



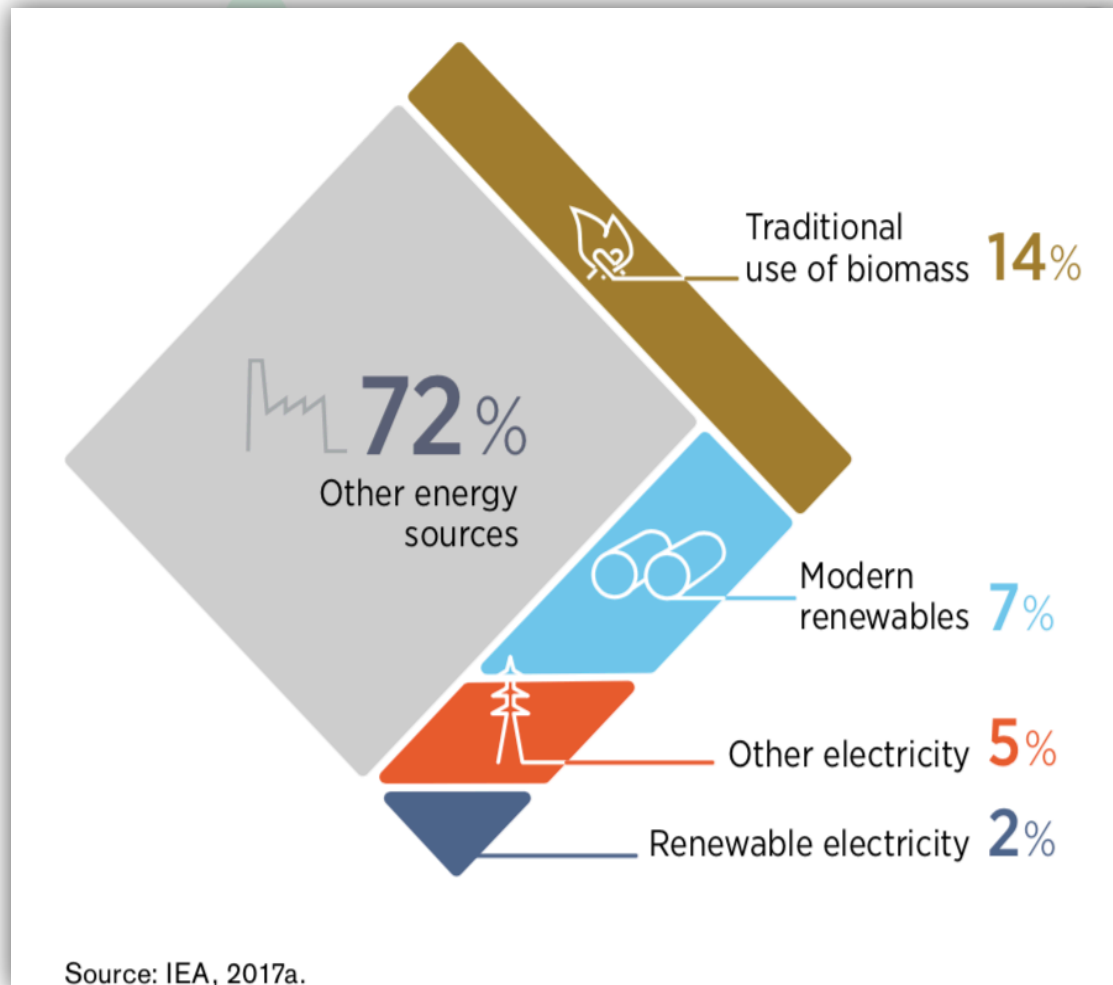
The necessary context for low-carbon transport and chemistry

