

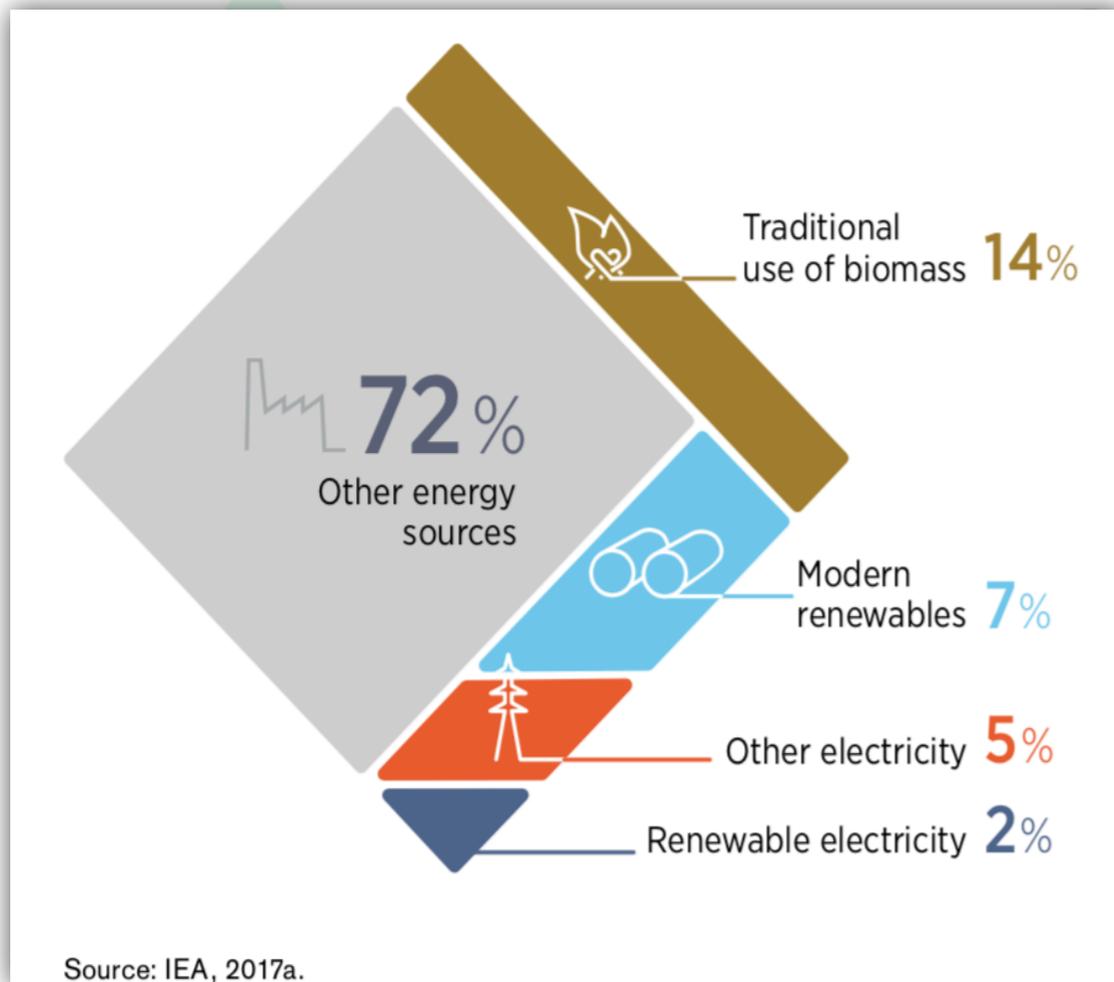
# **The necessary context for low-carbon transport and chemistry**

