



Potential of forest product use for future climate change mitigation

An Austrian case study

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Background and motivation

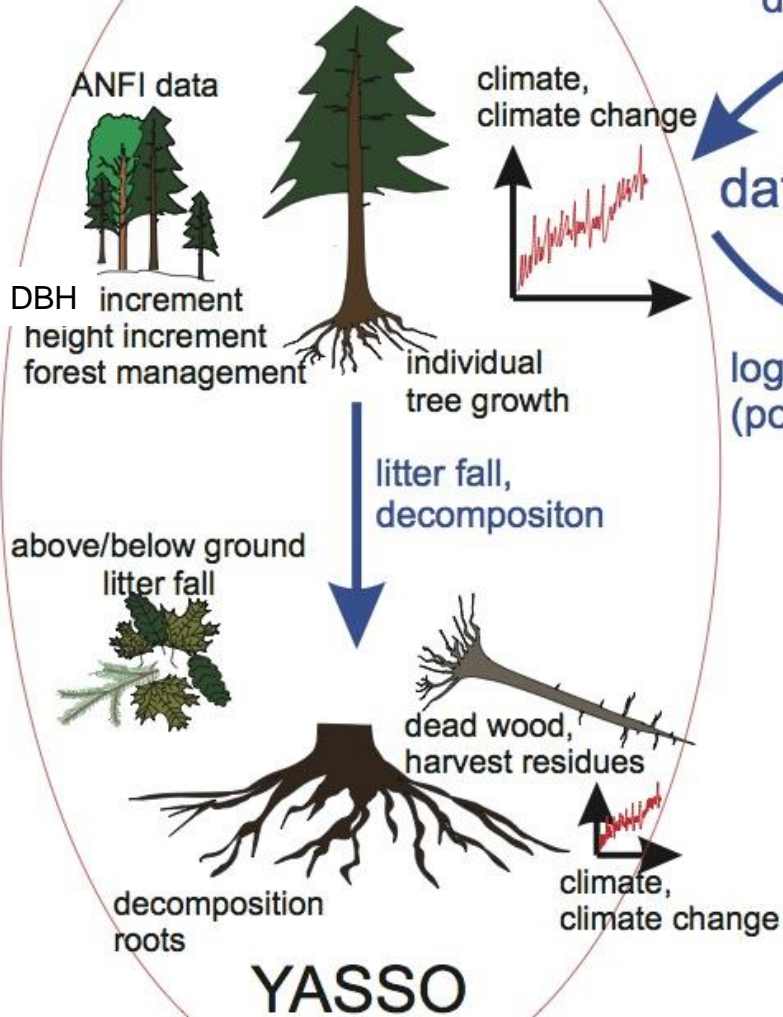
- Kyoto-Reporting
 - Changes in carbon stock of **harvested wood products** must be reported
 - Avoided CO₂-emissions due to material substitution (e.g. energy-intensive products) should be quantified

- To assess the Climate Change Mitigation Efficiency of different measures in forest management and wood product use

