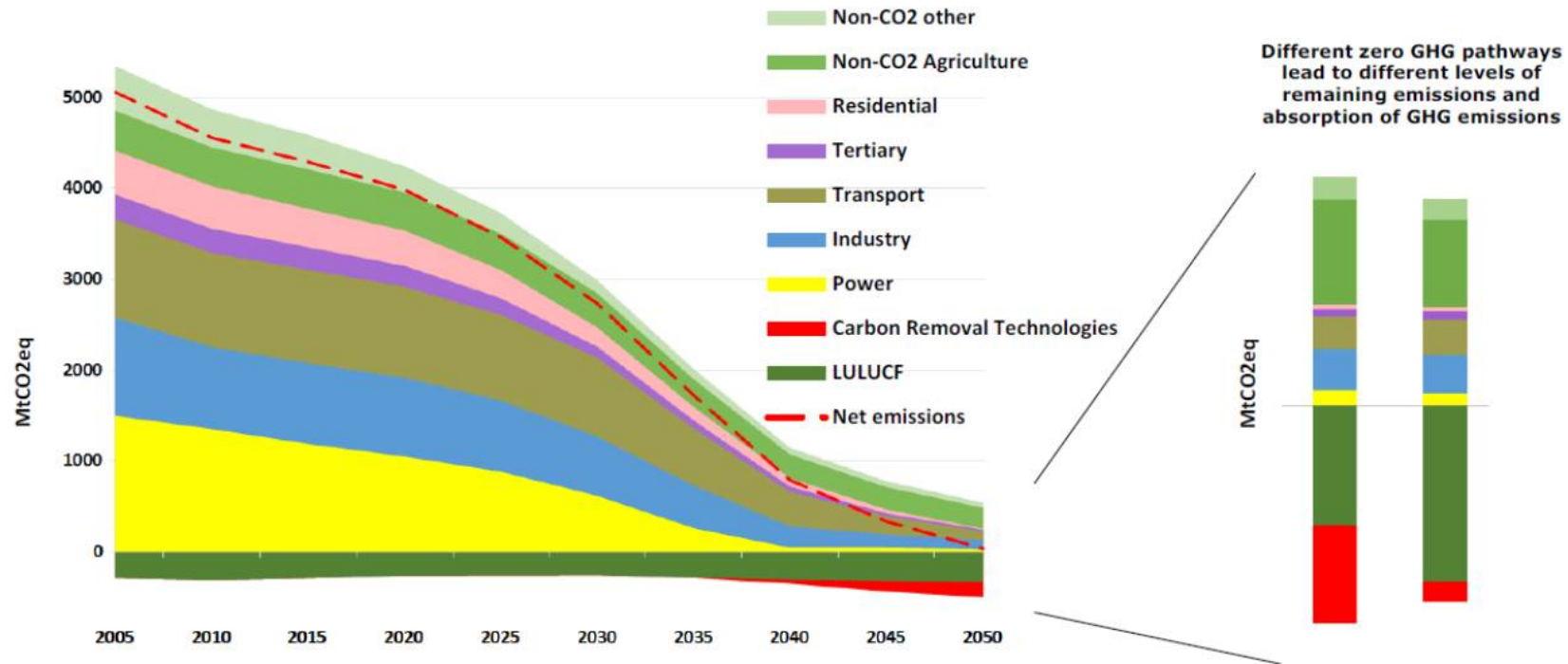


Figure 6. GHG emissions trajectory in a 1.5°C scenario<sup>8</sup>

COM(2018) 773 final

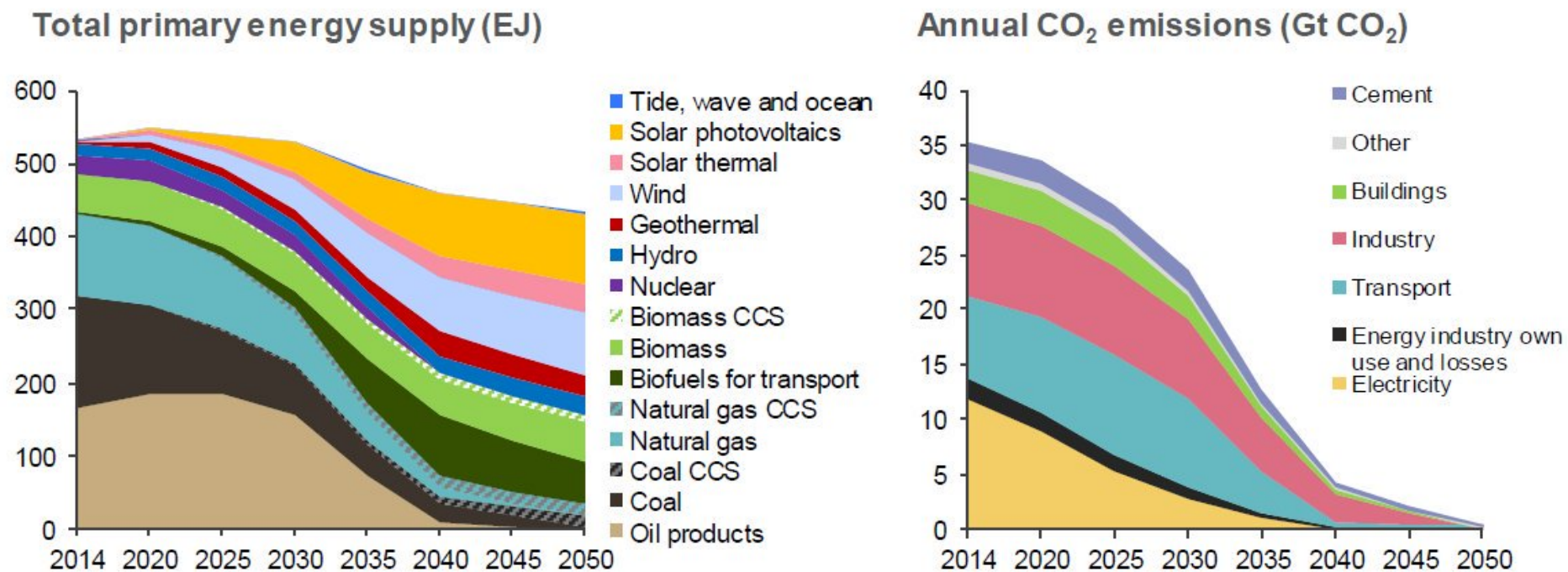