**Finding sustainable feedstocks, technology and policy**

Seminar Biethanol | 4 July 2019

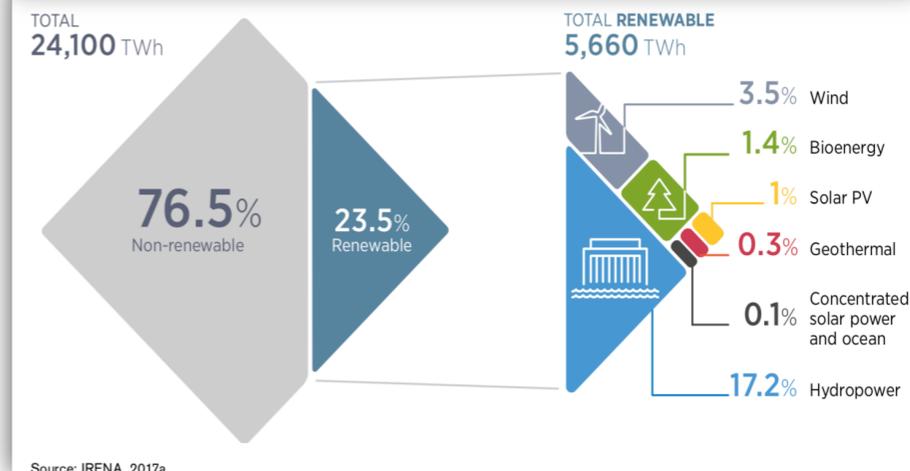
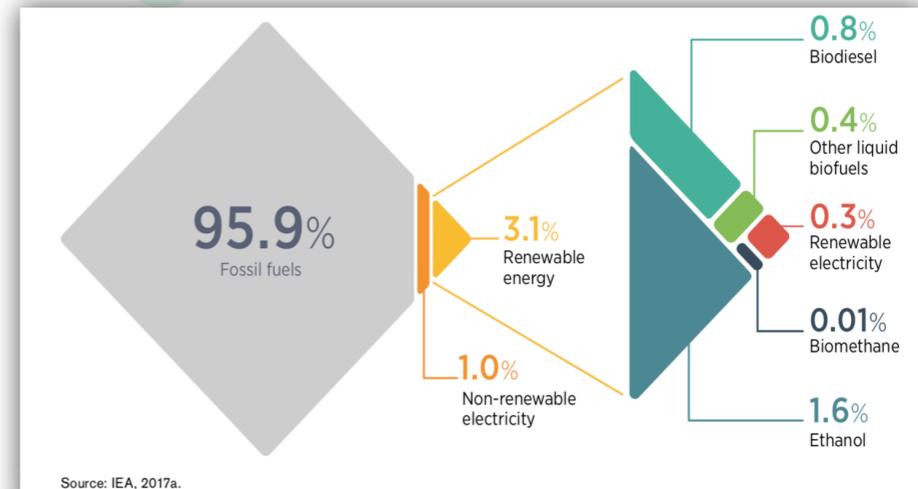
Eric van den Heuvel