Approach

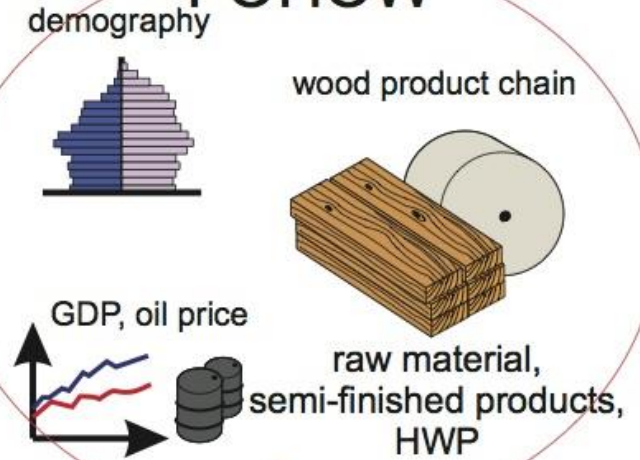
subsystem forests

CALDIS

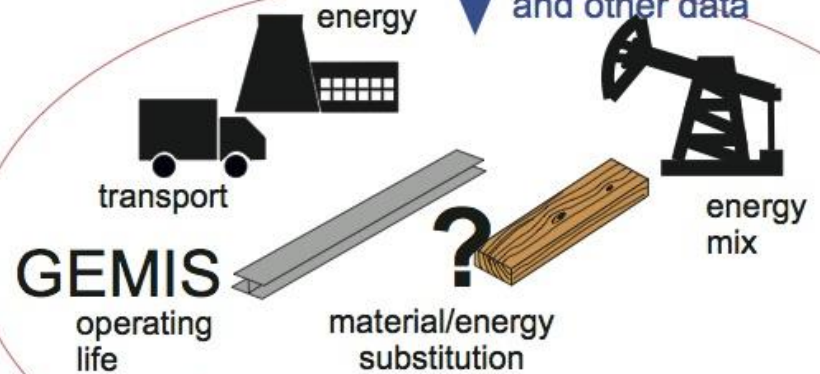


subsystem HWP

FOHOW



HWP, fuelwood and other data



subsystem avoided/additional emissions

Scenarios of forest management

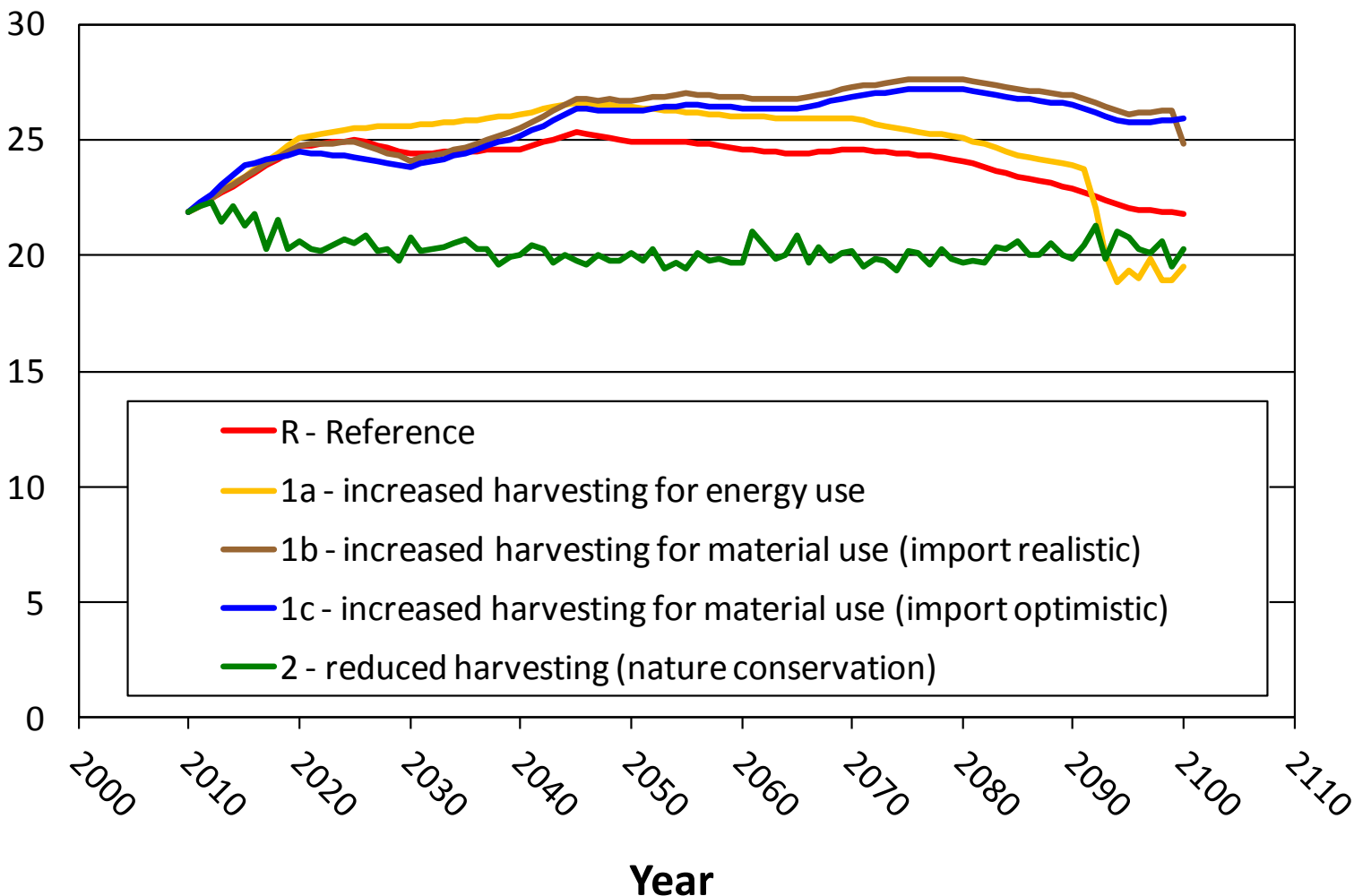
- **R** Reference – trends extrapolated until 2100
- **1a**: Increased harvesting for energy use
- **1b**: Increased harvesting for material use; realistic assumptions of wood imports
- **1c**: Increased harvesting for material use; optimistic assumptions of wood imports
- **2**: Reduced harvesting because of nature conservation



