

# How to improve the valorisation process of End-Of-Life vehicles? LCA as a tool to help decision

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# Context

- End-Of-Life Vehicles
  - 8 – 9 millions tonnes of waste per year
  - European directive
    - 2015 : 95% of weight recovery with reuse and recycling about 85%
    - Minimise environmental impacts → LCA
    - Conserve energy and materials

# Context

## ■ End-Of-Life Vehicles

- How to increase the reuse and recovery of materials?
  - Removal of metals components
  - Removal of tyres and large plastic components
- Current ELV management in Belgium?
  - Dismantling of hazardous parts and shredding

# Goal

## Business as usual scenario (BAU)

- Dismantling
- Shredding
- Recycling, reuse and disposal

## Removal of ECU (BAU + ECU)

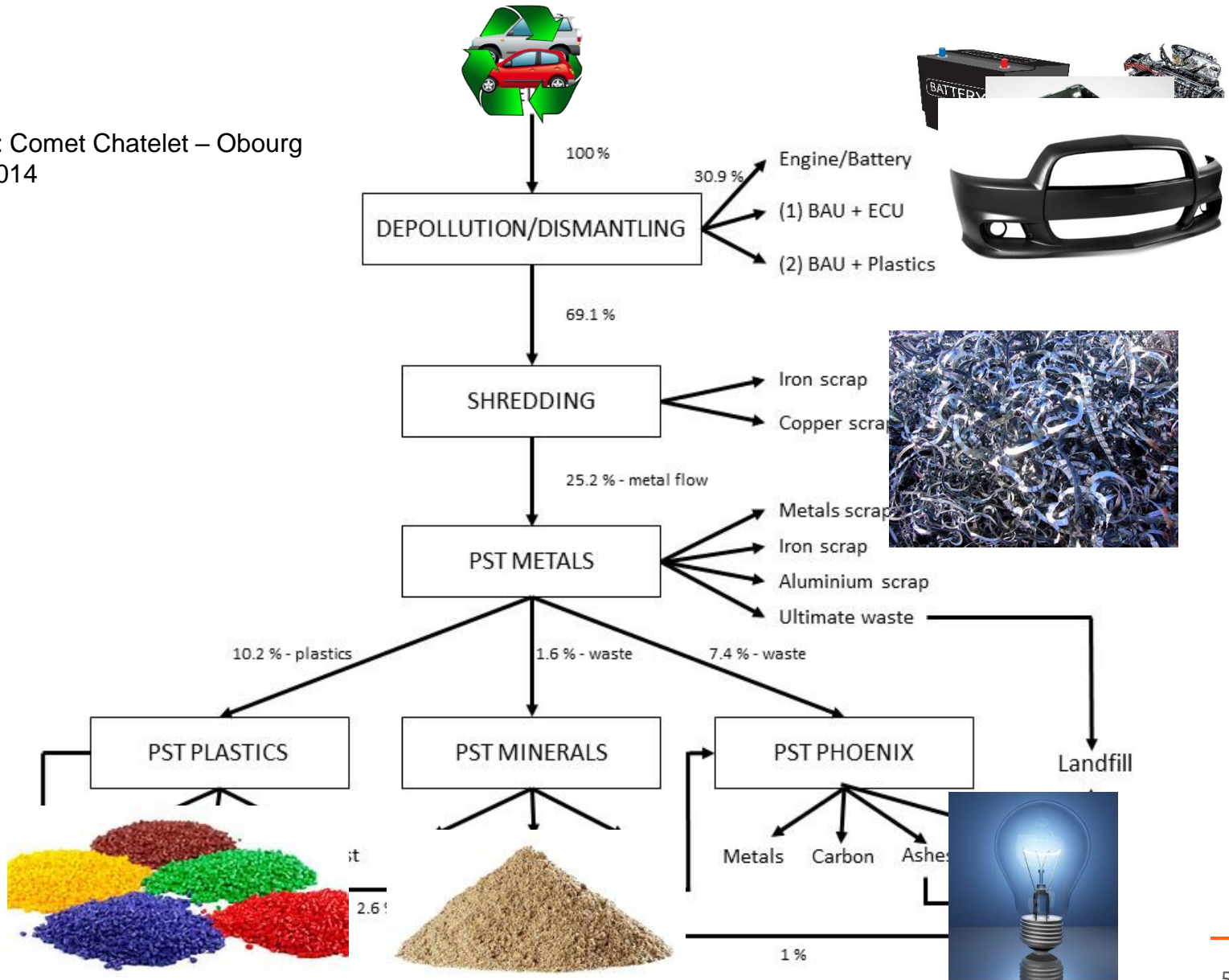
- Dismantling + removal of ECU
- Shredding
- Recycling, reuse and disposal

