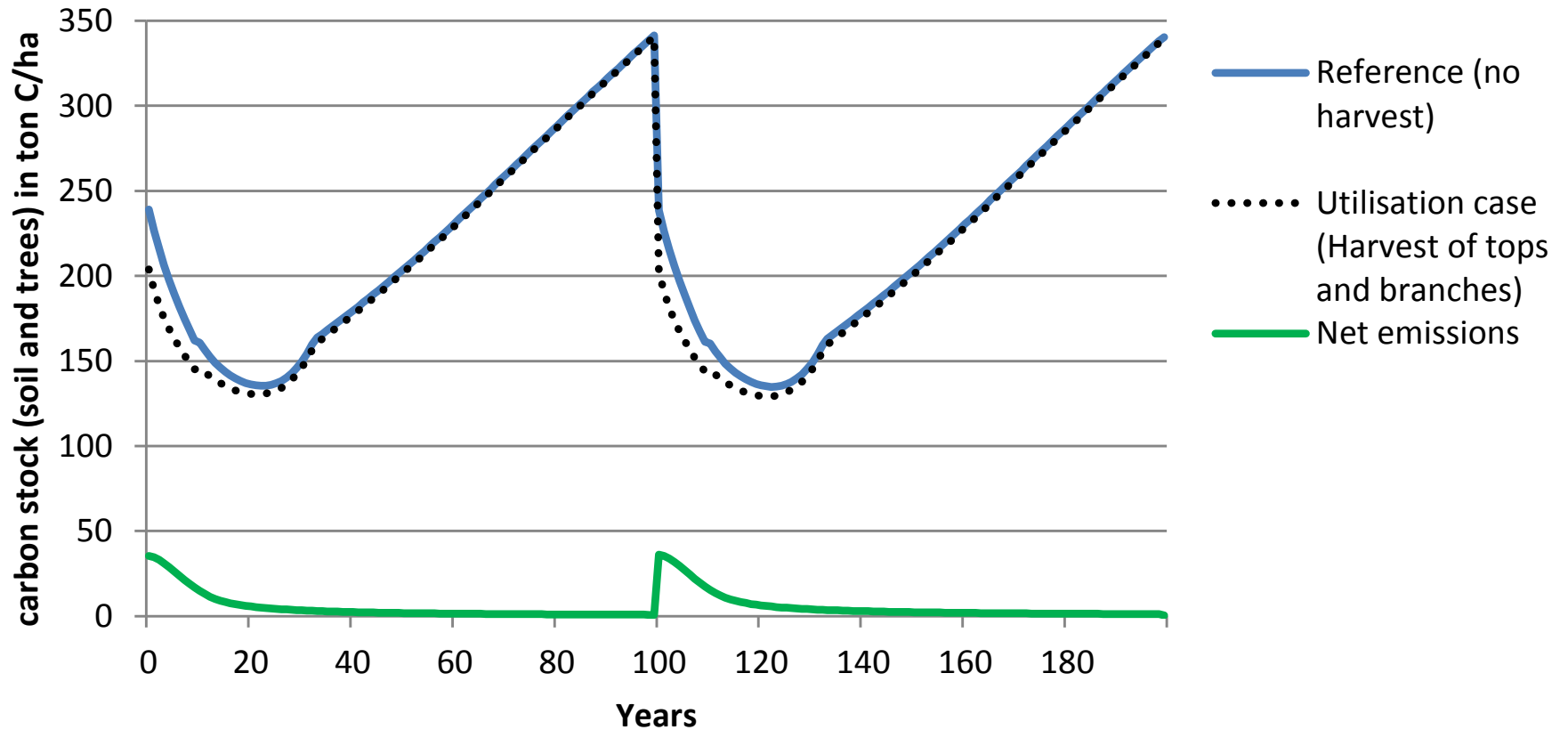


The time horizon in assessment of climate impacts

Tomas Ekvall

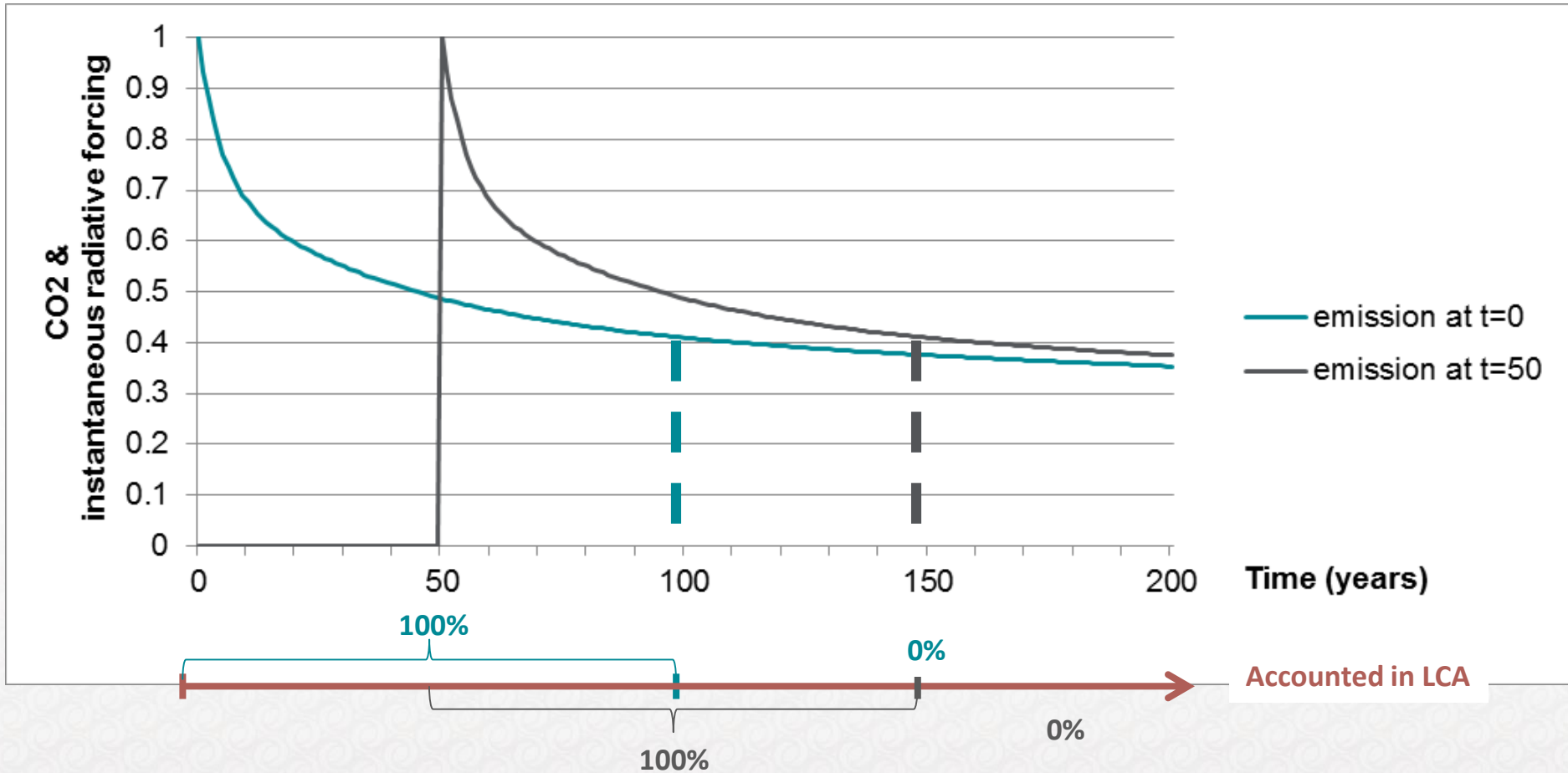
May 16th, 2017

Carbon stock changes from using branches and tops for energy



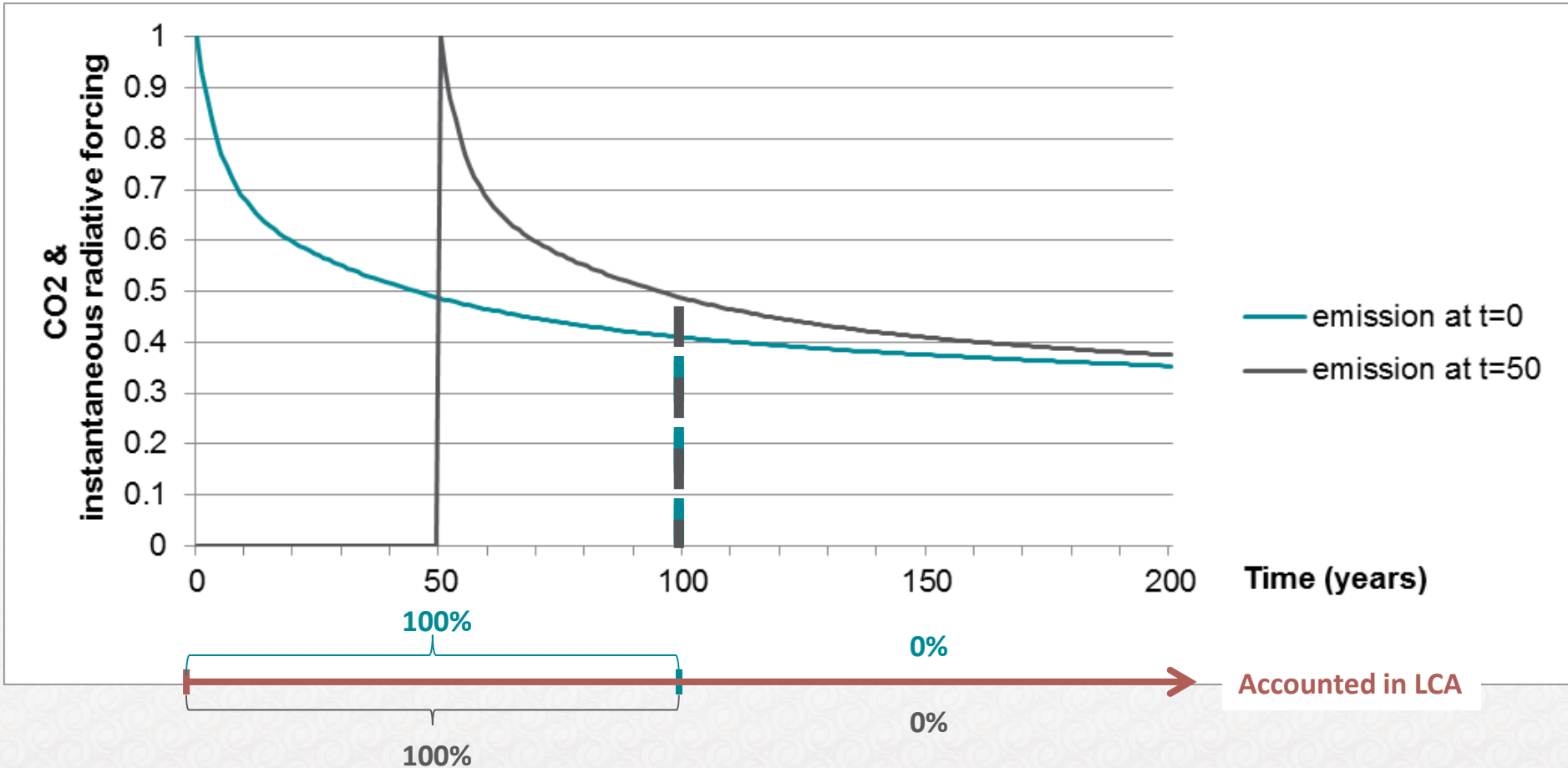
Ref: NEPP 2013

Traditional LCA: GWP-100



Ref: Joos et al. 2013

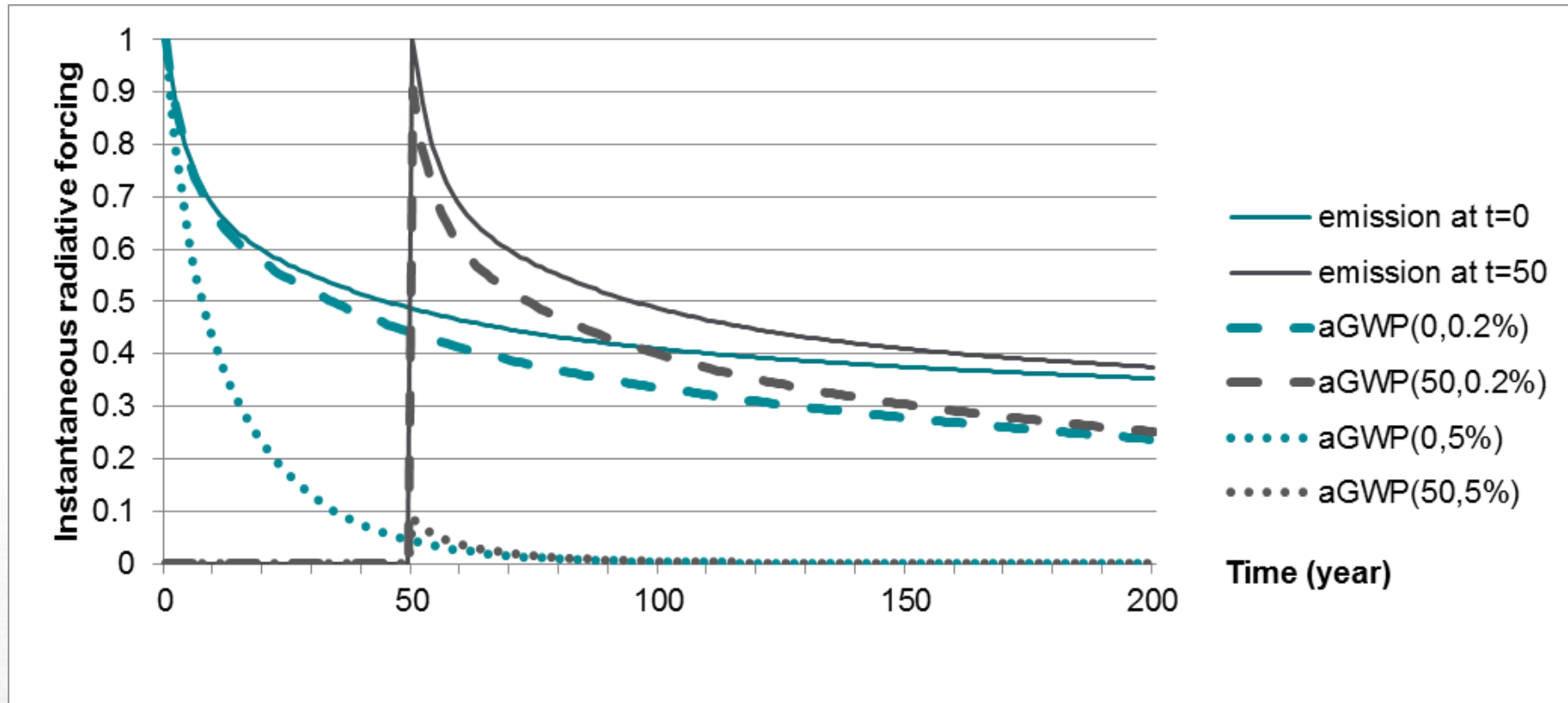
Levasseur et al. (2010): GWI(100)



GW(100) at t=50: 58% of GW(100) at t=0

Suggestion:

accounted Global Warming Potential: aGWP(t,r)



Tentative results:

$r=0.2\%$: $aGWP(50,0.2\%) = 83\%$ of $aGWP(0,0.2\%)$

$r=5\%$: $aGWP(50,5\%) = 6\%$ of $aGWP(0,5\%)$

Messages

1. Remaining radiative forcing will gradually become less of a problem and more of an asset
2. The gradual development can be modelled through discounting of radiative forcing
3. The choice of discount rate is subjective
4. The choice of method is less important for very low discount rates and very long time horizons

Thank you for the attention!

References:

- IPCC (2017) https://www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html. Accessed May 15th 2017.
- Joos F et al. (2013) Carbon dioxide and climate impulse response functions for the computation of greenhouse gas metrics: a multi-model analysis. *Atmospheric Chemistry and Physics* 13:2793-2825.
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- NEPP (2013) Progress Report – Part 2. Nordic Energy Technology Perspectives. url: http://nepp.se/pdf/progress_report_part2.pdf