Defined together with relevant stakeholders !!!

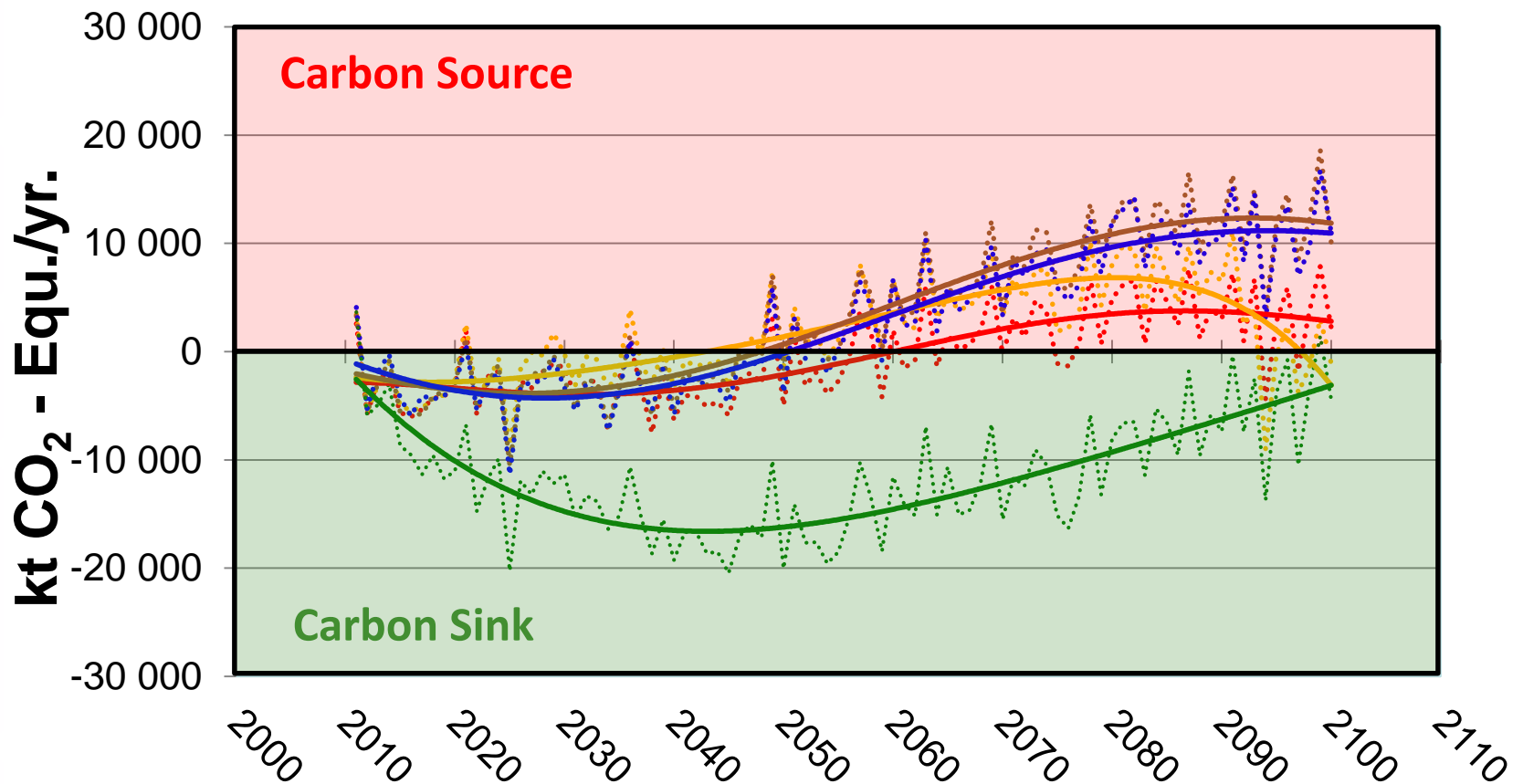
Annual cut in Austrian forests

