

# State of the art of climate impact assessment of forest products in LCA

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# “State of the art”

1. How LCA practitioners currently assess the climate impact of forest products
2. Available methods



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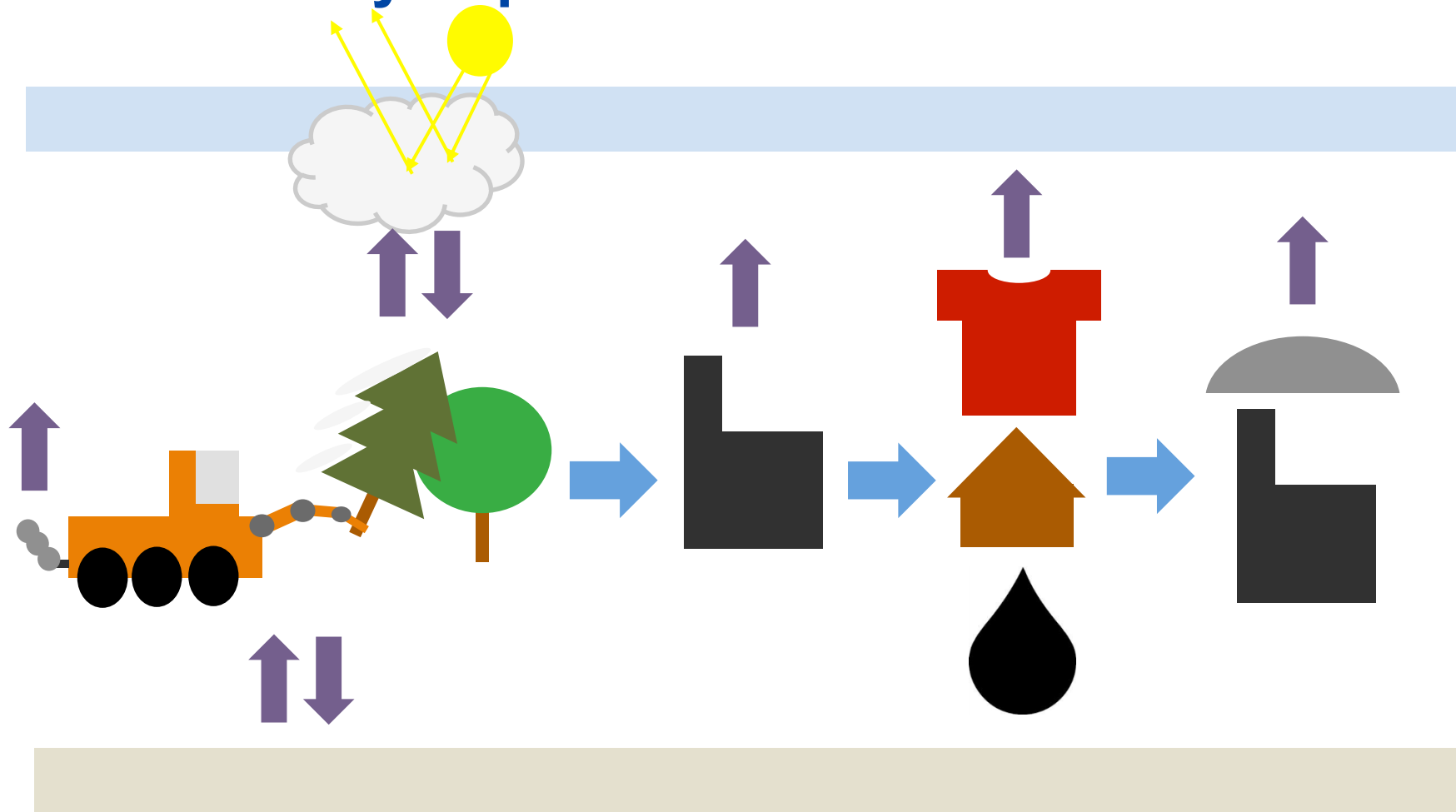
# Content

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2. Approaches
  - The current common practice
  - Recommendations in standards
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3. Implications for results of different approaches
4. Summary: where are we now?