## Removal of plastics (BAU + plastics)

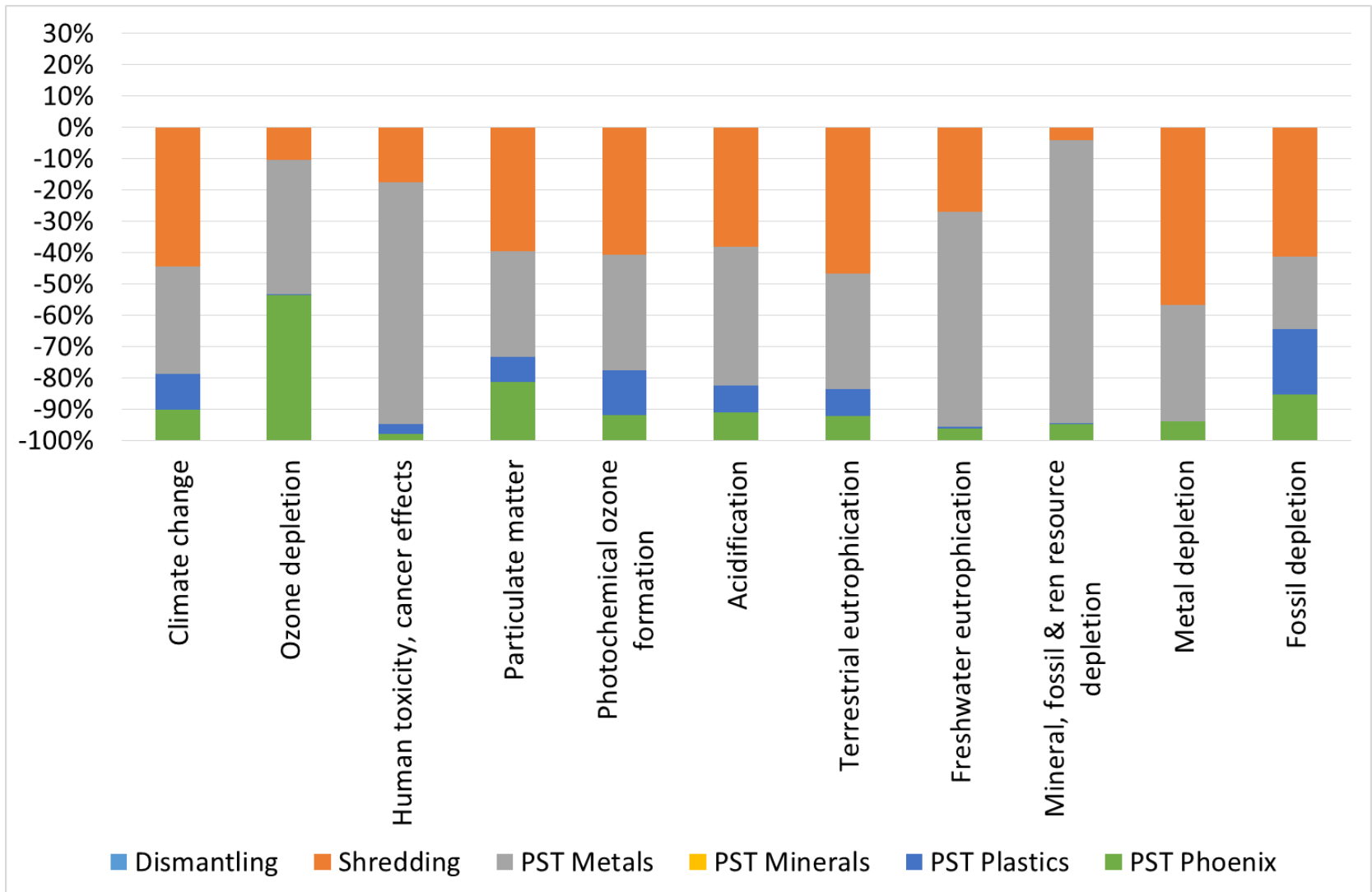
- Dismantling + removal of plastics
- Shredding
- Recycling, reuse and disposal