# Framing the urgency



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

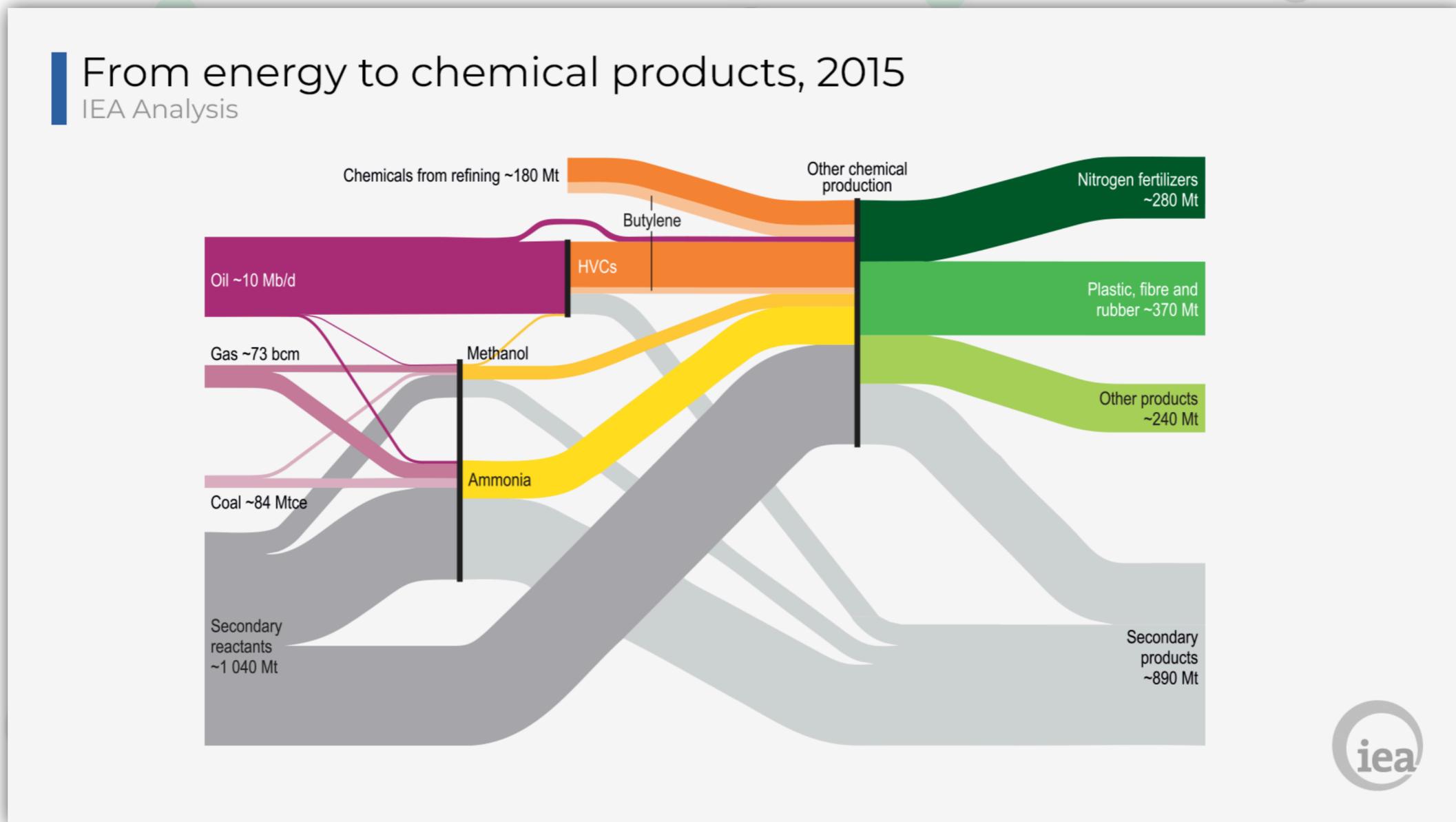
Transport ( $\pm 25\%$  of total energy)



Power ( $\pm 25\%$  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

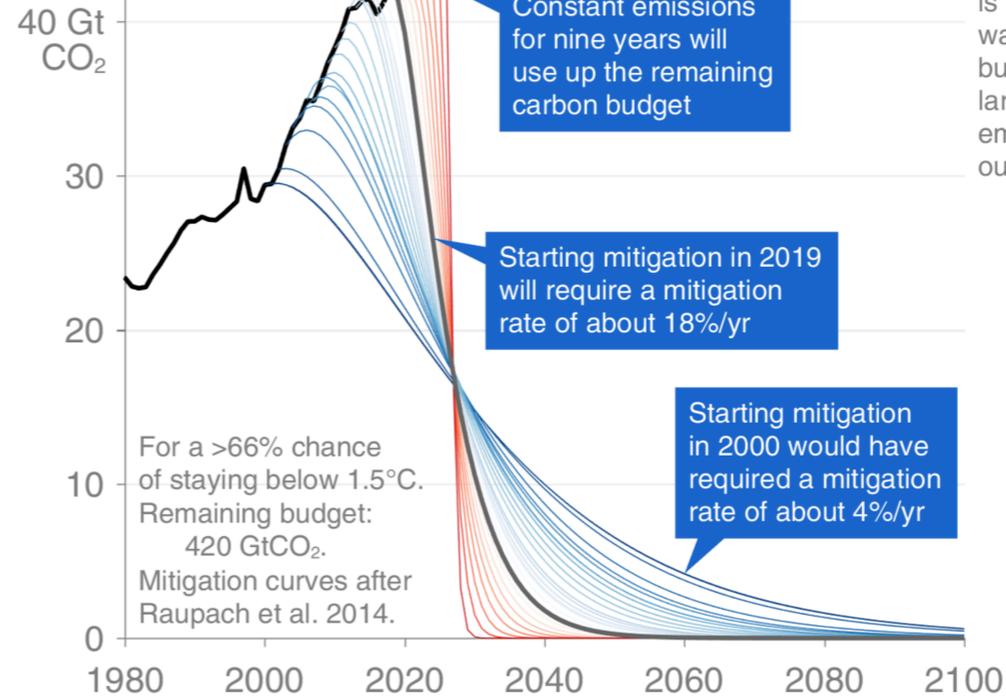
Jonathan Watts  
Global environment editor