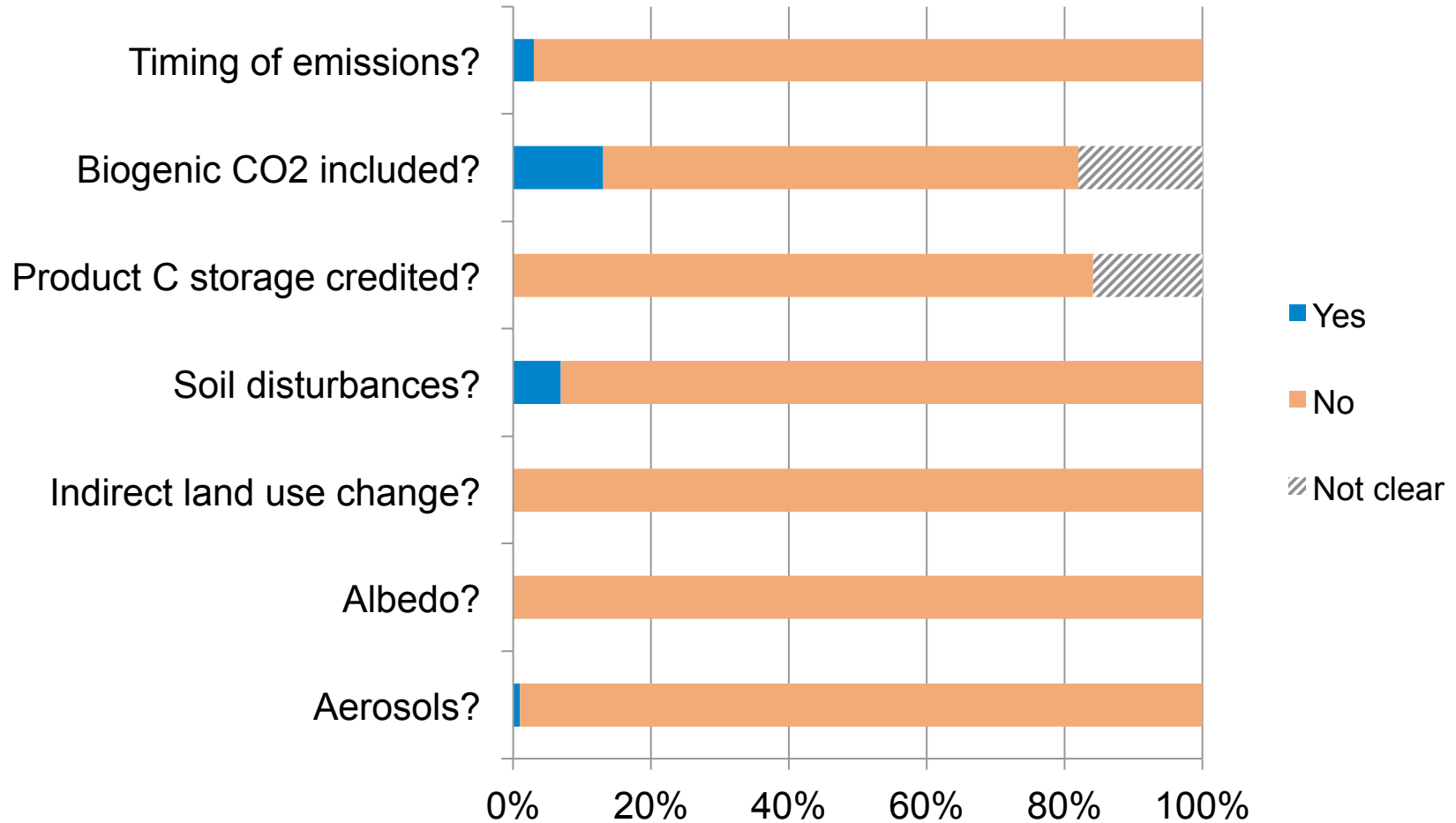


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# Potentially important climate effects



