Nationale Biobased Conferentie

TKI BBE

Lectorenplatform Biobased Economy

Antropia, Driebergen

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2050: 100% renewable carbon!!

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Content

- Why 100% Renewable Carbon!
- The Renewable Carbon Initiative
- The relative role of biomass in Renewable Carbon
- Wrap-up / Key points

The Vision

- In order to fight climate change, we need to curb our consumption of fossil resources. Therefore, we need renewable carbon

- Fossil carbon shall be completely substituted by renewable carbon, which is carbon from alternative sources: biomass, CO_2 and recycling

The Aim

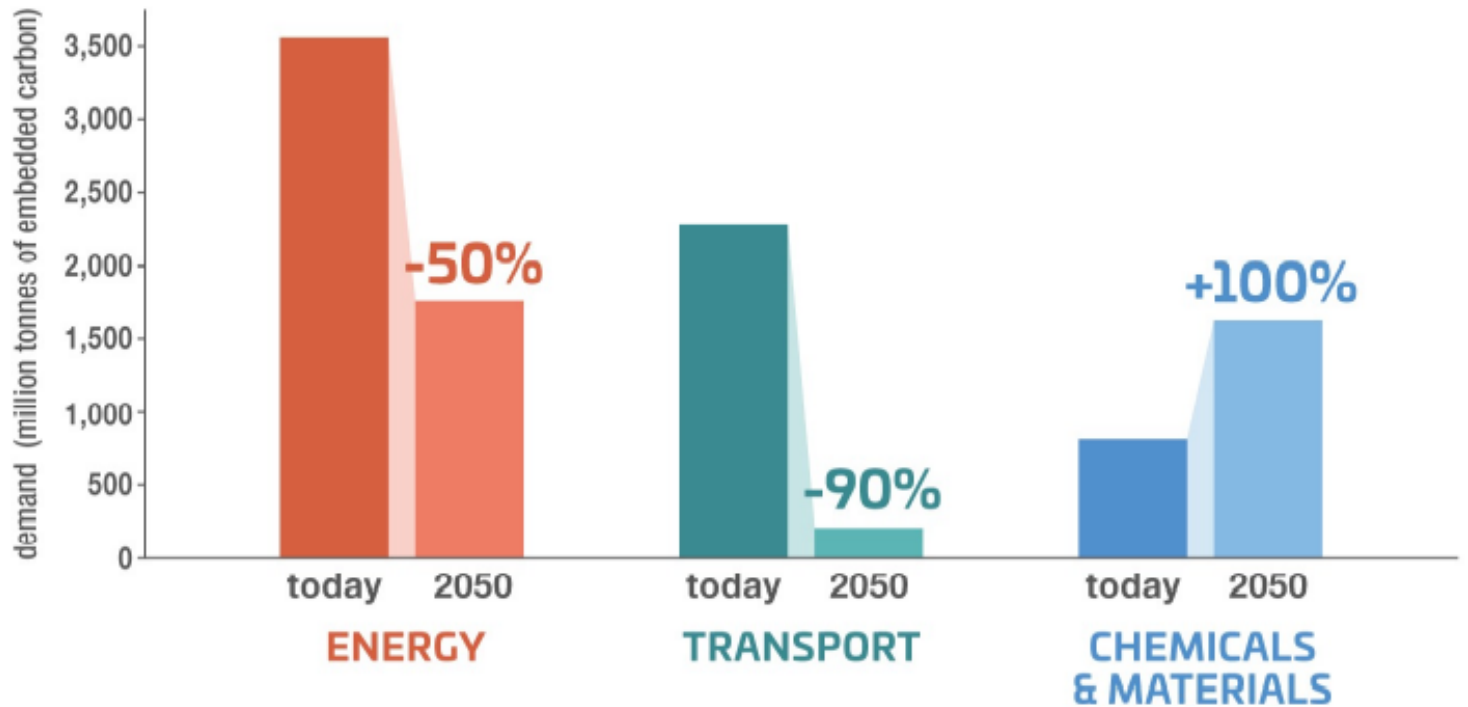
- The aim of the Renewable Carbon Initiative (RCI) is to support and speed up the transition from fossil carbon to renewable carbon for all organic chemicals and materials
- RCI addresses the core problem of climate change, which is extracting and using additional fossil carbon from the ground that will eventually end up in the atmosphere
- Companies are encouraged to focus on phasing out fossil resources and to use renewable carbon instead
- The initiative wants to drive this message, initiating further actions by bringing stakeholders together, providing information and shaping policy to strive for a climate -neutral circular economy