Finding sustainable feedstocks, technology and policy

Seminar Biethanol | 4 July 2019

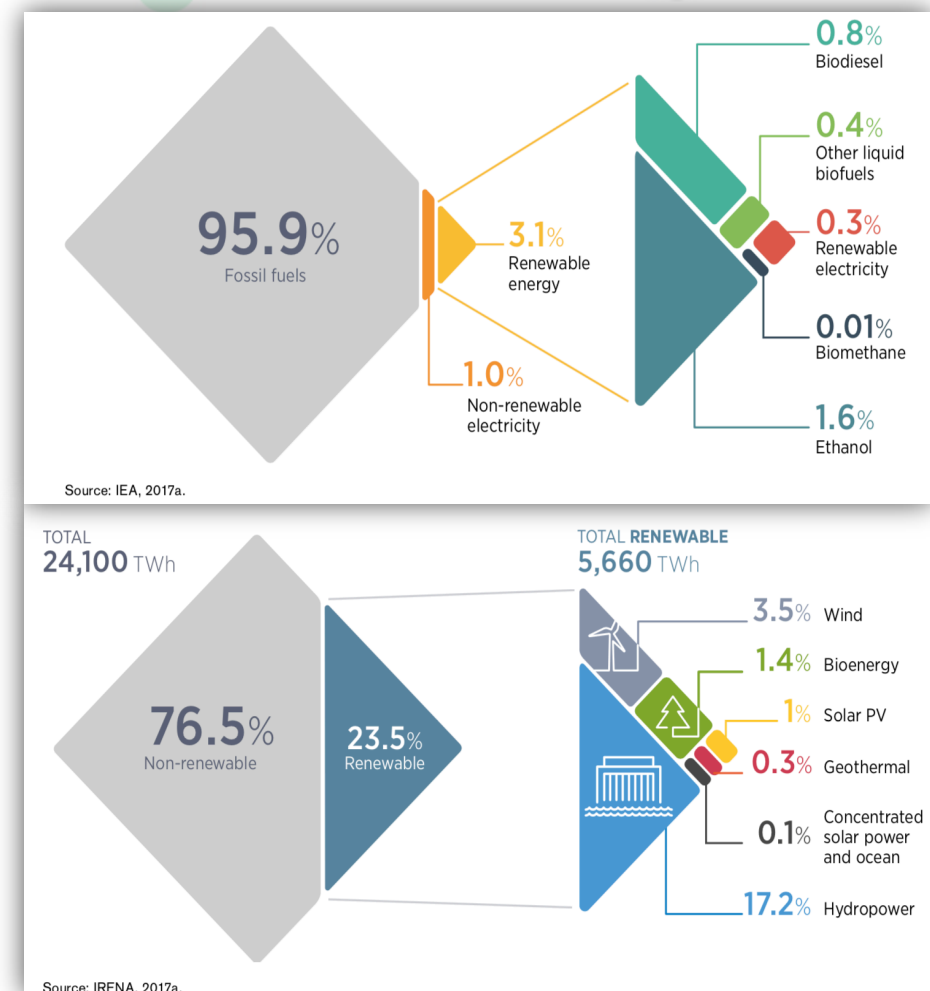
Eric van den Heuvel

Framing the urgency



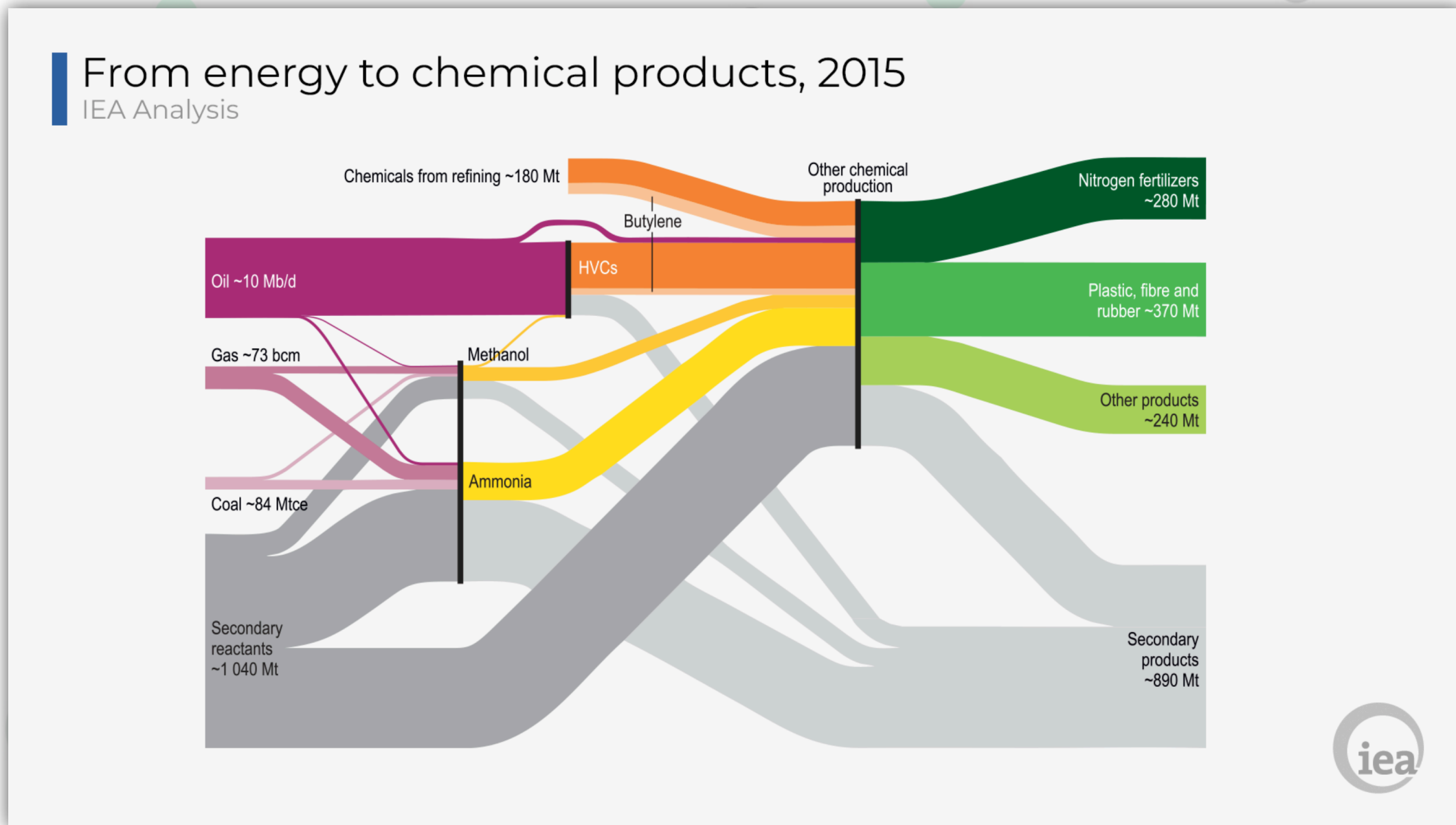
Heat ($\pm 50\%$ of total energy)

Transport ($\pm 25\%$ of total energy)



**Ongoing dominance of fossil in global energy sector.
Quick phase out needed.**

Framing the urgency



Also ongoing dominance of fossil resources in chemical sector.

Framing the urgency

Climate
change

We have 12 years to limit climate catastrophe, warns UN

Urgent changes needed to cut risk of extreme heat, drought, floods and poverty, says IPCC