# Boundaries

Source: Comet Chatelet – Obourg  
Year: 2014



# Business as usual scenario

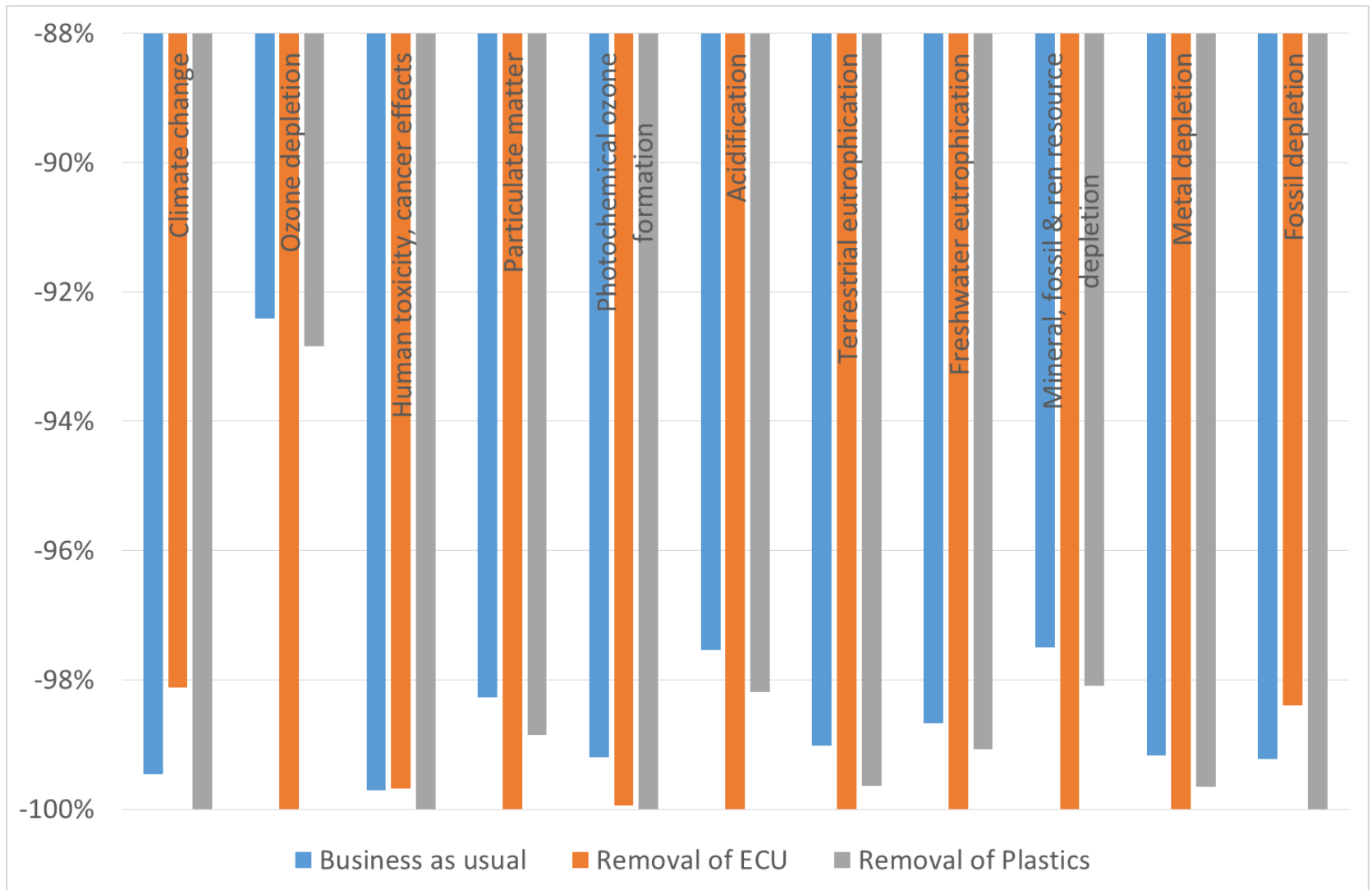


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## Question is...