Mon 8 Oct 2018  
07.23 BST

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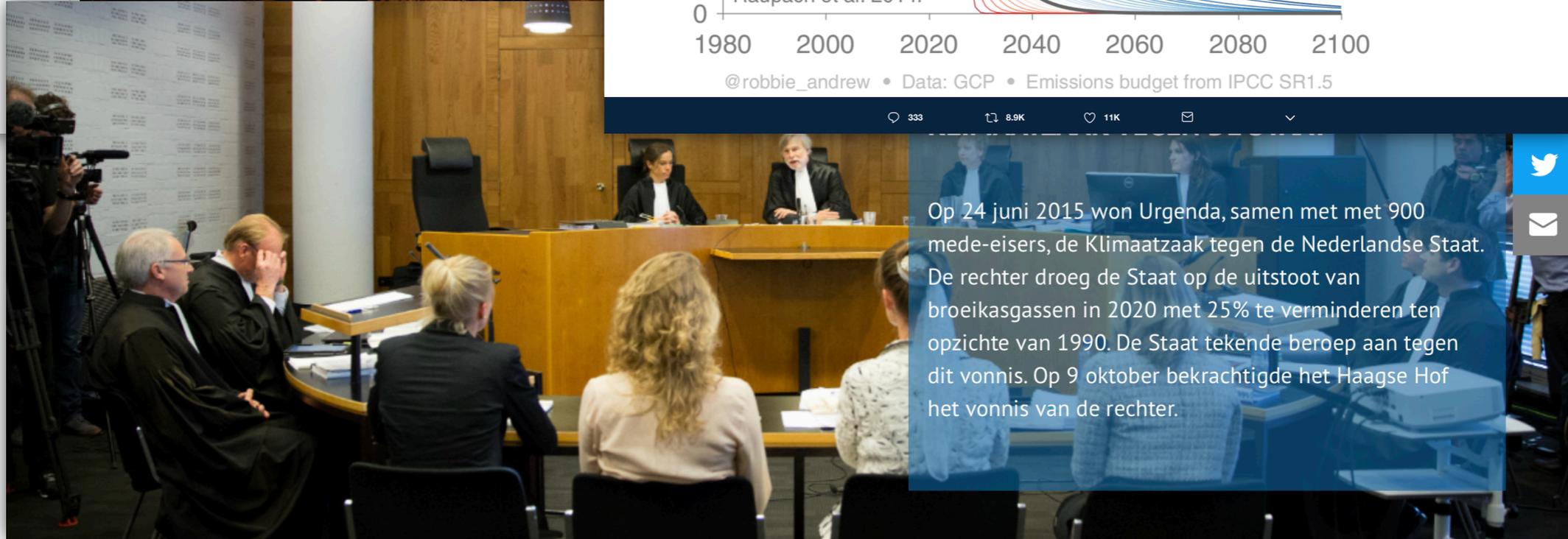
CO<sub>2</sub> mitigation curves: 1.5°C



Since 18%/yr mitigation is impossible, the only way to achieve this budget is with very large "negative" emissions: pulling CO<sub>2</sub> out of the atmosphere.

