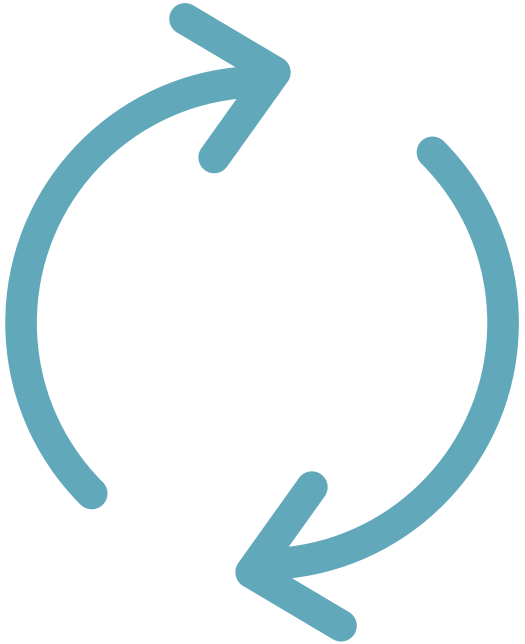


The carbon story of UK wood and the benefits of circularity

Eilidh Forster, Bangor University

Carbon fluxes in forestry value chains

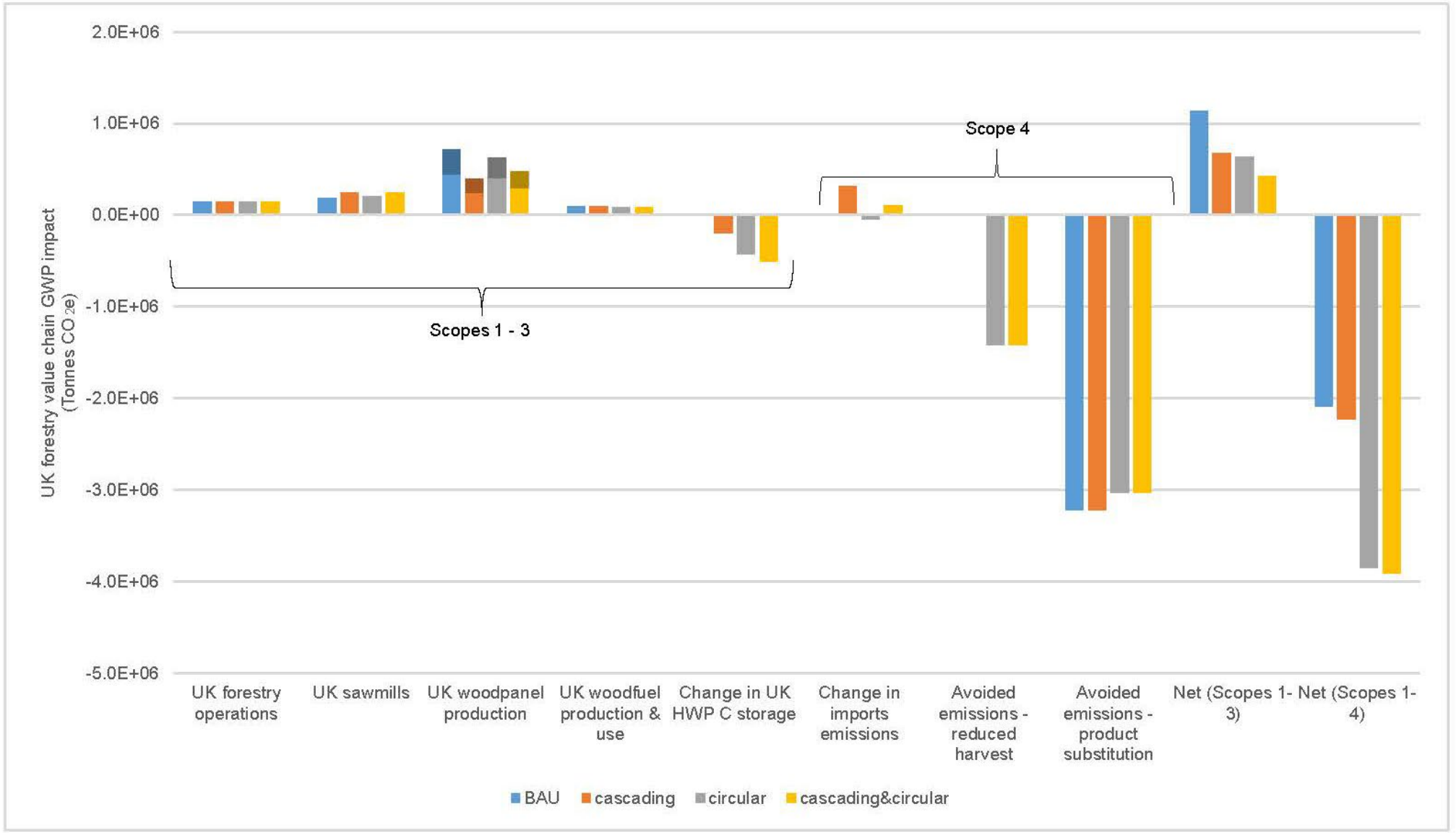
Forestry = terrestrial C fluxes: growth, removals and decay