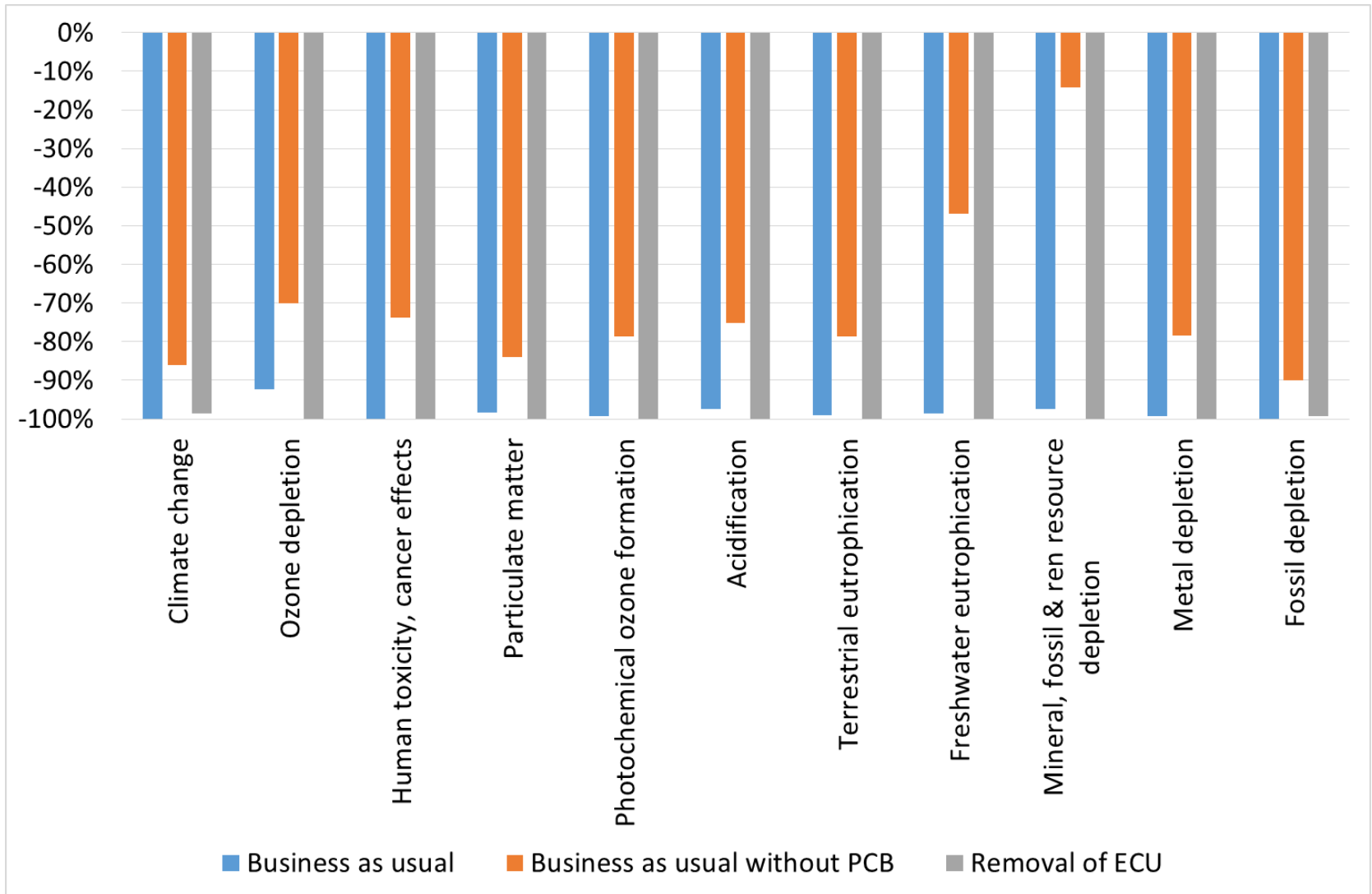
“ Are the recovery of plastics and ECU prior shredding environmentally relevant in the end-of-life vehicle recycling process?”