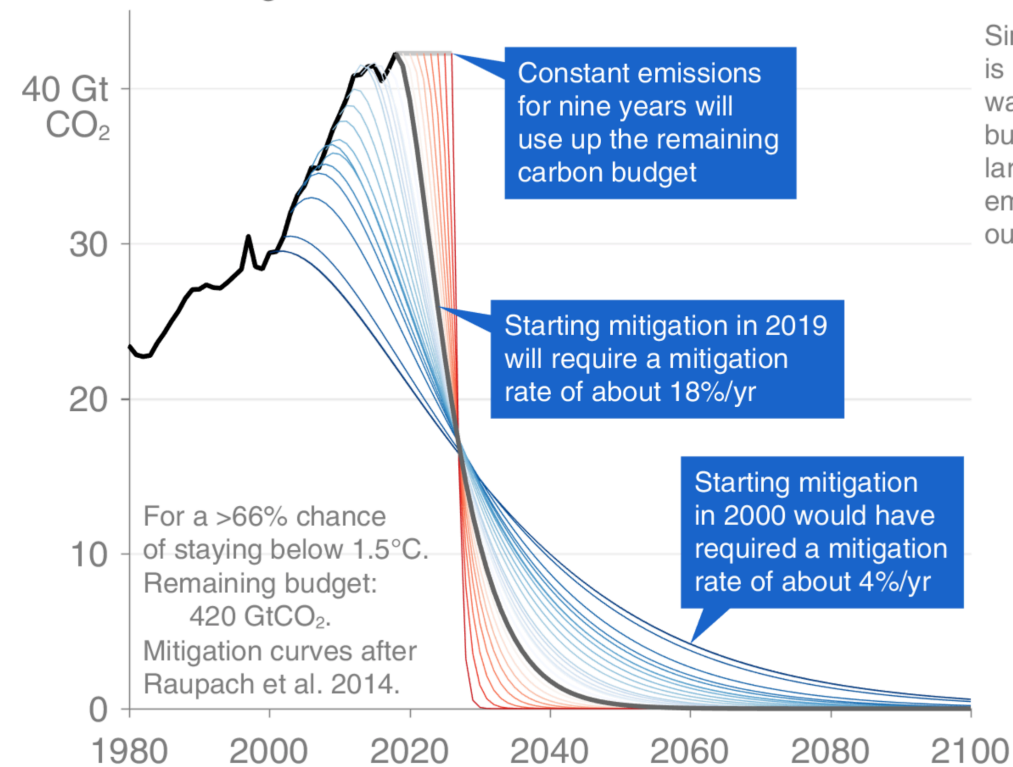
● Overwhelmed by climate change? Here's what you can do