Mill. m³/yr.



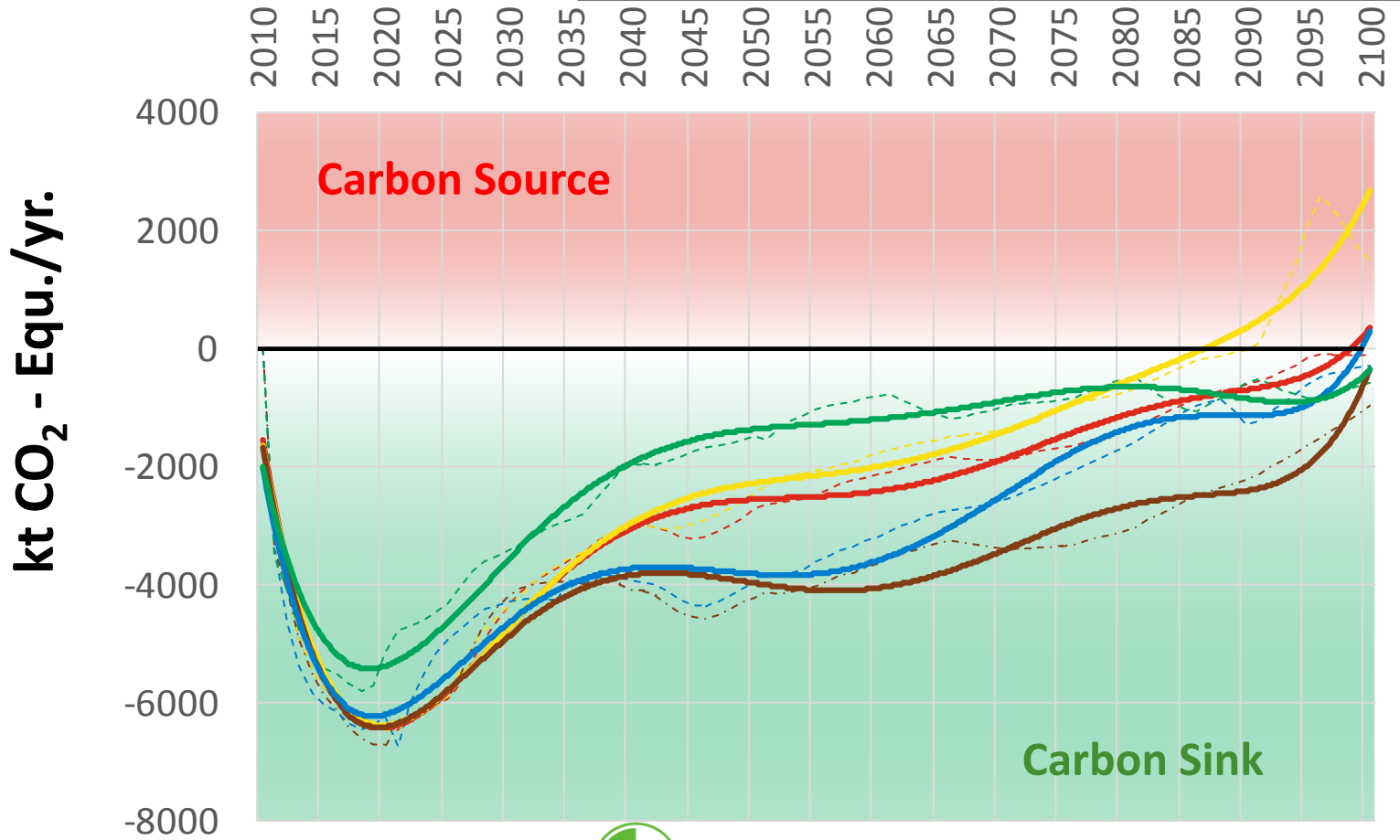
Annual carbon stock changes in the forests