# Answer is ...

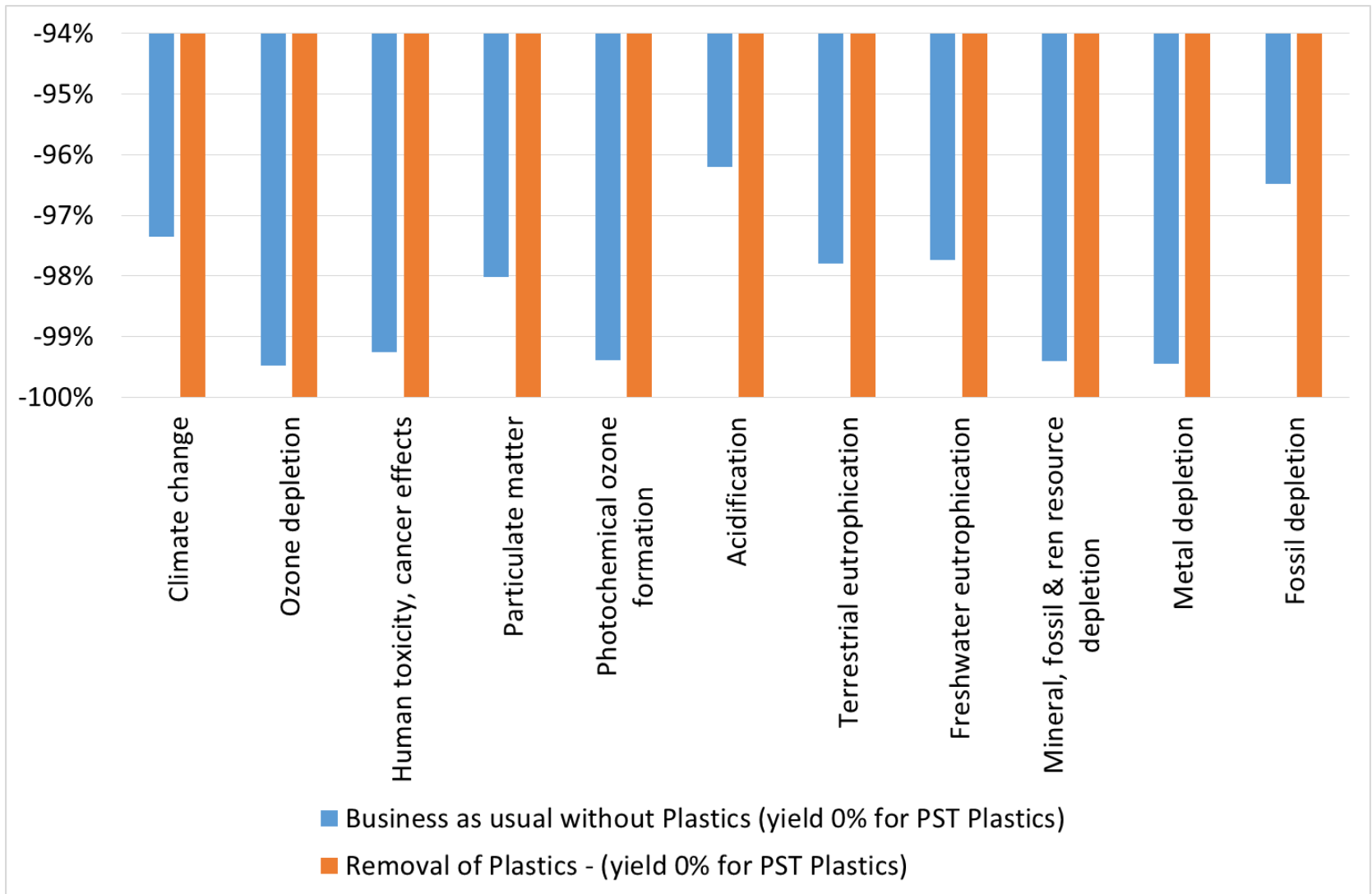




# The only answer?



# The only answer?



# In values?

- Climate change
  - ECU removal
    - Between  $-26 \text{ kg}_{\text{eq}} \text{CO}_2$  to  $+253 \text{ kg}_{\text{eq}} \text{CO}_2$  gain
  - Plastics removal
    - Between 11 and  $48 \text{ kg}_{\text{eq}} \text{CO}_2$  gain