Jonathan Watts
Global
environment editor

Mon 8 Oct 2018
07.23 BST



CO₂ mitigation curves: 1.5°C



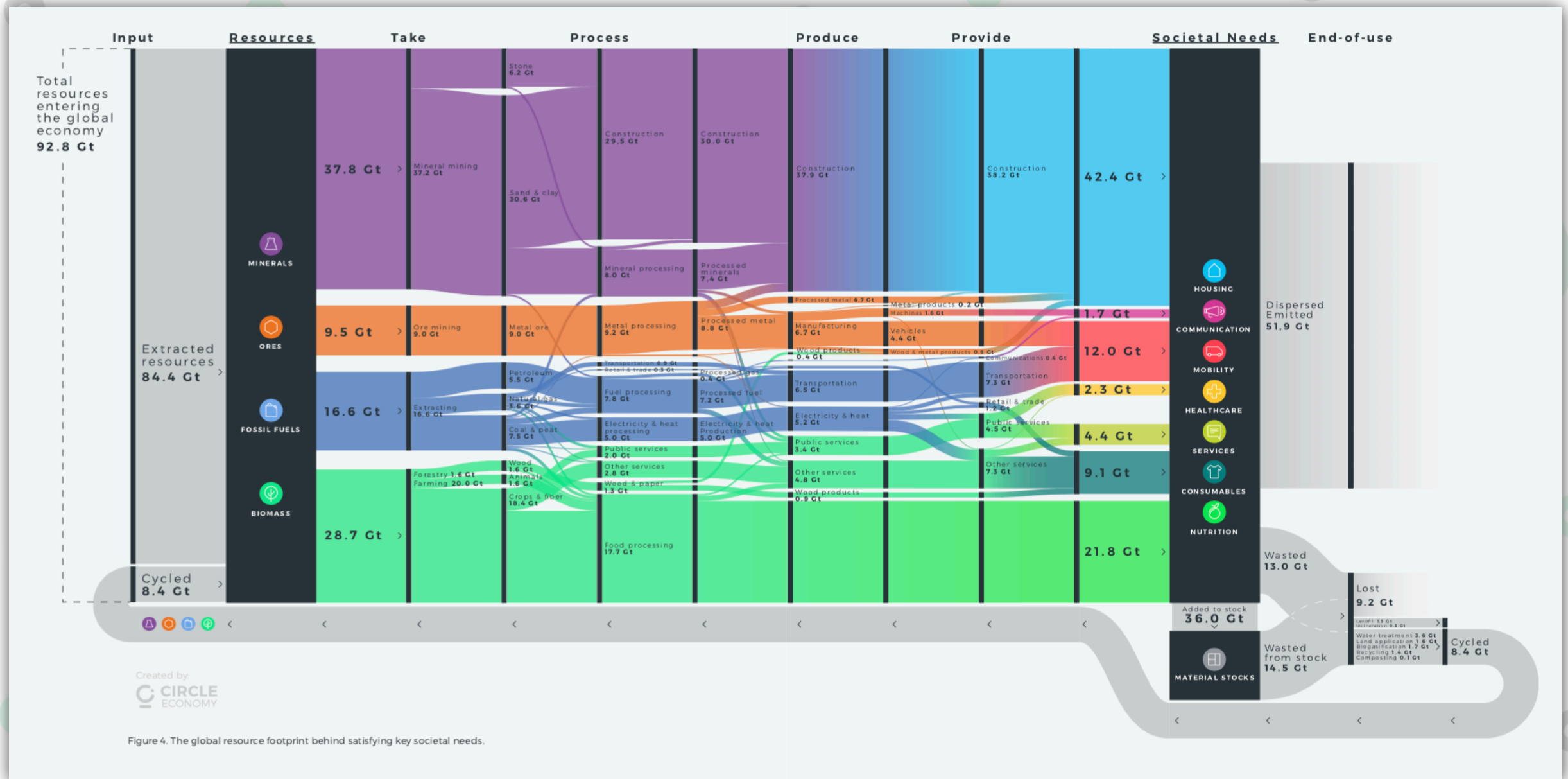
Since 18%/yr mitigation is impossible, the only way to achieve this budget is with very large "negative" emissions: pulling CO₂ out of the atmosphere.

@robbie_andrew • Data: GCP • Emissions budget from IPCC SR1.5



Op 24 juni 2015 won Urgenda, samen met met 900 mede-eisers, de Klimaatzaak tegen de Nederlandse Staat. De rechter droeg de Staat op de uitstoot van broeikasgassen in 2020 met 25% te verminderen ten opzichte van 1990. De Staat tekende beroep aan tegen dit vonnis. Op 9 oktober bekrachtigde het Haagse Hof het vonnis van de rechter.