@robbie\_andrew • Data: GCP • Emissions budget from IPCC SR1.5

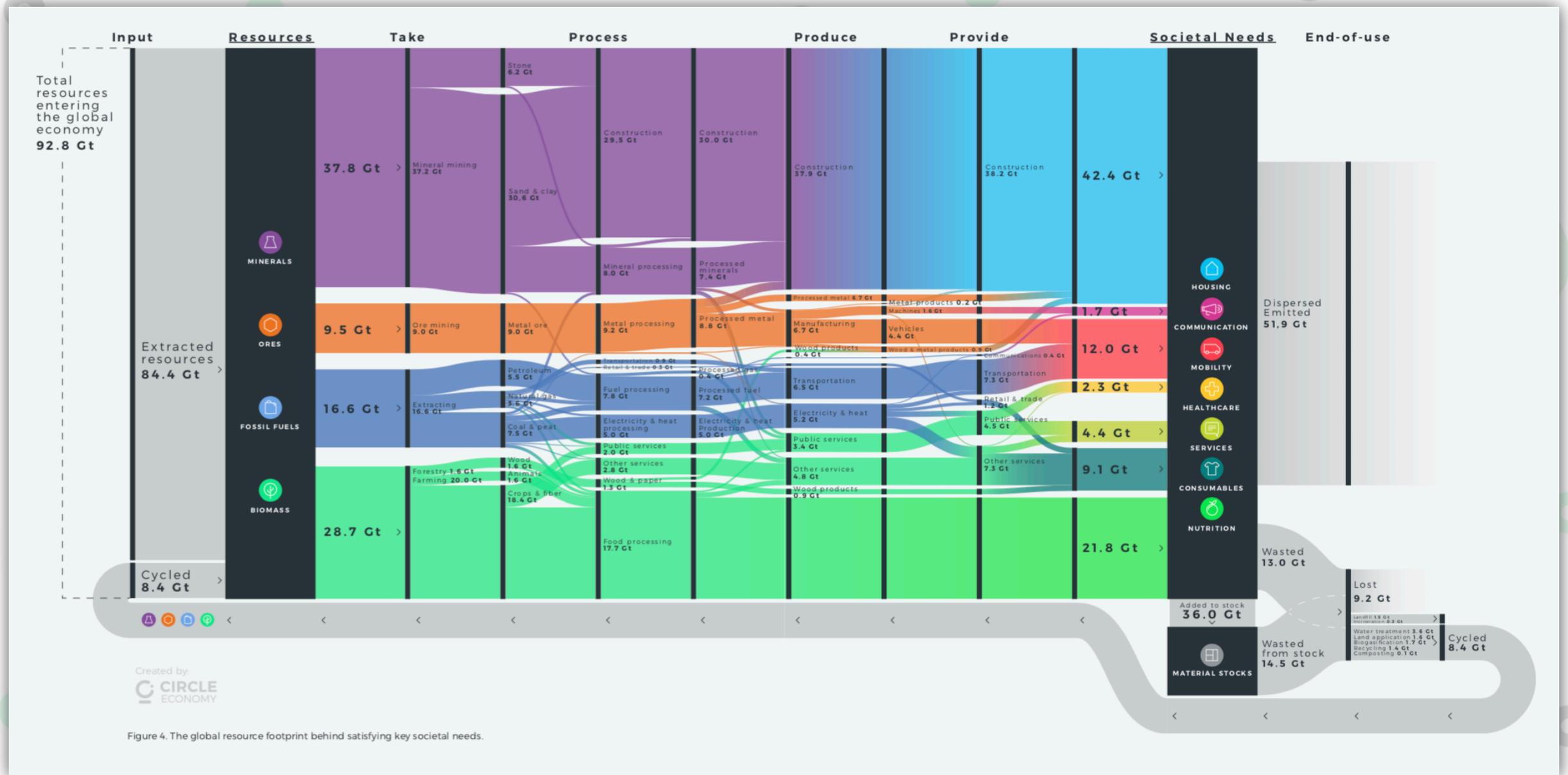
333 8.9K 11K



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