- R - Reference
- 1a - increased harvesting for energy use
- 1b - increased harvesting for material use (import realistic)
- 1c - increased harvesting for material use (import optimistic)
- 2 - reduced harvesting (nature conservation)



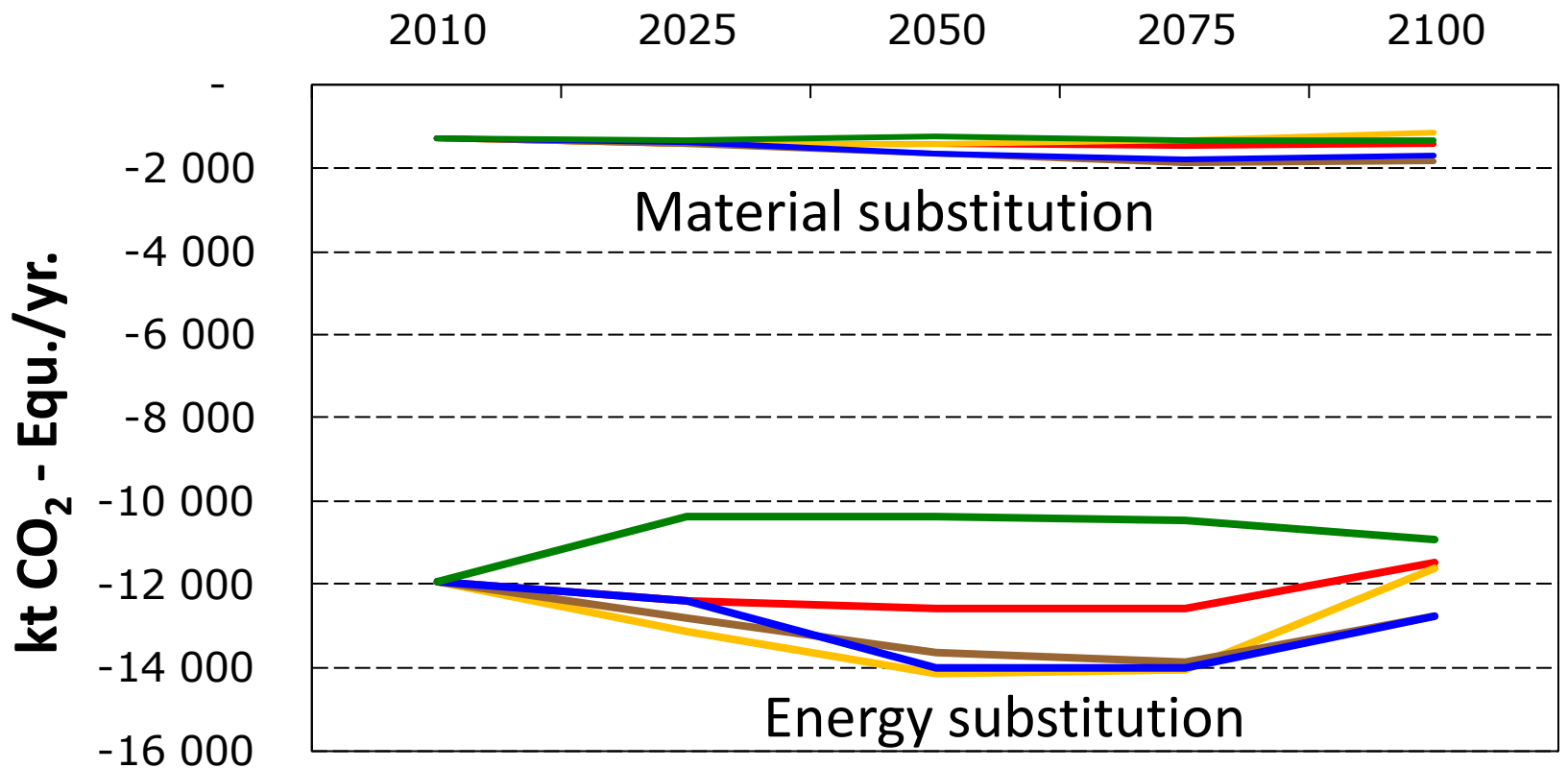
Annual carbon stock changes in the HWP-pool

- R - Reference
- 1a - increased harvesting for energy use
- 1b - increased harvesting for material use (import realistic)
- 1c - increased harvesting for material use (import optimistic)
- 2 - reduced harvesting (nature conservation)