# The current common practice



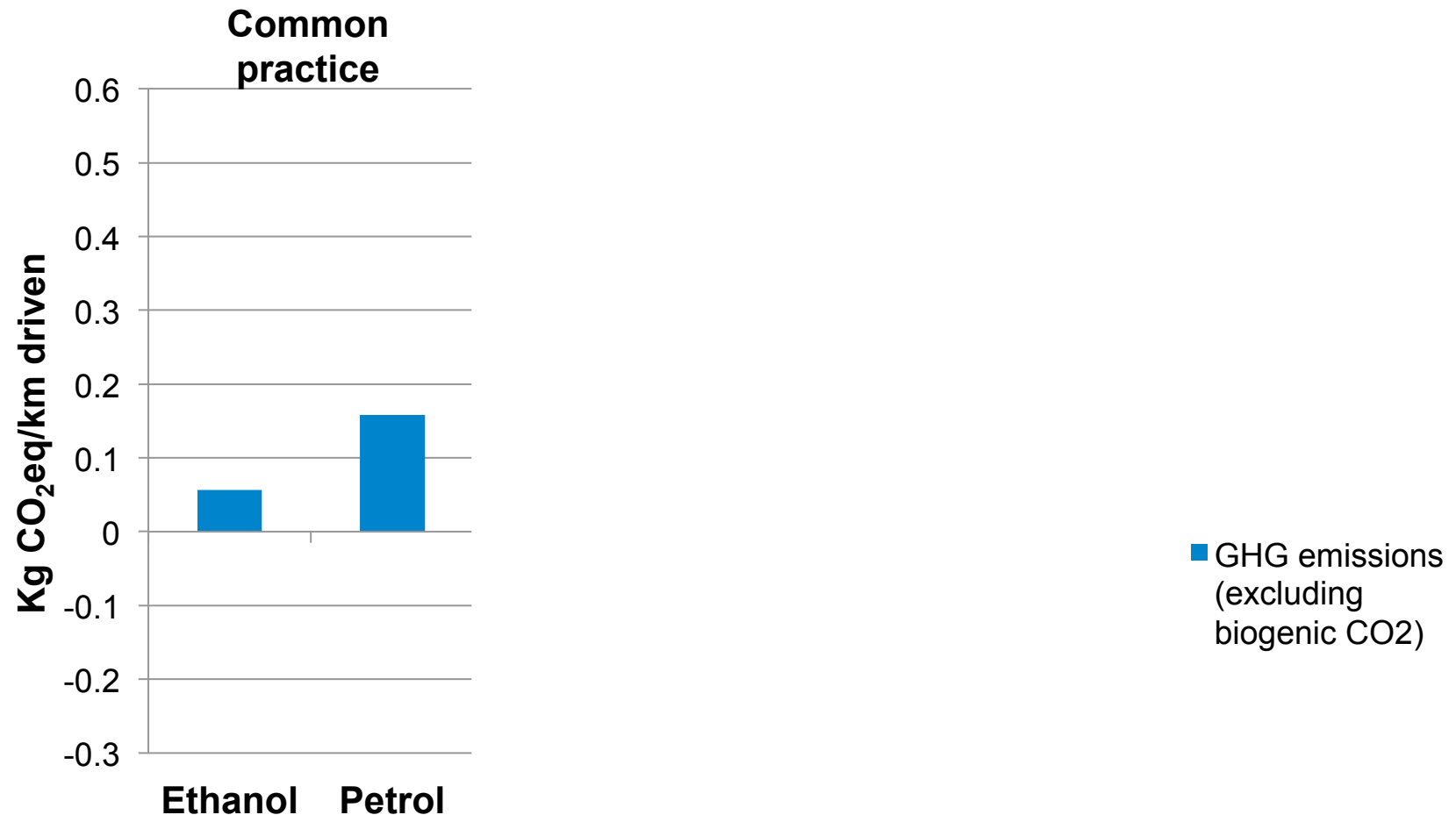
Røyne et al., 2015. Climate impact assessment in life cycle assessments of forest products: implications of method choice for results and decision-making. J. Clean. Prod. Submitted.

# Recommendations in standards

Climate aspect	Current common practice	<ul style="list-style-type: none"> <li>• EU sustainability criteria for biofuels</li> <li>• PEF</li> </ul>
Timing of emissions and CO <sub>2</sub> capture	X	X
Biogenic CO <sub>2</sub> emissions = climate impact	X	X
Time horizon of characterization factors	100 years	100 years
Change of soil organic carbon	X	(V)
Albedo effects	X	X
Aerosol effects	X	X
Indirect land use change	X	X