The Definition

- Renewable Carbon entails all carbon sources that avoid or substitute the use of any additional fossil carbon from the geosphere
- Renewable carbon can come from the biosphere, atmosphere or technosphere – but not from the geosphere
- Renewable carbon circulates between biosphere, atmosphere or technosphere , creating a carbon circular economy

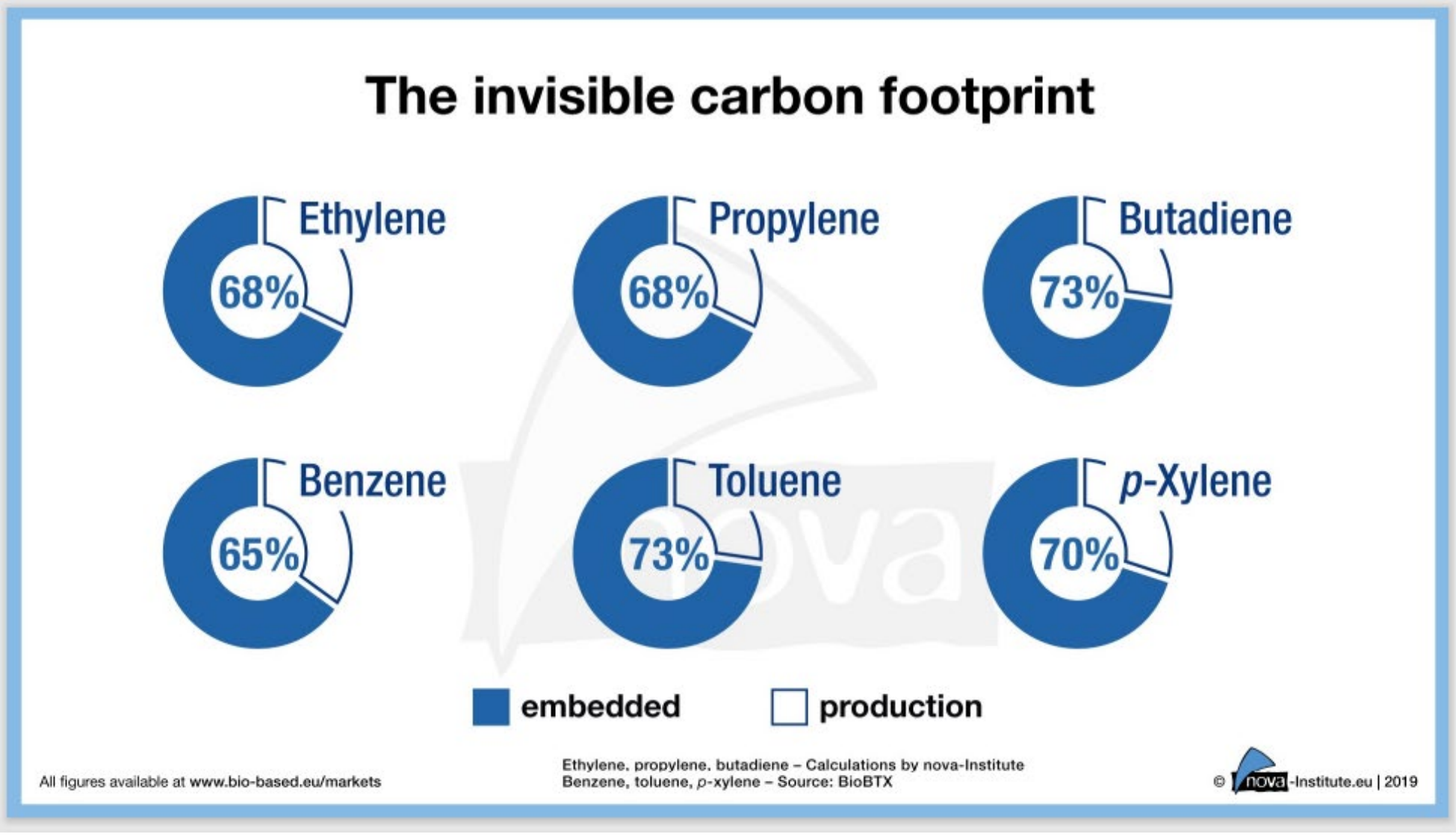
Embedded Carbon Demand for Main Sector

Today (2015–2020) and Scenario for 2050 (in million tonnes of embedded carbon)