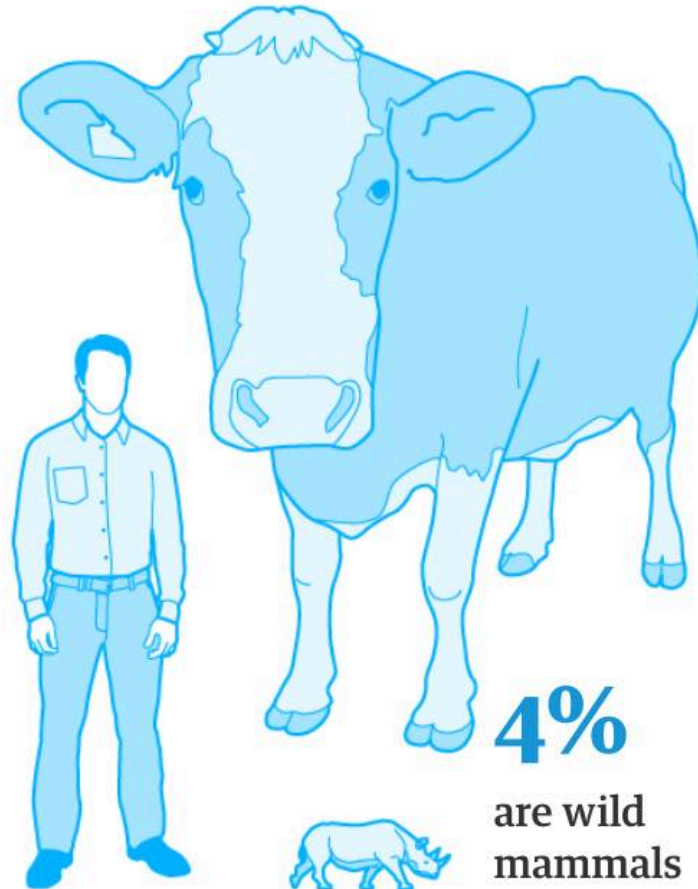
Figure 1. Global total primary energy supply and annual CO<sub>2</sub> emissions in our decarbonisation scenario