Wood processing = process emissions

Wood use = C storage

Wood use = avoided emissions (product substitution)

UK domestic forestry value chain



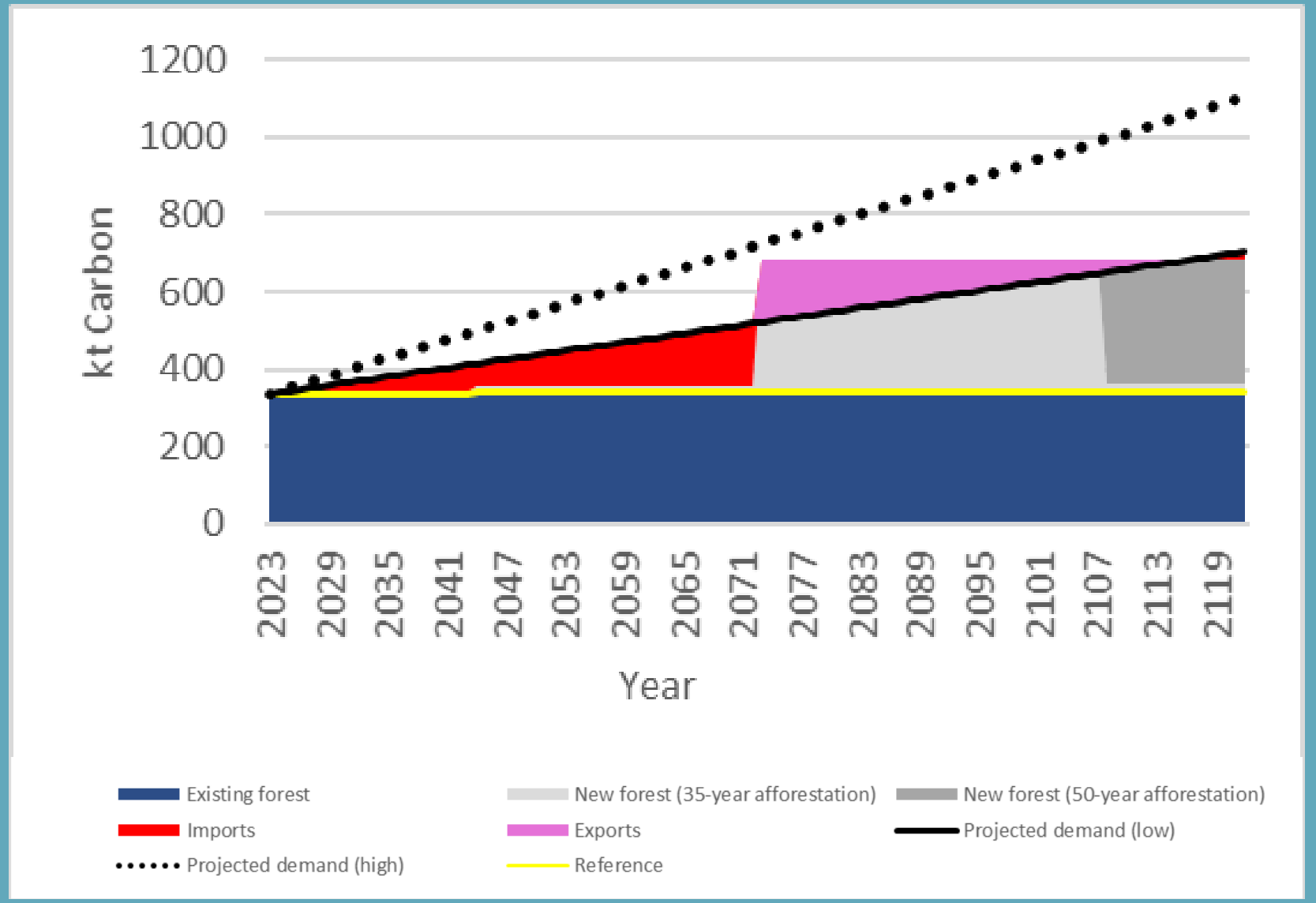
Particle board	13.6%
Fibre board	13.0%
Biomass (heat)	5.9%
Biomass (electricity)	15.8%
Pulp	5.0%
Fence poles	4.9%
Pallets and packaging	10.0%
Fencing	11.1%
Carcassing	**8.1%**
Other	12.5%