Framing the challenge

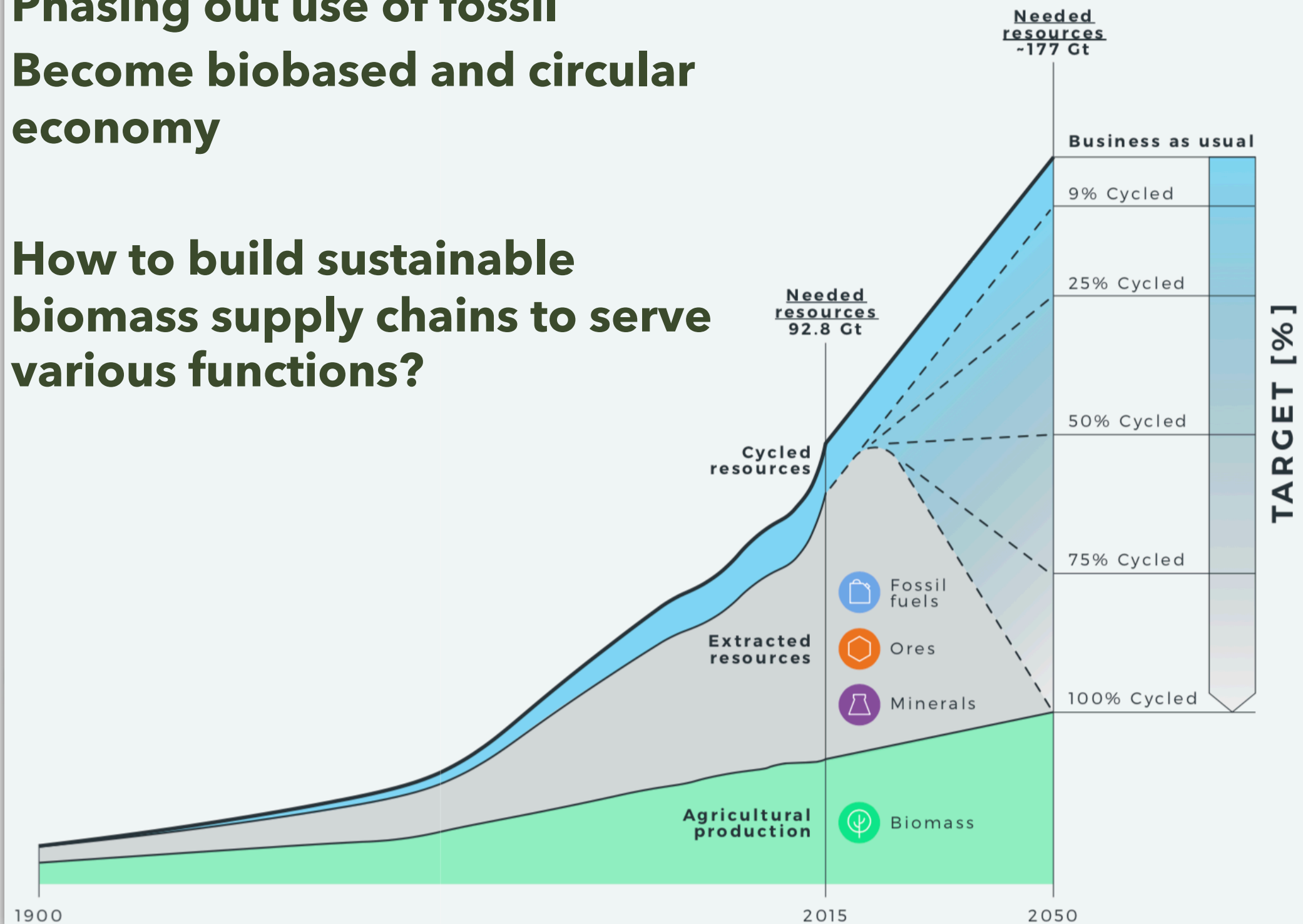


Current economy still very much linear based to serve the seven main societal needs