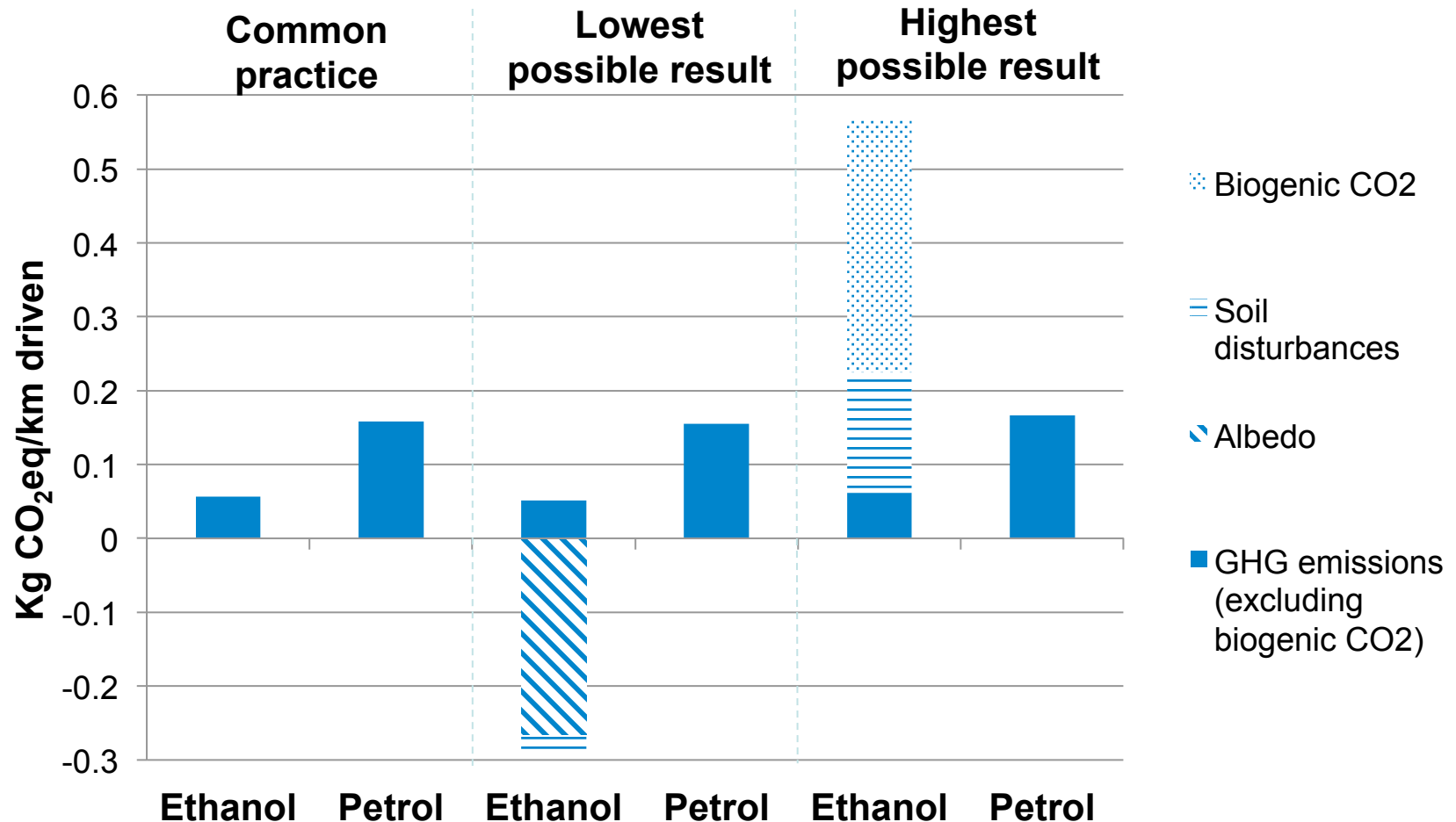


# Implications of including/excluding climate aspects



Røyne et al., 2015. Climate impact assessment in life cycle assessments of forest products: implications of method choice for results and decision-making. J. Clean. Prod. Submitted.

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# Advanced practice: dynamic LCA