Reference:
Forster, E.J., Healey, J.R., Newman, G., Styles, D. Circular wood use can accelerate global decarbonisation but requires cross-sectoral coordination. *Nat Commun* **14**, 6766 (2023)

- Rising global wood demand
  - But demand isn’t static
  - 44%+ increase globally by 2050 (conservative estimate, FAO, 2022)
  - Sustainable supply close to limit (on global scale)
  - Risk of offshoring forest degradation and loss
  - Afforestation - 30-40 years till harvest
  - Business-as-usual wood production and consumption not an option

Rising global wood demand

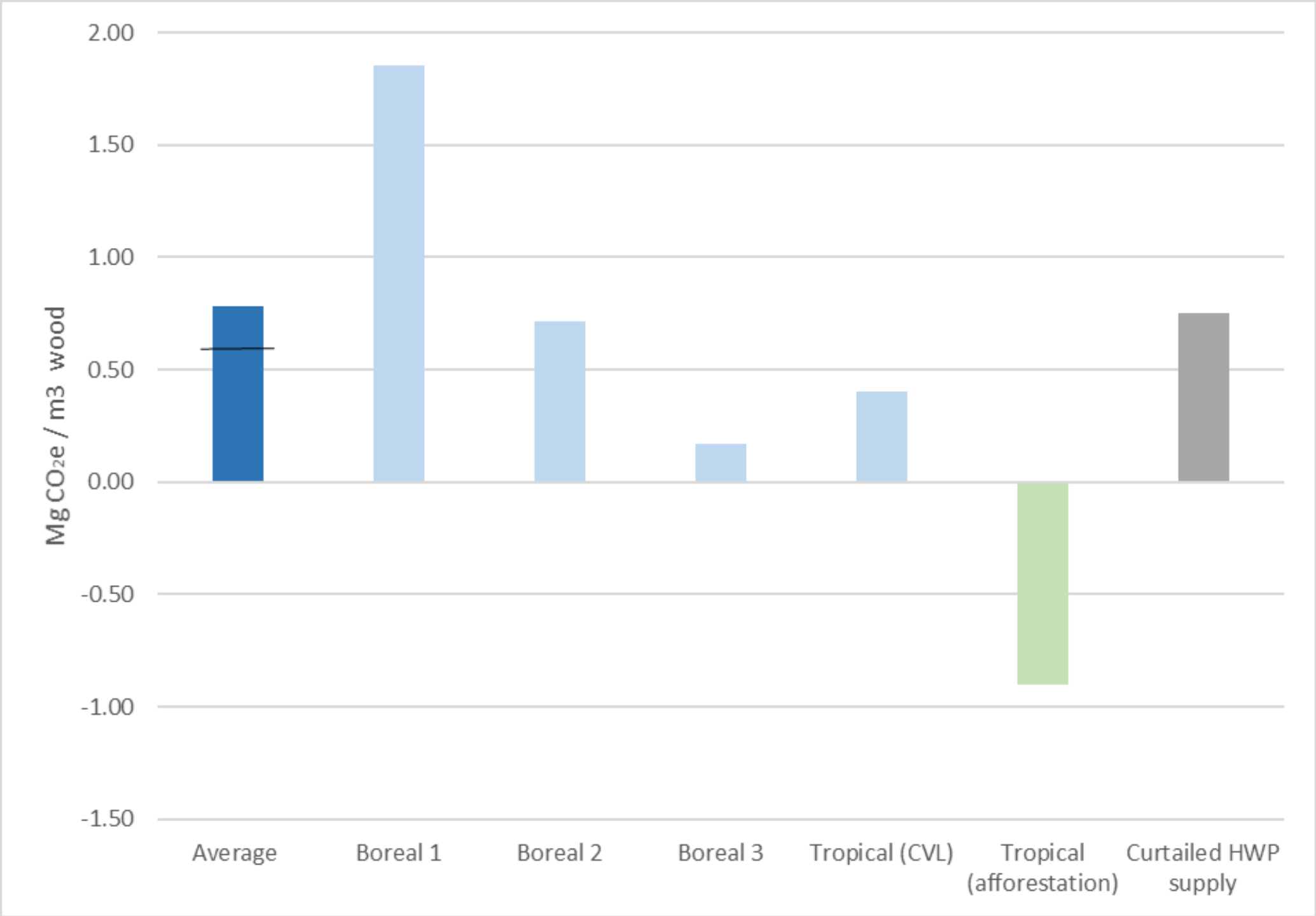
- Temperate forest can't meet demand
  - Increases imports dependency
  - Can be mitigated with more circular and cascading wood use



