Essity case study for project “Modelling recycling in life cycle assessment”

May 19th 2020

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essity

A Leading Global Hygiene and Health Company

Presence in approximately **150** countries

#1 or #2 positions in about 90 countries

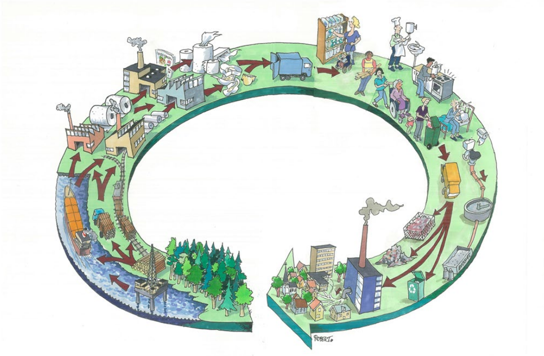
Hundreds of millions people uses our products everyday

46 000 employees

Why is modelling of recycling in LCA important for Essity?

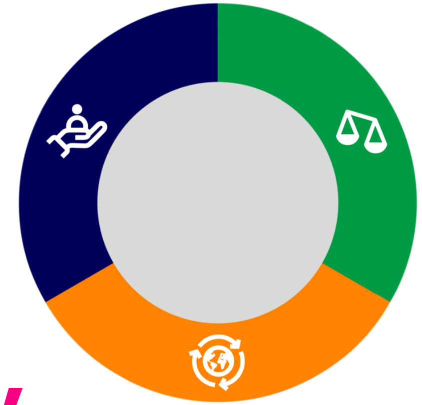
LCA

used in development, targets and in external communication



Recycled materials

More than 40 % of all fibers used in our tissue products globally come from recycled paper



Current strategy focuses on

Circularity

for all products, packaging and services

Renewable materials

Renewable wood-fiber materials comprise a substantial component in our products

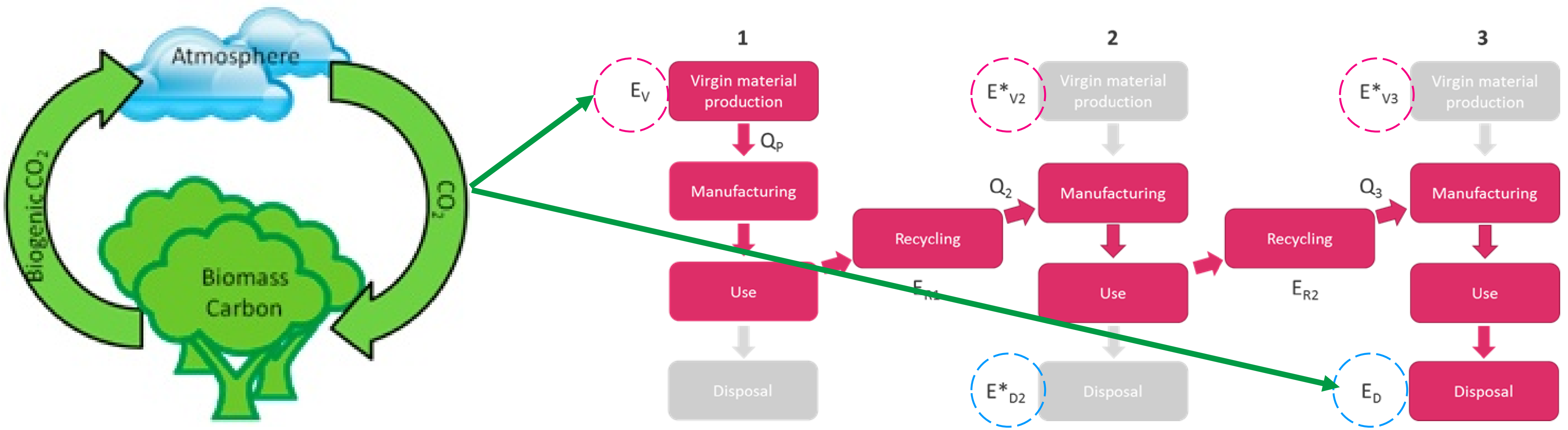
Set up of Essity case study

- Use of Excel calculation tool
- Use of generic data from LCA database
- Focus on 6 selected allocation approaches
- 8 scenarios for fossil and renewable plastic packaging film:

Scenario	Feedstock	Material content	End-of-life
1	**Fossil**	**Primary** polyethylene film	**100 % incineration** (without energy recovery)
2	**Renewable**		
3	**Fossil**	**Recycled** polyethylene film	
4	**Renewable**		
5	**Fossil**	**Primary** polyethylene film	**100 %** collection for material **recycling**
6	**Renewable**		
7	**Fossil**	**Recycled** polyethylene film	
8	**Renewable**		

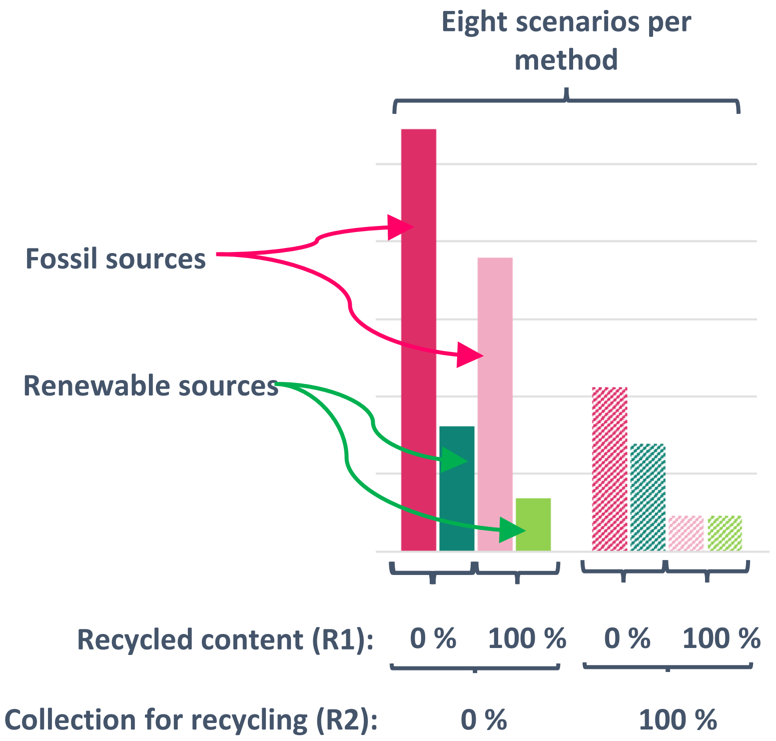
In addition we tested 3 different approaches for attribution of removal of biogenic carbon

Since no method descriptions includes guidance on this



1. to the primary production, i.e. (EV & E*V)
2. to the final disposal, i.e. (ED & E*D)
3. as described in EN 15805 and EN 16485 (EPD for construction works, round and sawn timber)

Results show 8 bars per method



Scen-ario	Feedstock	Material content	End-of-life	Colour in figures
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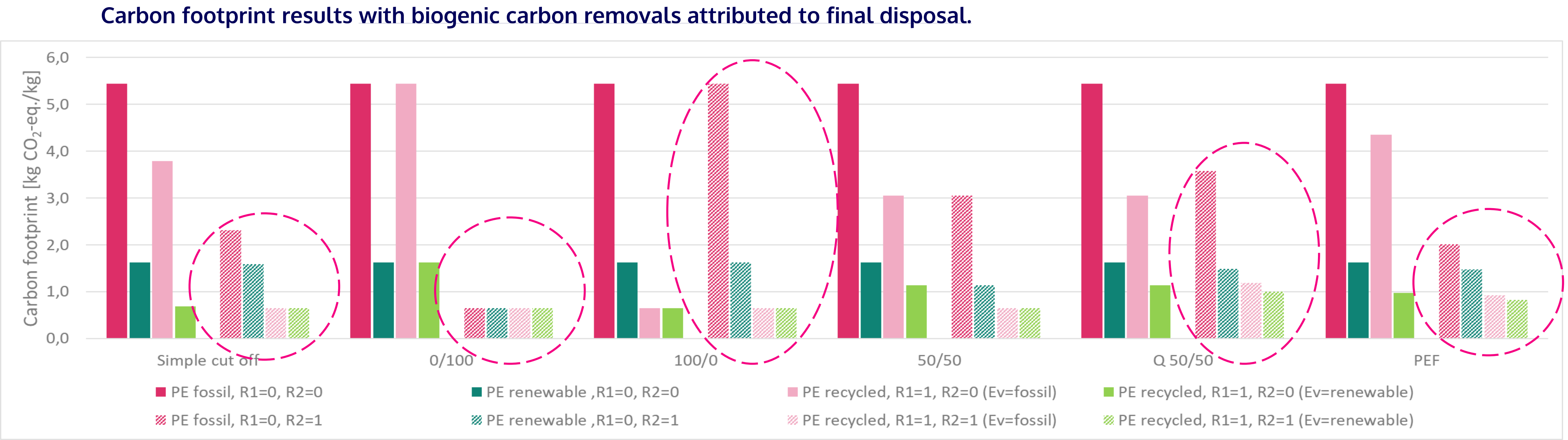
Results confirmed earlier findings