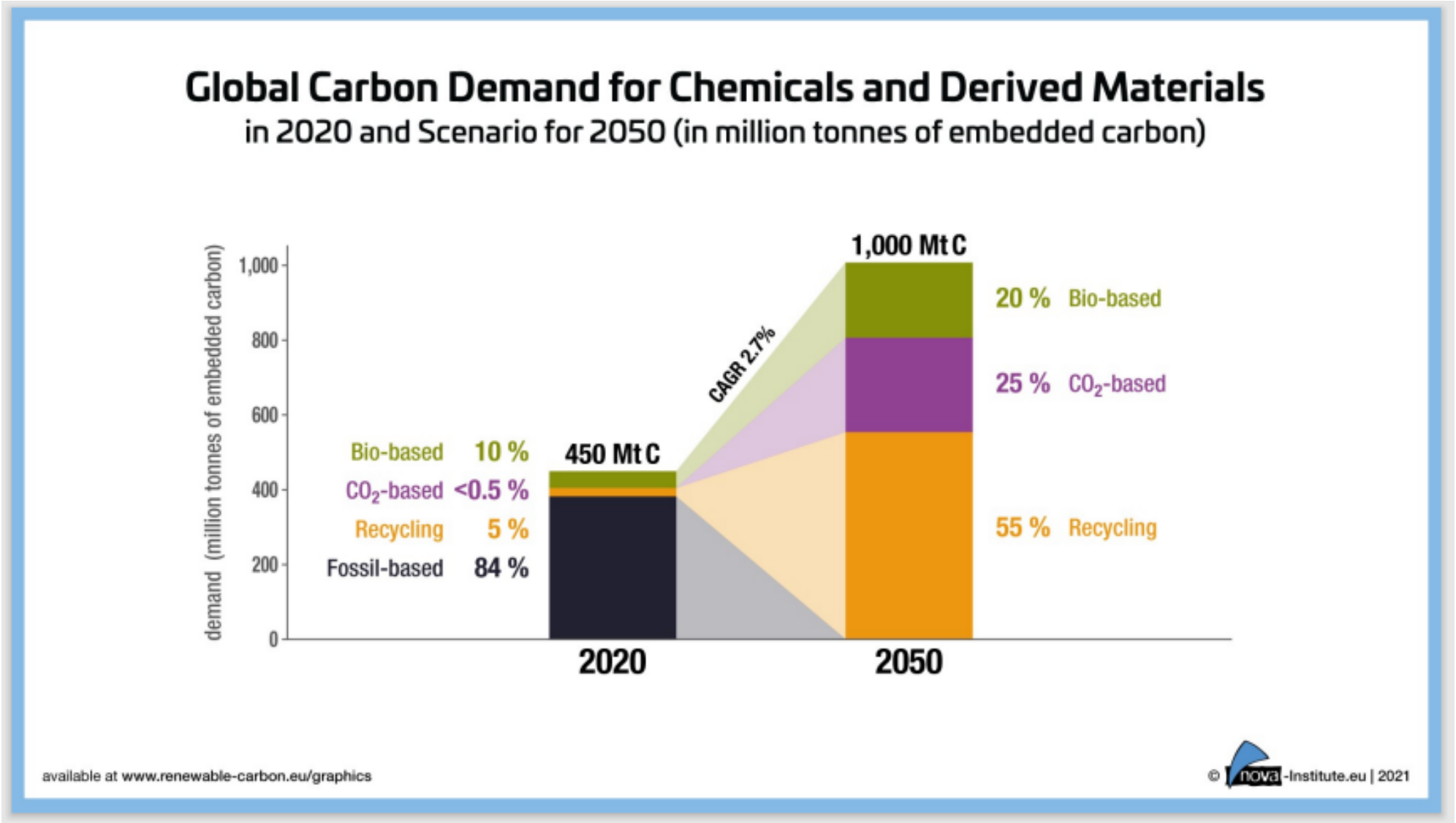


available at www.renewable-carbon.eu/graphics

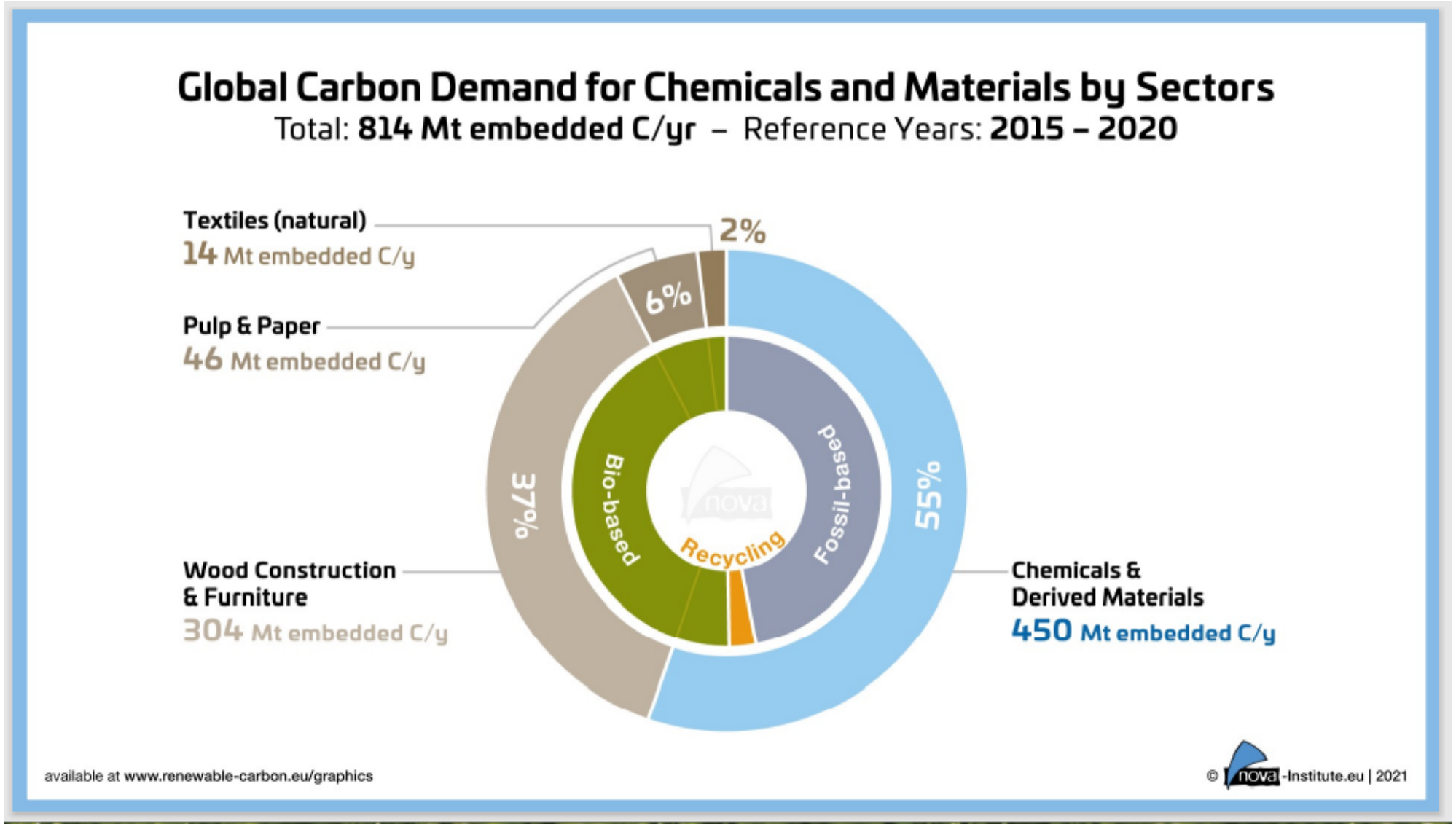
Embedded carbon



Future Carbon Demand



Global Carbon Demand for Chemicals & Materials



Renewable Carbon from Biomass (Pros)

- Food crops:
  - Commodities, established in high volume, good logistics
  - Food crops: Protein -rich by -products
- Wide range of non -food feedstocks – no direct food competition, positive image
  - Wood and lignocellulosic by -products and side streams
  - Biogenic waste from industry and households
- Low GHG footprint compared with fossil resources
- New green chemical pathways
- Biotechnology as sustainable process technology
- Utilize functionality in the biomass

Renewable Carbon from Biomass (Cons)

- Limited total volume
- Low land -efficiency
- Potential pressure on land and biodiversity
- Potential competition with food crops and a possible threat to food security
- No Black and White story / Communication

Key Points (1)

- 72% from the GHG emissions are directly related to additional fossil carbon from the ground
- Climate change is likely to become one of the most significant drivers of biodiversity loss
- Decarbonisation with renewable energies is a good strategy for the energy sector, but no issue for chemicals and materials, because most of them are based on carbon
- There is a lasting need for carbon for chemicals and materials. All fossil carbon use **has to end,** as the carbon contained in the molecules of chemicals and plastics is prone to end up in the atmosphere sooner or later. Only a **full phase -out of fossil carbon** will help to prevent a further increase in CO_2 concentrations

Key Points (2)

- The key challenge is to replace demand for fossil carbon by alternative carbon sources
- The equivalent to decarbonisation in the energy sector is a transition to renewable carbon in the chemical and material industries
- Those alternative carbon sources are biomass, CO_2 and recycling of carbon containing waste streams (bio and plastic waste) – we need them all together to replace fossil carbon and we need them all **NOW**
- We call them “renewable carbon”
- Biomass **COULD** and **SHOULD** play a **key role** in this transition

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