Framing the challenge

**Phasing out use of fossil
Become biobased and circular
economy**

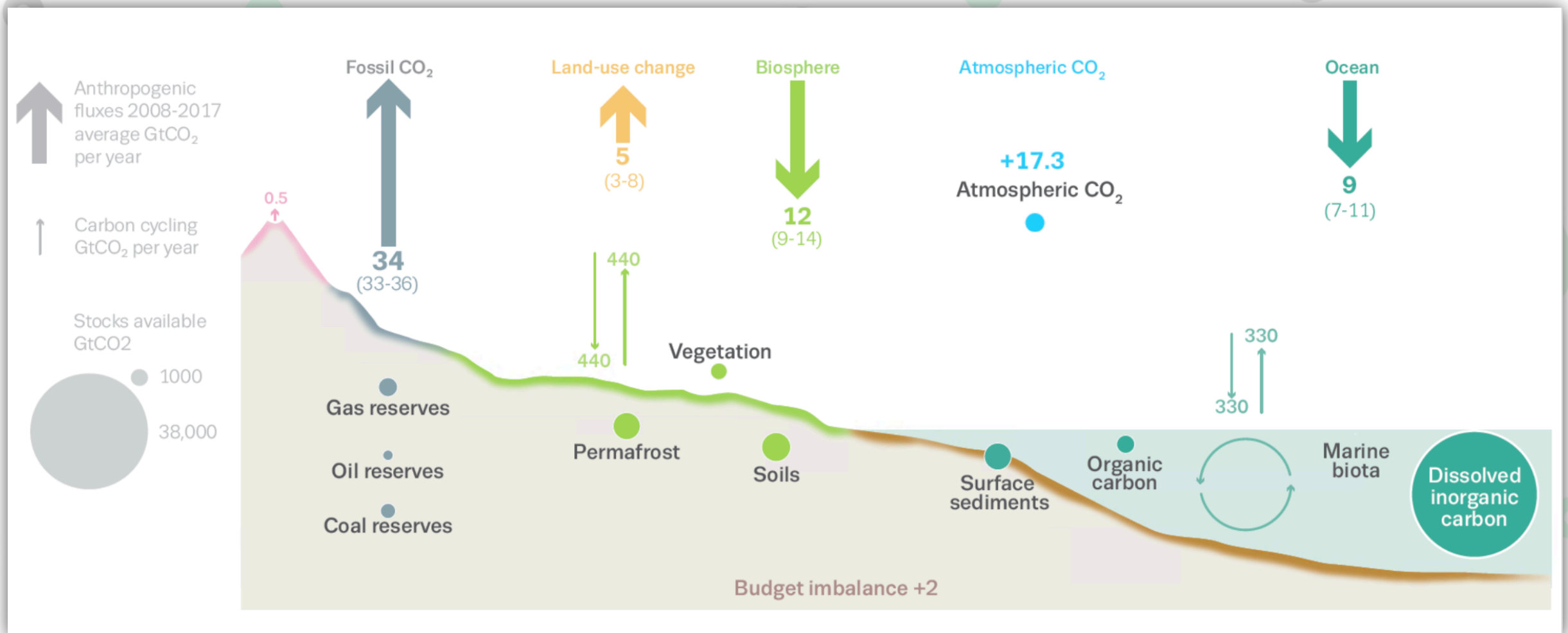
**How to build sustainable
biomass supply chains to serve
various functions?**



Source: The circularity gap report 2018

Driven by Nature.

Zooming out to the carbon cycle



Source: The Global Carbon Project Report 2018

Regulation needs to be in place to prevent fossil CO₂ and maximise carbon capture in the biosphere and stimulate the natural carbon cycle

How does regulation look right now

- **Regulation in place for energy in Europe and the Netherland to promote share of renewables**
 - Renewable Energy Directive 1 (up to 2020)
 - Renewable energy Directive 2 (2021-2030)
 - 'Klimaatakkoord' - Climate Agreement
- **Similar regular is yet lacking for the chemical sector**