Reference:
Forster, E.J. et al. Can temperate forests deliver both future wood demand and climate-change mitigation? Research Square. Pre-print. (2023)

Reliance on imports risks climate-change mitigation efforts

Wood use can tip from mitigation to emissions.



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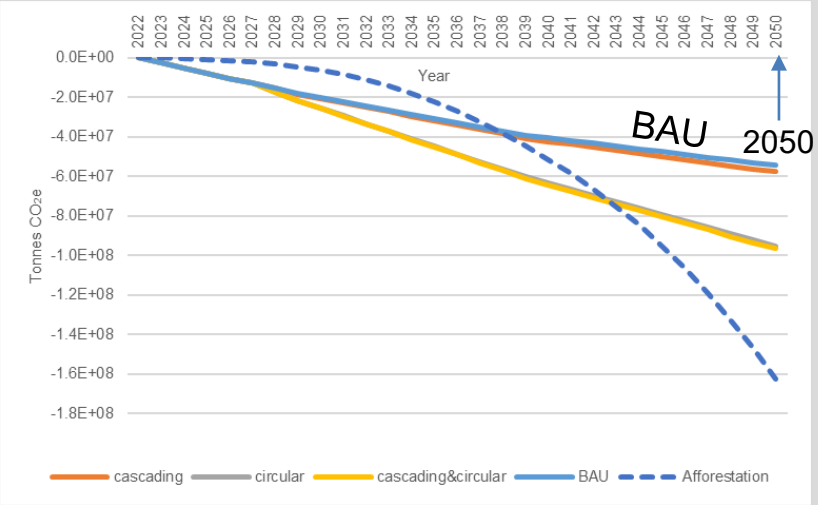
Forster, E.J. et al. Can temperate forests deliver both future wood demand and climate-change mitigation? Research Square. Pre-print. (2023)

Reliance on imports risks climate-change mitigation efforts

Wood use can tip from mitigation to emissions.

(wood demand static)