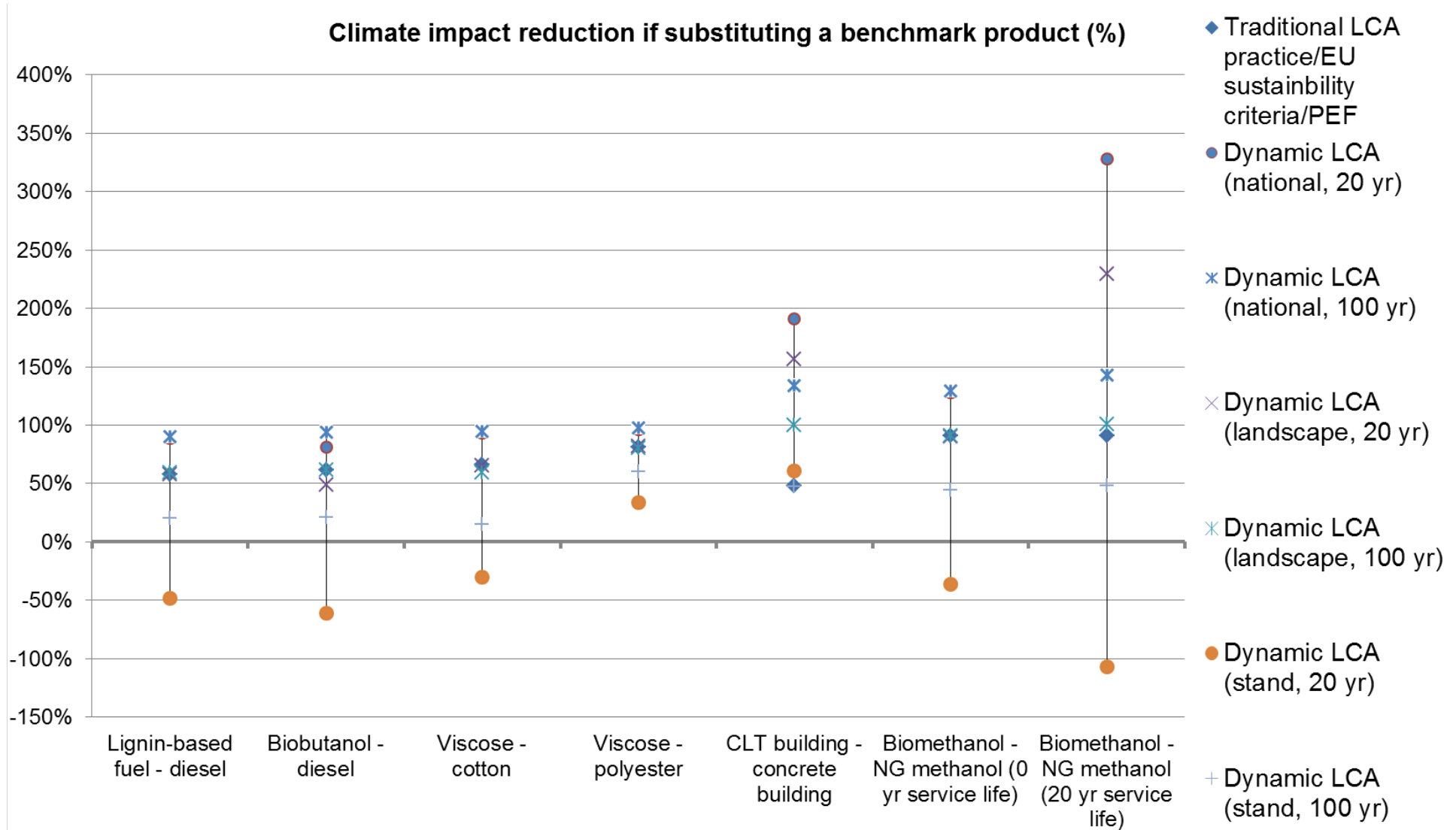
- Acknowledges point in time of emissions and CO<sub>2</sub> capture
  - Emissions/capture later = lower warming/cooling effect
- Biogenic and fossil CO<sub>2</sub> same effect
- Time horizon selectable



# Advanced practice: dynamic LCA

Climate aspect	Traditional LCA practice	<ul style="list-style-type: none"> <li>• EU sust. criteria</li> <li>• PEF</li> </ul>	Dynamic LCA
Timing of emissions and CO <sub>2</sub> capture	X	X	V
Biogenic CO <sub>2</sub> emissions = climate impact	X	X	V
Time horizon of characterization factors	100 years	100 years	Any time horizon possible
Change of soil organic carbon	X	(V)	
Albedo effects	X	X	
Aerosol effects	X	X	
Indirect land use change	X	X	

# Implications of using different methods



Sandin et al., 2016. The method's influence on climate impact assessment of biofuels and other uses of forest biomass. Soon available at [www.f3centre.se](http://www.f3centre.se)

# Where are we now?

- Several different approaches and methods...  
...which lead to very different results
- Status due to:
  1. limited understanding of forest - climate interactions,
  2. limited understanding of how this is influenced by biomass extraction
  3. limited ability to model the interaction, and
  4. value-based modelling choices
  5. the desire for LCA to answer “big questions”



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# Where do we go from here?



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**Thank you for your attention**



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