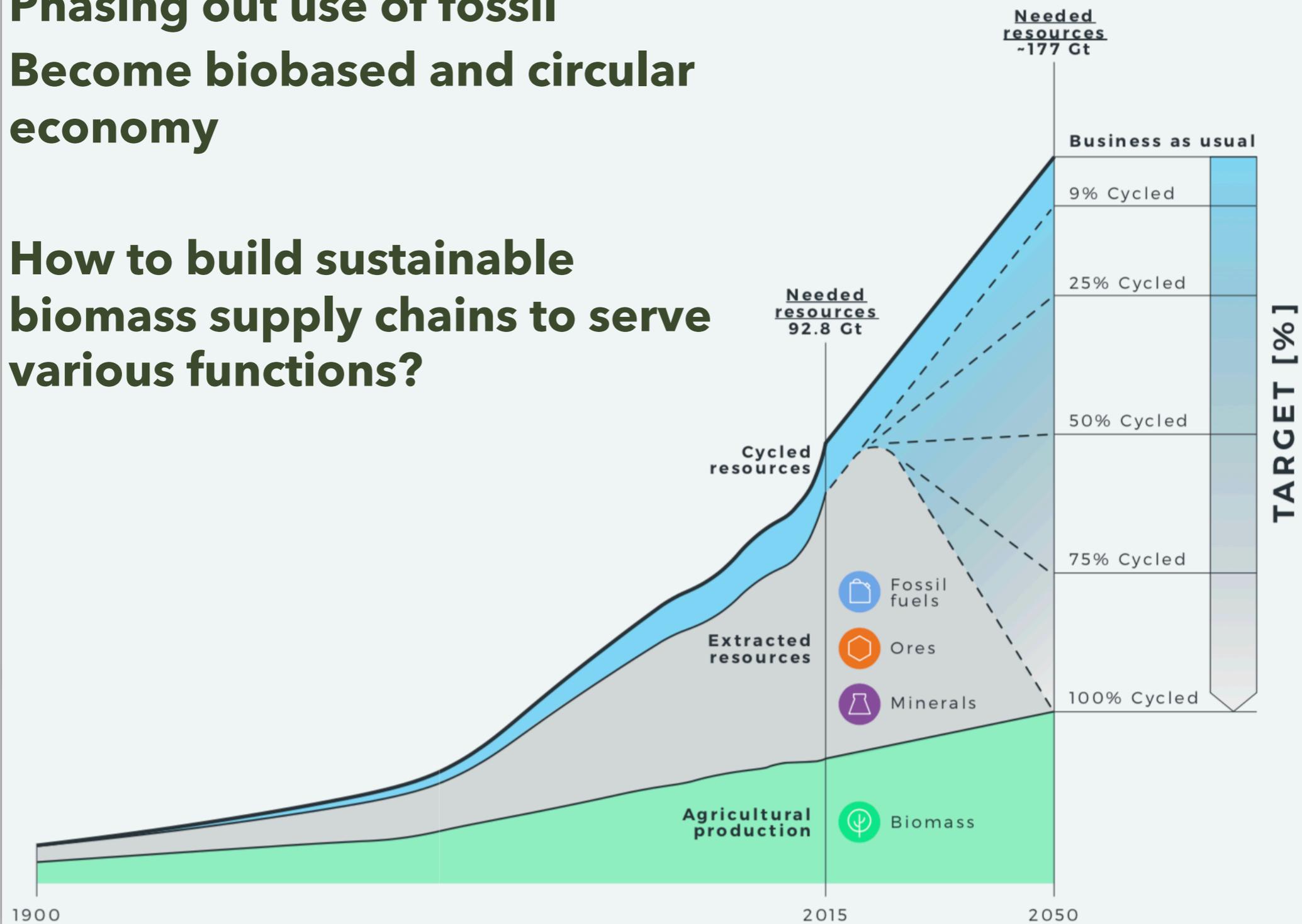


Current economy still very much linear based to serve the seven main societal needs