Reference:
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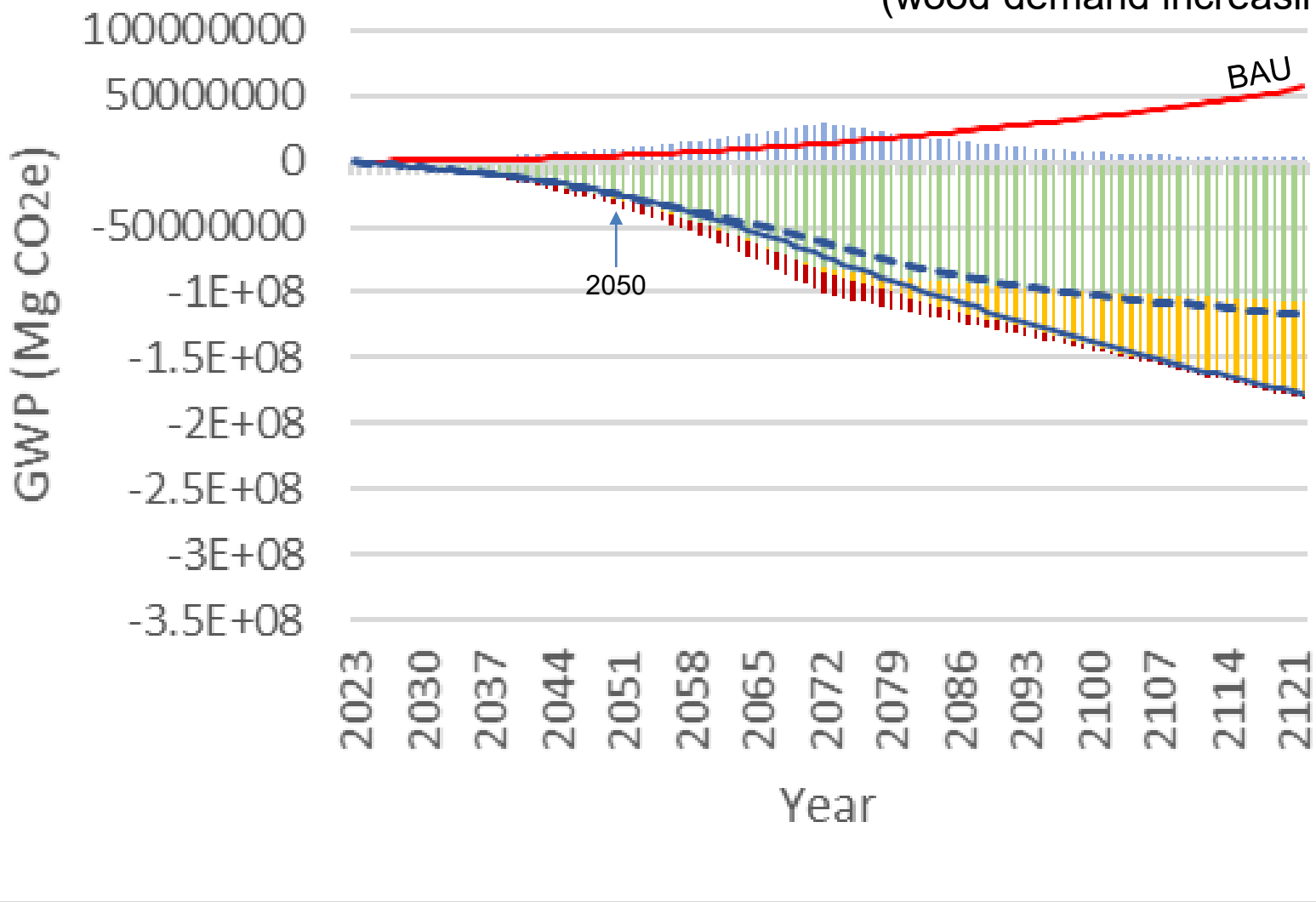
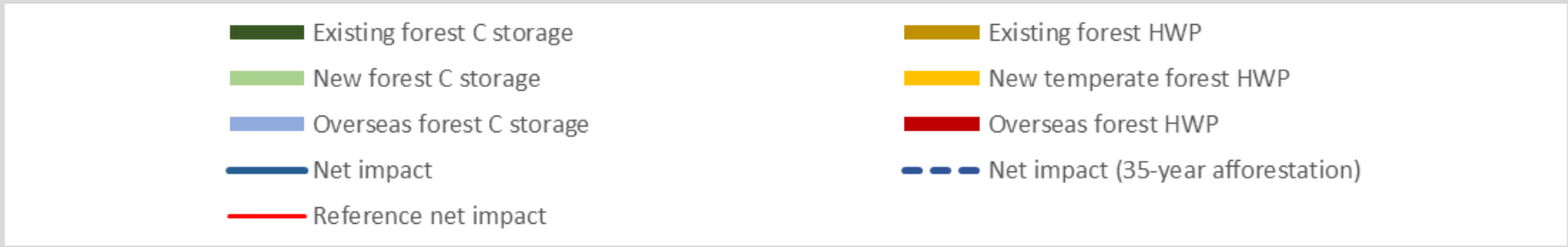
(wood demand increasing)

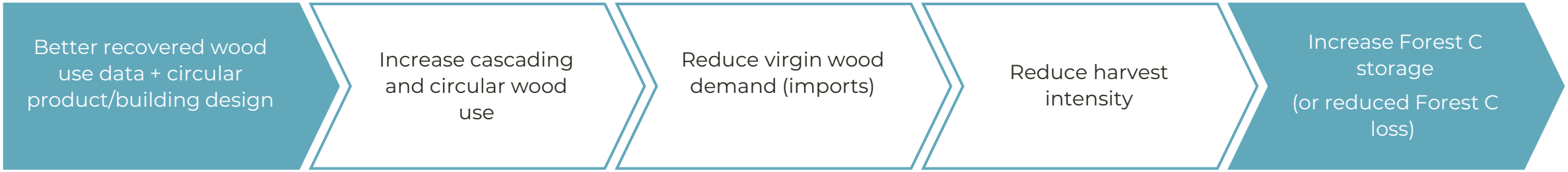




Reference:
Forster, E.J. et al. Can temperate forests deliver both future wood demand and climate-change mitigation? Research Square. Pre-print. (2023)