**Of all the mammals on Earth, 96% are livestock and humans, only 4% are wild mammals**

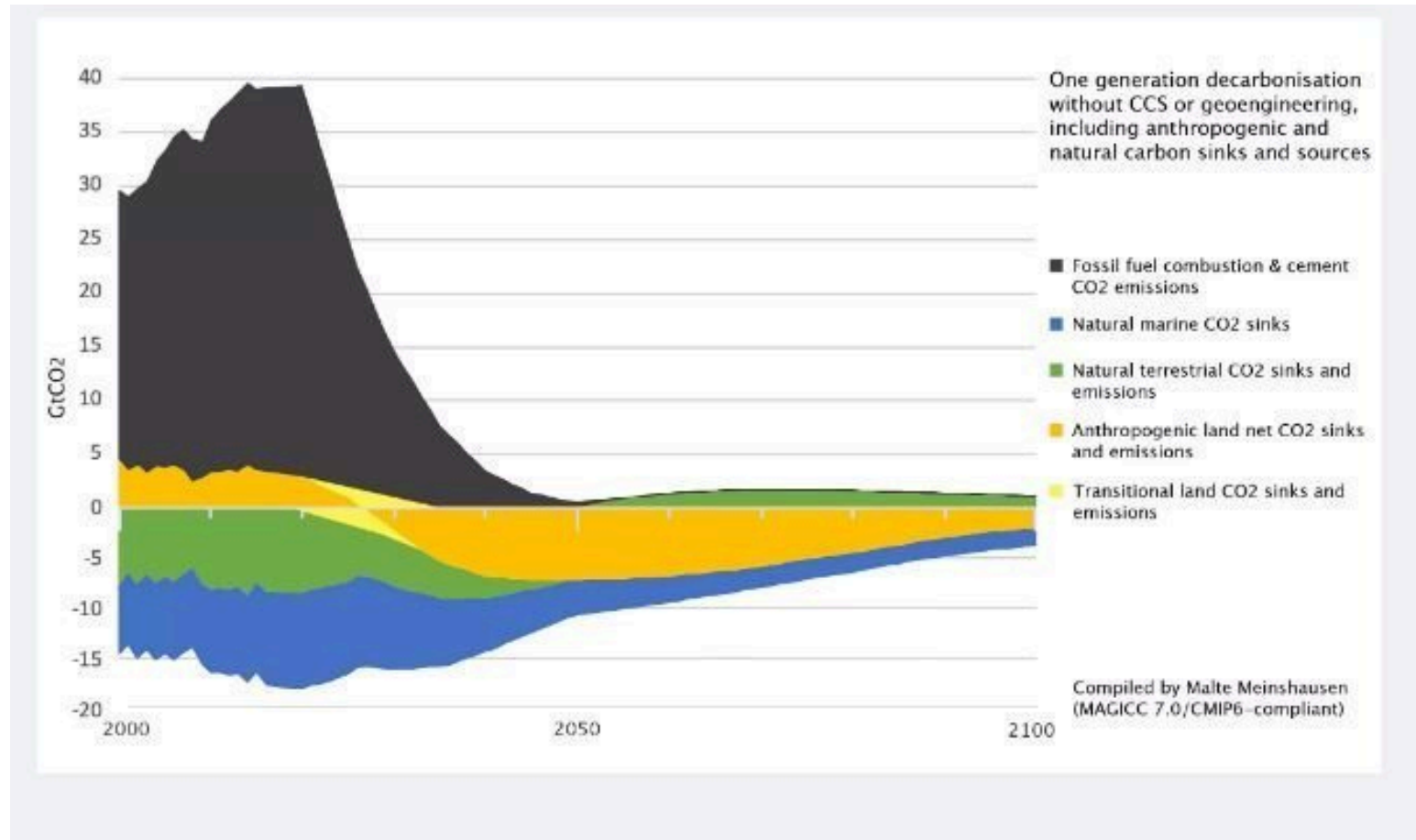
**60%**  
are livestock

**36%**  
are humans



Source: The Guardian (2018), data  
Proceedings of the National  
Academy of Sciences of the United  
States of America

# There is hope and possibilities



Thank you!

[www.sirpapietikainen.eu](http://www.sirpapietikainen.eu)

[sirpa.pietikainen@europar.europa.eu](mailto:sirpa.pietikainen@europar.europa.eu)

*Sirpa*