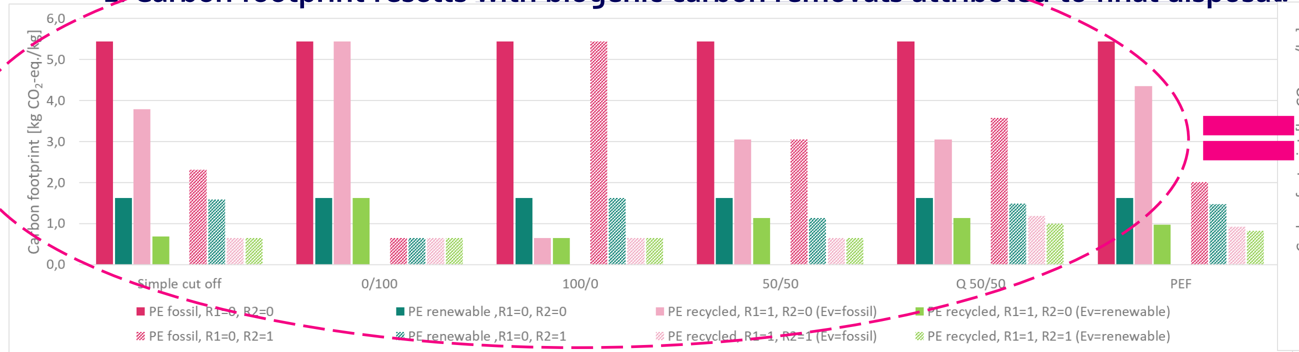


- There are no objective methods
  - All methods include value choices
- It is important what method to use since it may lead to different decisions
- Relevant industry data needed to test methods
- Renewable materials overlooked

Approach 2 and 3 for attribution of biogenic carbon removal show identical results

1. Carbon footprint results with biogenic carbon removals attributed to primary production (cultivation).

2. Carbon footprint results with biogenic carbon removals attributed to final disposal.



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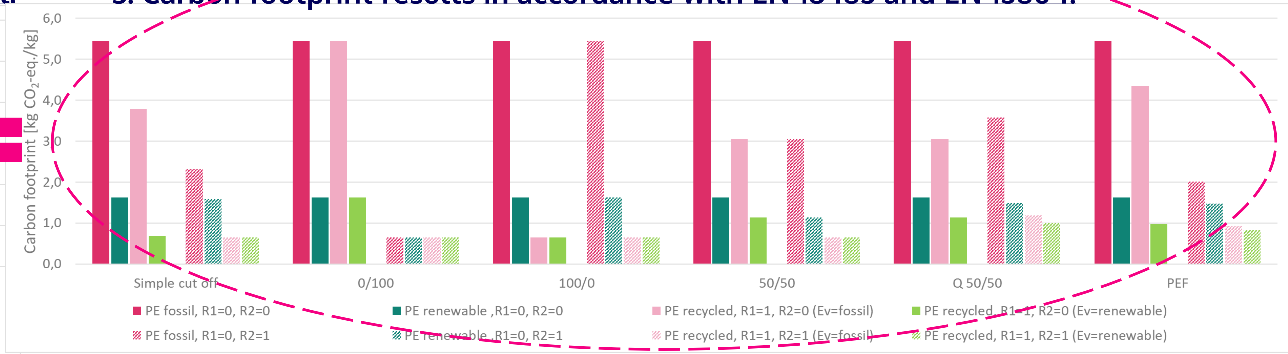
3. Carbon footprint results in accordance with EN 16485 and EN 15804.