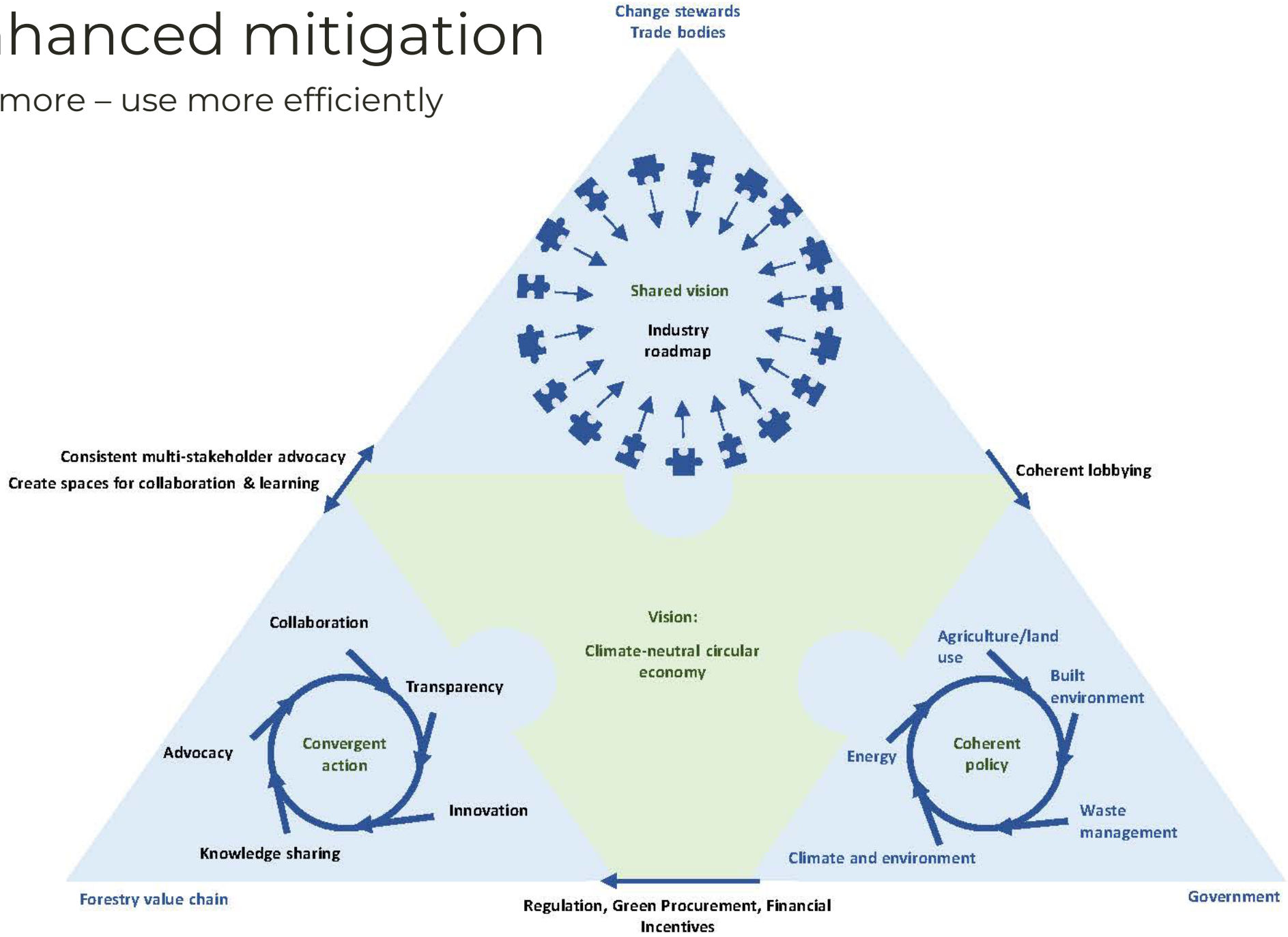
Wood use in a circular economy

- Forest expansion = increase supply of wood in future
- Efficient wood use = reduces (relative) demand for virgin wood
- Circular & cascading use = reduces (relative) demand for virgin wood
- Reduced demand = fewer imports, lower risk of exporting forest degradation



Action for enhanced mitigation

Grow more - use more – use more efficiently



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Thank you