# Framing the challenge

Phasing out use of fossil  
Become biobased and circular  
economy

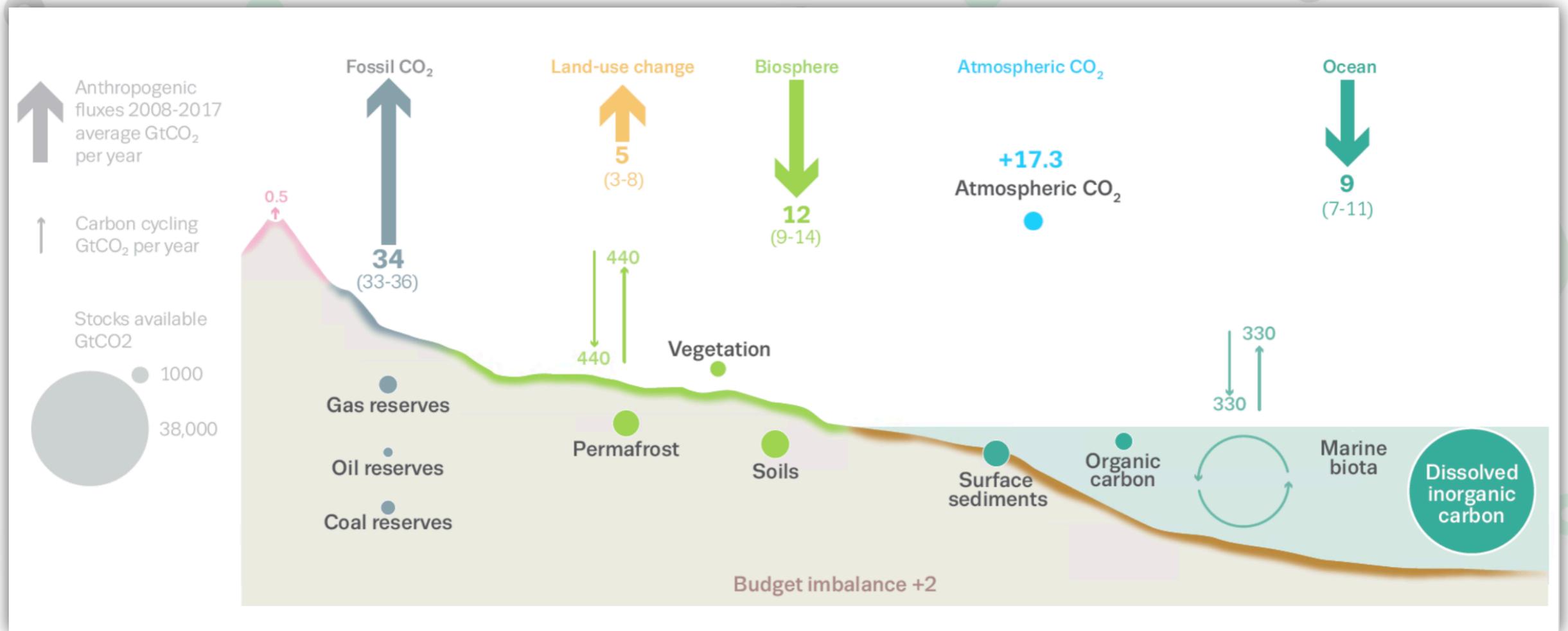
How to build sustainable  
biomass supply chains to serve  
various functions?