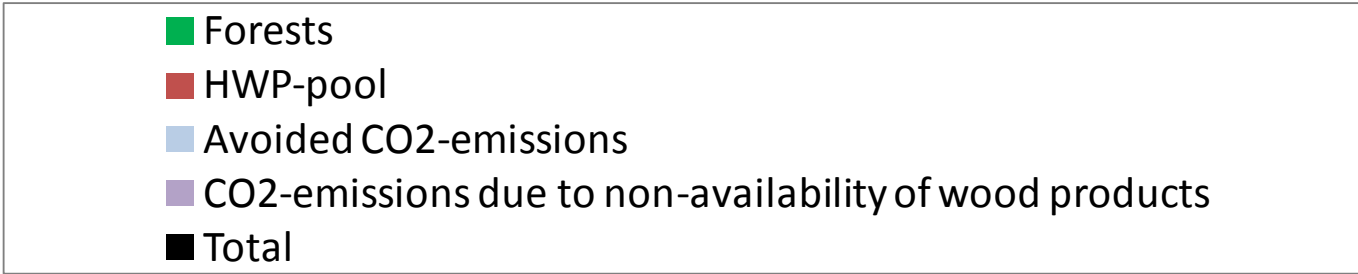
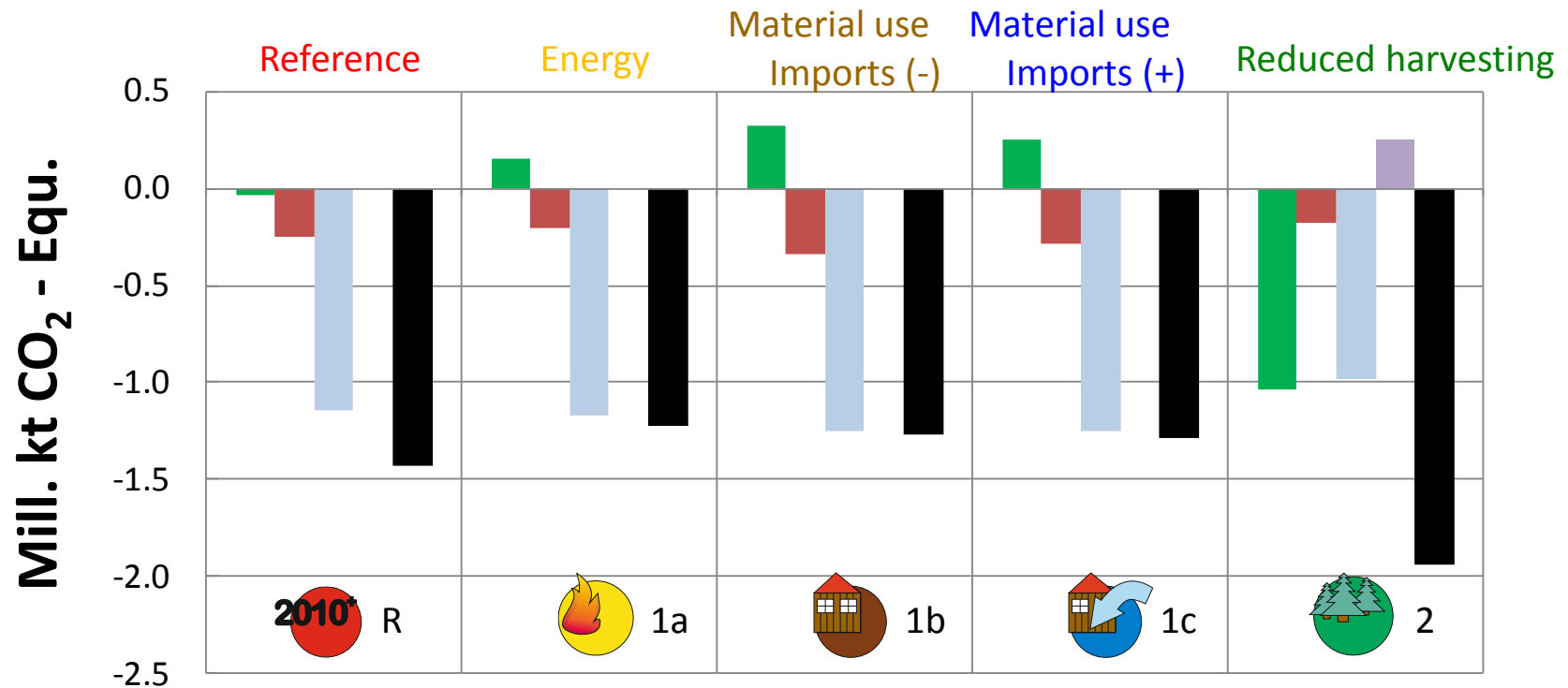