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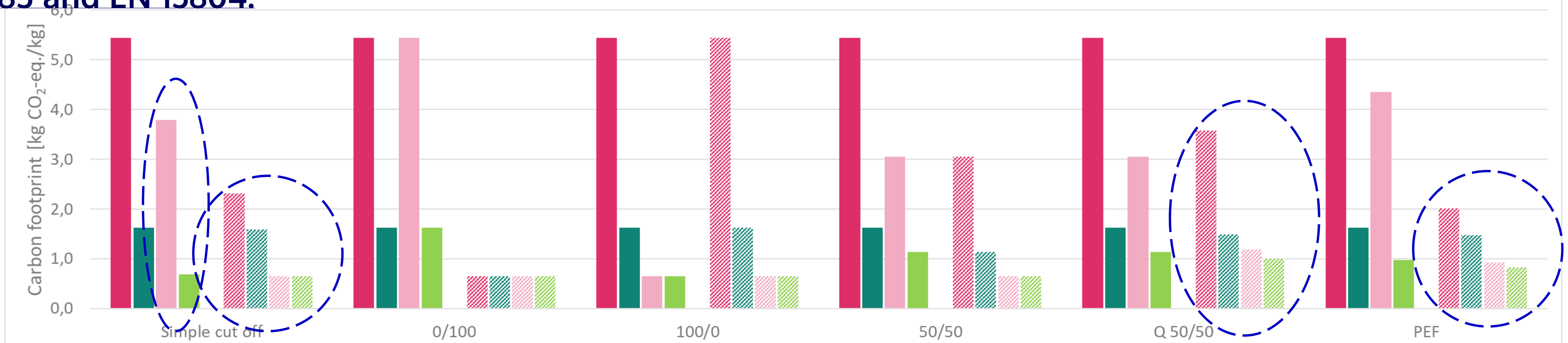
Significant differences between approach 1 vs 2 and 3 for attribution of biogenic carbon

2. Carbon footprint results with biogenic carbon removals attributed to final disposal and/or 3. when in accordance with EN 16485 and EN 15804.



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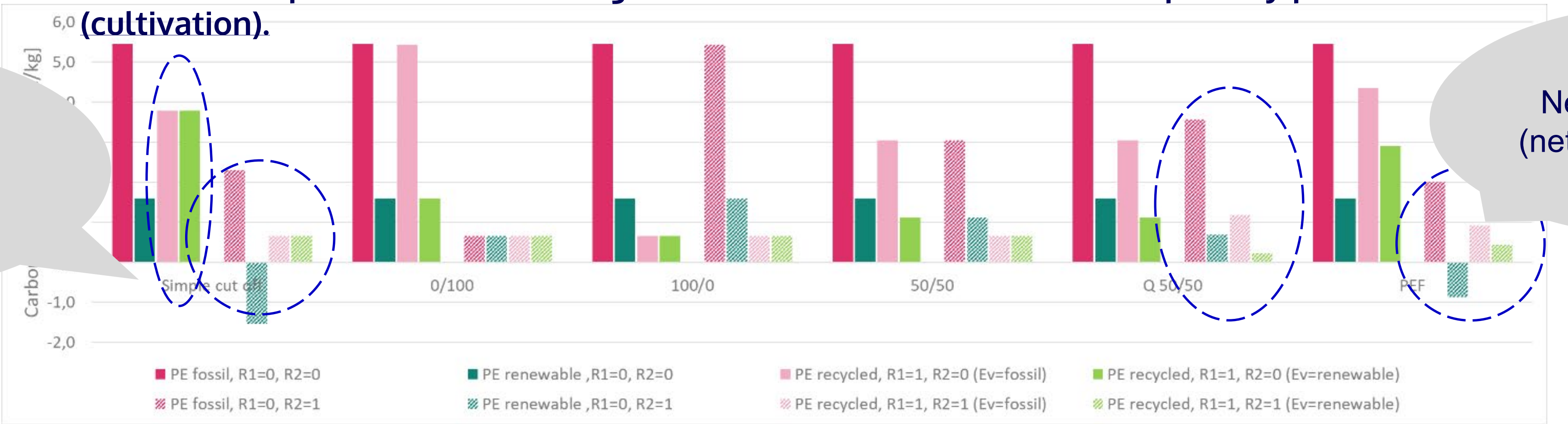

No difference between renewable and fossil

Negative footprints (net carbon removals)