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 CO<sub>2</sub> 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**

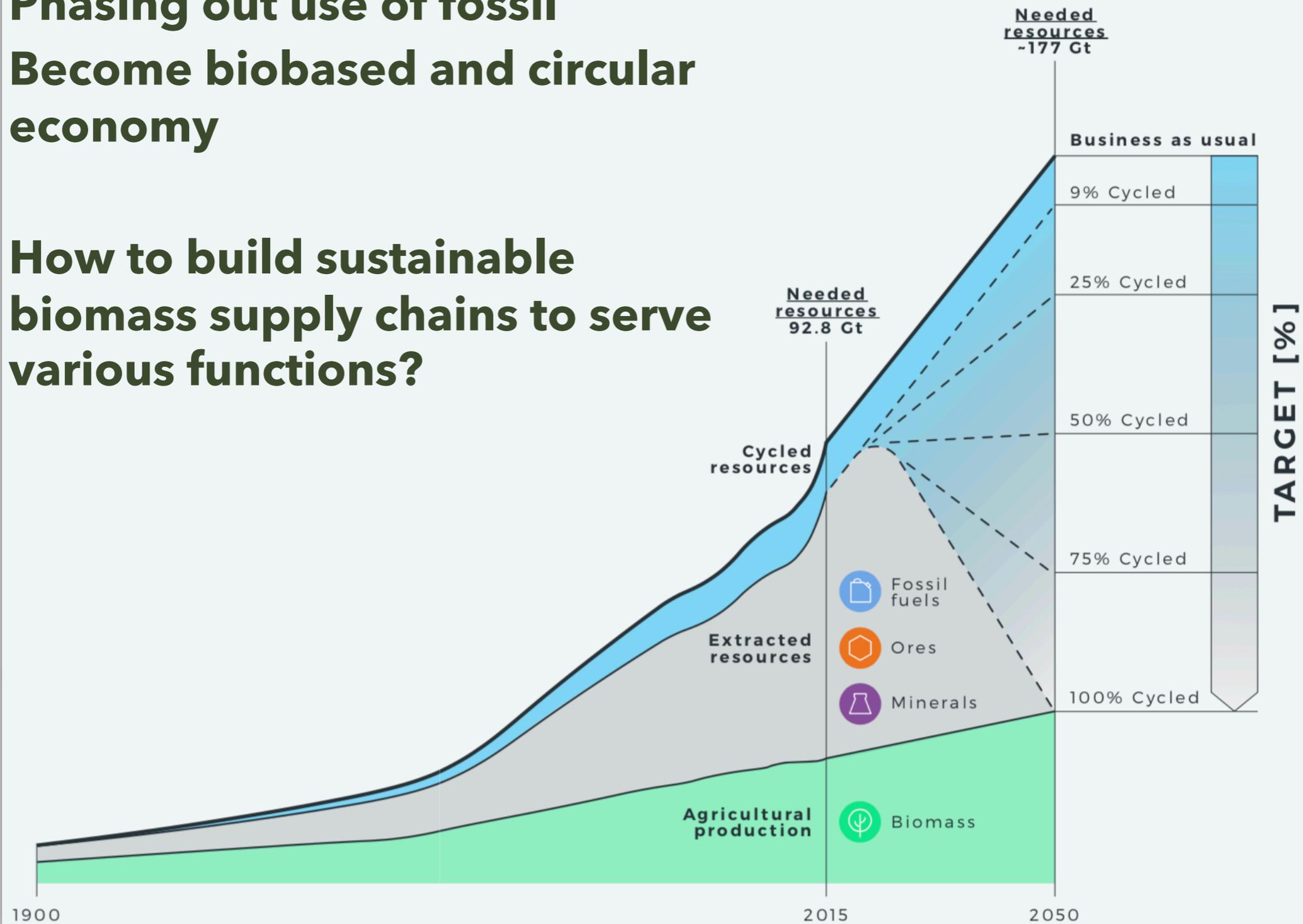
# Energy regulations set very specific conditions on feedstocks

- **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

 @PlatfDuurzBio

 [www.platformduurzamebiobrandstoffen.nl](http://www.platformduurzamebiobrandstoffen.nl)

 [www.drivenbynature.org](http://www.drivenbynature.org)

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Driven by **Nature.**