# So What?



= MAX 2500 km



= MAX 48 km

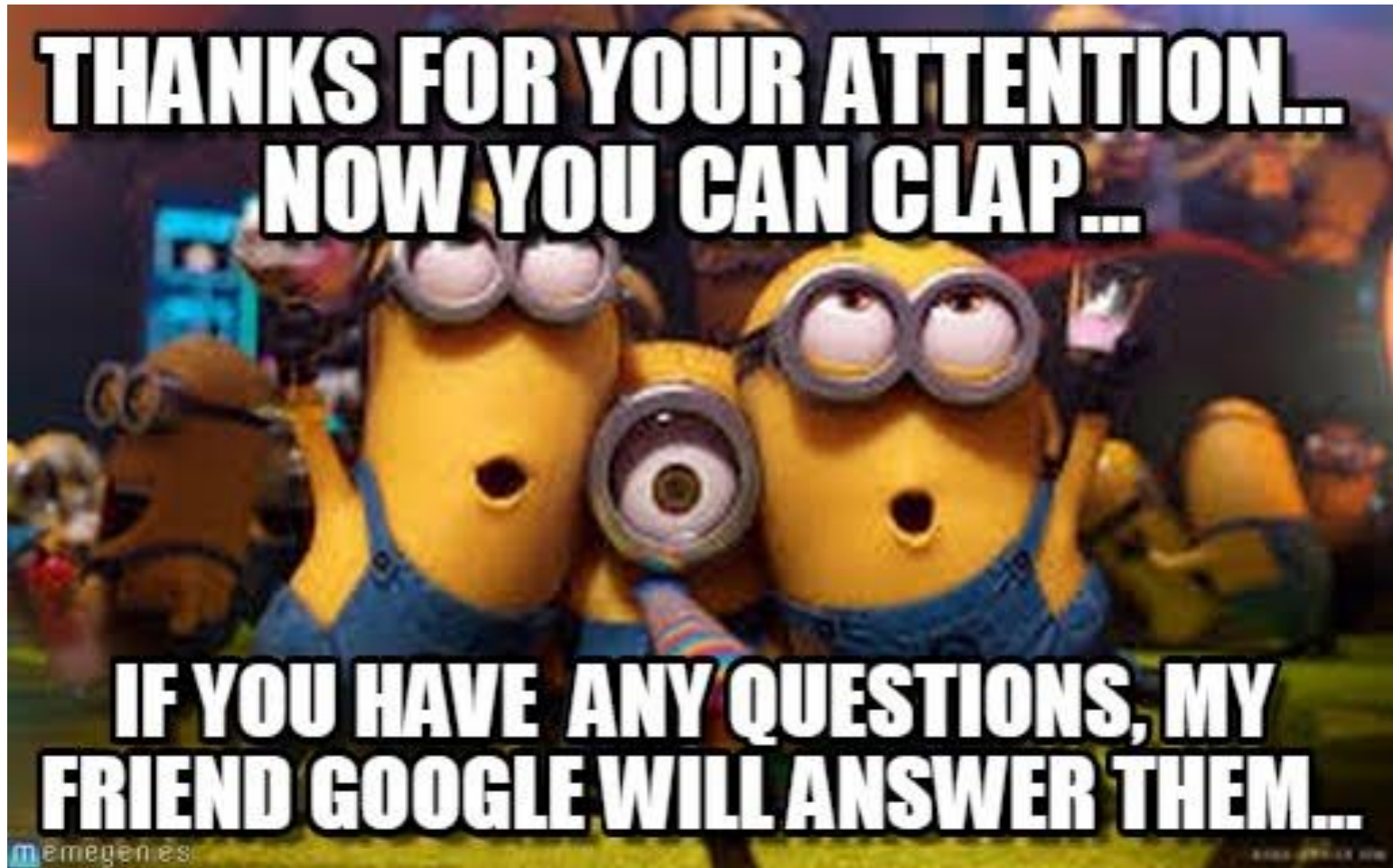
# Conclusions

“ Are the recovery of plastics and ECU prior shredding environmentally relevant in the end-of-life vehicle recycling process?”

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For more information :

**Belboom, S., Lewis, G., Bareel, P.-F., Léonard, A., 2016. Life cycle assessment of hybrid vehicles recycling: Comparison of three business lines of dismantling. Waste Management 50, 184–193.**



OR

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