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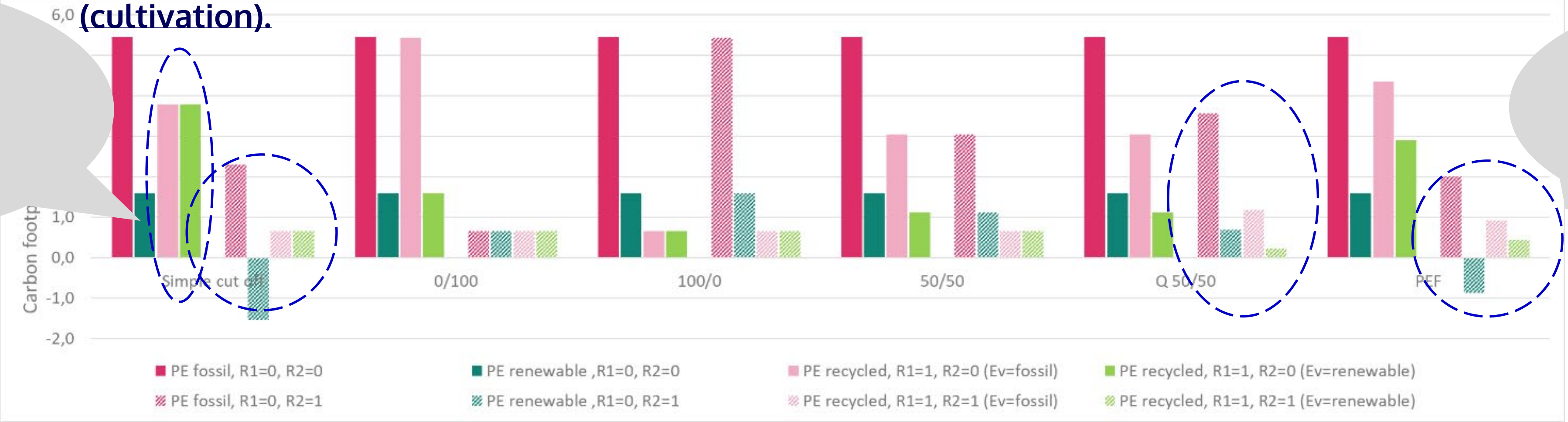

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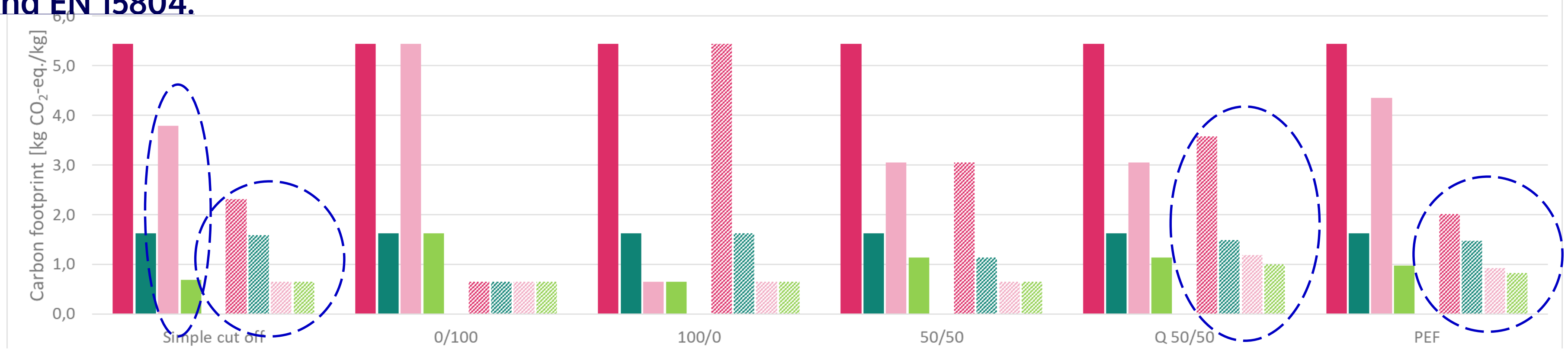

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Some other findings

- Methods that include average data
  (e.g. PEF circular footprint method 50/50)
  gives lower incentives for actual improvements

- Simple-cut off (EPD) are simple to use
  but gives lower incentives than e.g.
  PEF circular footprint formula,
  for recycling of renewable materials

Conclusions

- Increased internal knowledge
  - Involved full sustainability team (11) at Essity
  - Improved input for decision on what method(s) to use when

- Remaining issues
  - How to treat energy recovery vs material recycling
  - Attribution of biogenic carbon removals
  - None of the methods show the full benefits of recycling renewable materials
  - Preference for Simple cut off (EPD) or PEF circular footprint formula?