Avoided CO₂-emissions per year

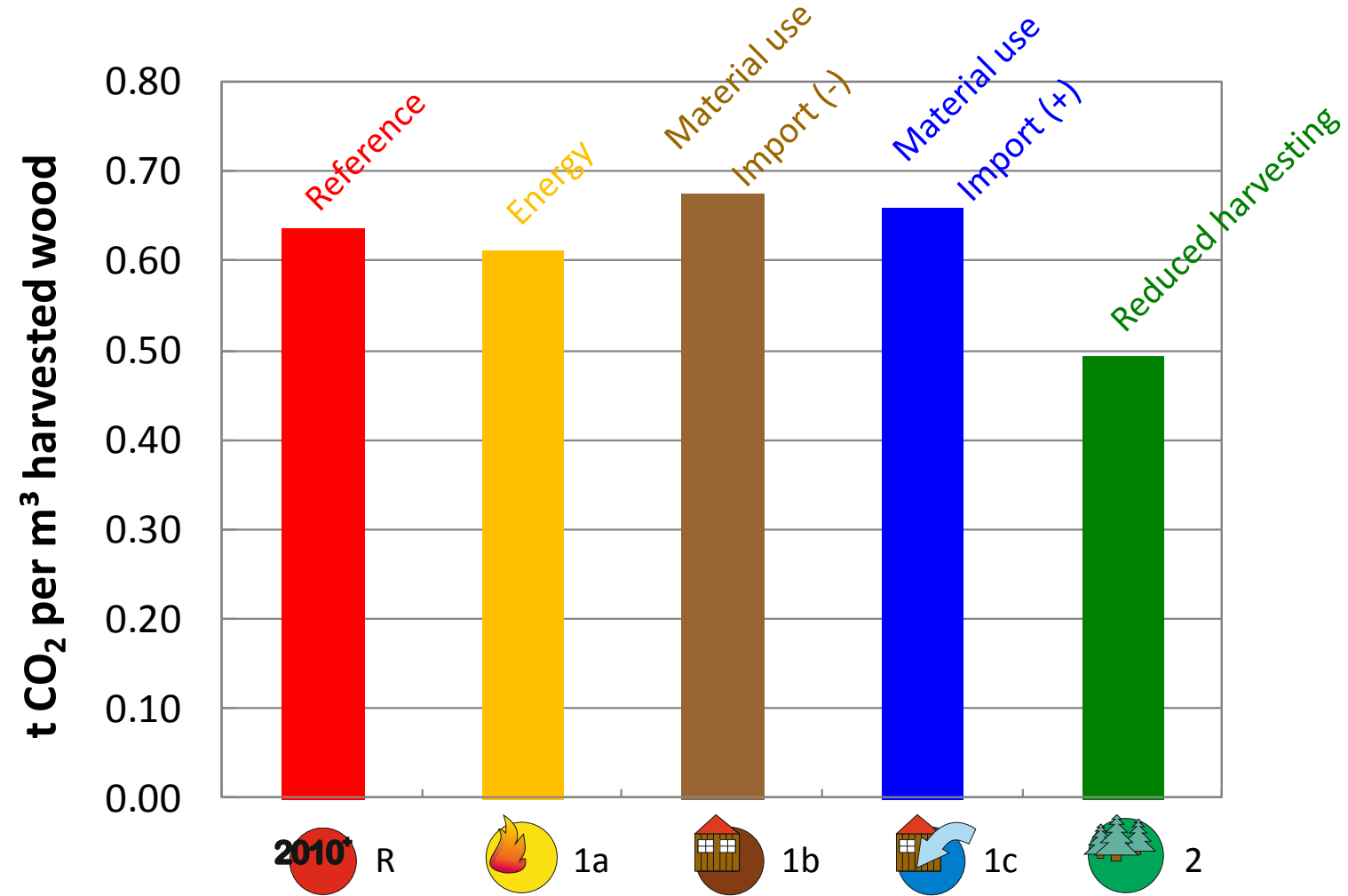
- R - Reference
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Cumulated CO₂-emissions (+/-) and avoided CO₂-emissions (-) from 2011 - 2100



Climate change mitigation efficiency, i.e. avoided CO₂-emissions per m³ utilized wood



Lessons learned

- 10 to 18 Mill. tons of CO₂-emissions can be saved through HWP and substitution (50 – 98 % of total sink effect)
- Material use is superior to an immediate combustion of wood
- Highest Climate Change Mitigation Efficiency is reached by the material use of domestic wood
- Increasing the growing stock in the forests can have an temporary positive effect on the GHG-balance (*provided that the production of sawn wood is not reduced !!*)

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