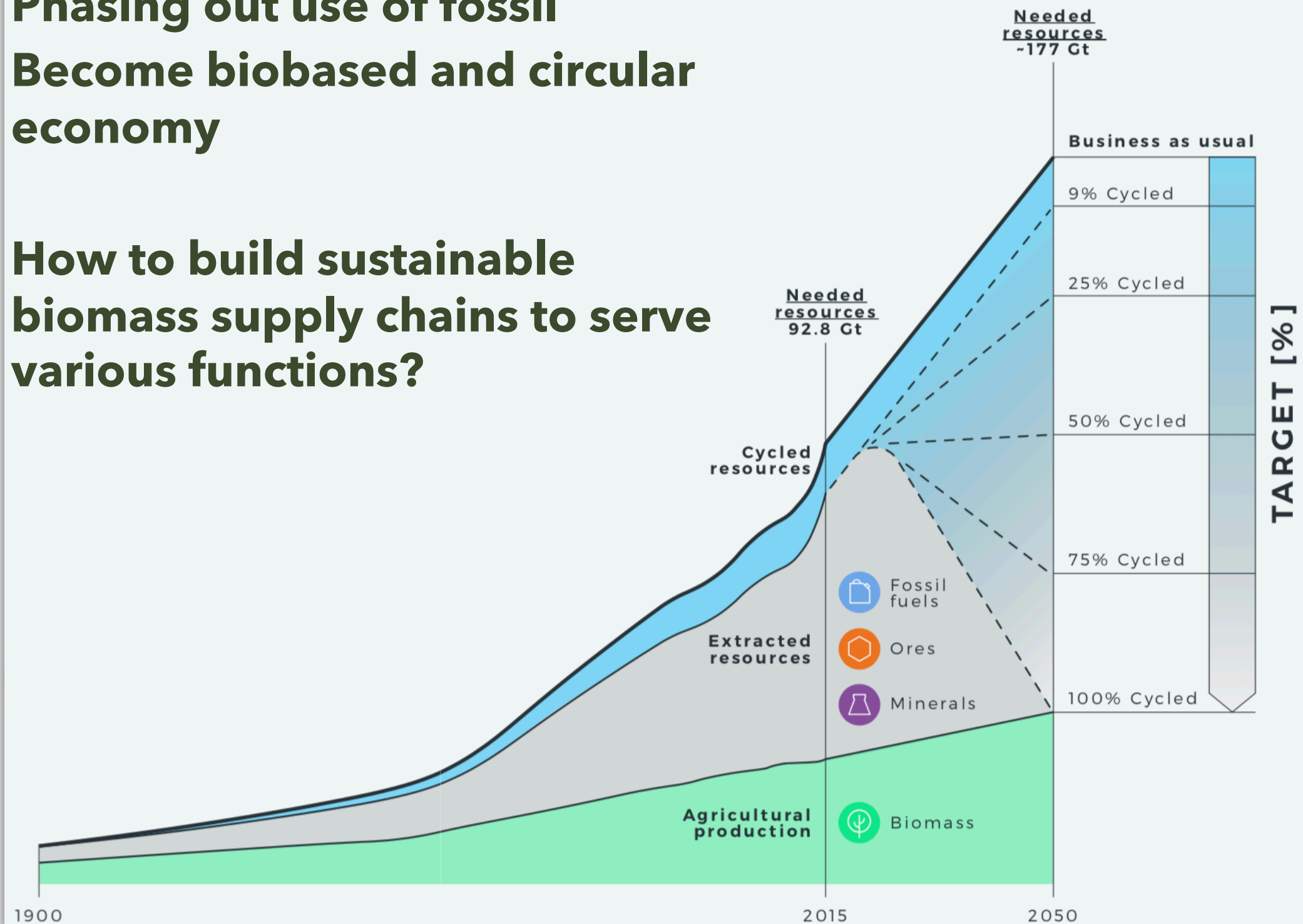
Energy regulations set very specific conditions on feedstocks

- **Strict sustainability criteria on**
 - Greenhouse gas performance,
 - Origin,
 - Type of feedstock
- **Specificly:**
 - Limits on utilisation of food and feed crop based biofuels,
 - Limits on utilisation of used cooking oil
 - Expansion focus on advance biofuels, based on a list of waste-based feedstocks (Annex IX-A list in Directive EU/2018/2001)
- **Conditions will be extended to chemical sector - as announced in Klimaatakkoord**
- **Will impact the biethanol-case**

If this to be achieved

**Phasing out use of fossil
Become biobased and circular
economy**

**How to build sustainable
biomass supply chains to serve
various functions?**



Source: The circularity gap report 2018

Driven by **Nature.**

Design parameters for sustainable supply chains

- **Strive for high well-to-wheel GHG-emission reductions**
- **Avoidance of undesired land change impacts**
- **Increase of (re)forestation and protection of forests, nature and biodiversity**
- **Contribution to improvements to more efficient agriculture**
- **Strengthening food security**
- **Improving soil and water quality and closing of nutrient cycles**
- **Assuring security in the supply chain**
- **Improving transparency**

Call for action

Work together to get regulation in place

- **To give priority to biobased sustainable value chains**
- **To set a 'phase out' path for use of fossil resources**

Establish European collaboration opportunities to build a bioresource based Europe

Reconnect to agricultural sector to the end-use sectors, like energy, transport and chemistry and biobased materials, as integral part of the sustainable supply chain



More info



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