ECO-DESIGN FOR CIRCULARITY

SOPHIE RICHET – STELLANTIS – ECODESIGN & SUSTAINABILITY
2022/04/22

KEY LEVERS FOR SUSTAINABLE DESIGN & CARBON NET ZERO ROADMAP

STELLANTIS

1. Electrification
(BEV or FCEV)

2. GWP Supplier efficiency

kg CO2 / Kg mat. or part

3. Weight & Energy efficiency Best-in-Class (BIC) BEV targets

7. CNZ Design guidelines for sustainability

4. Material Choices

- *Green Materials*
- *Limited Substance of Concern*
- *Recyclable*
- *Sustainable supply*

5. **Design for Circular Economy**

Scientific exploration → Innovation exploration → Advanced Engineering → Project development → Serial life

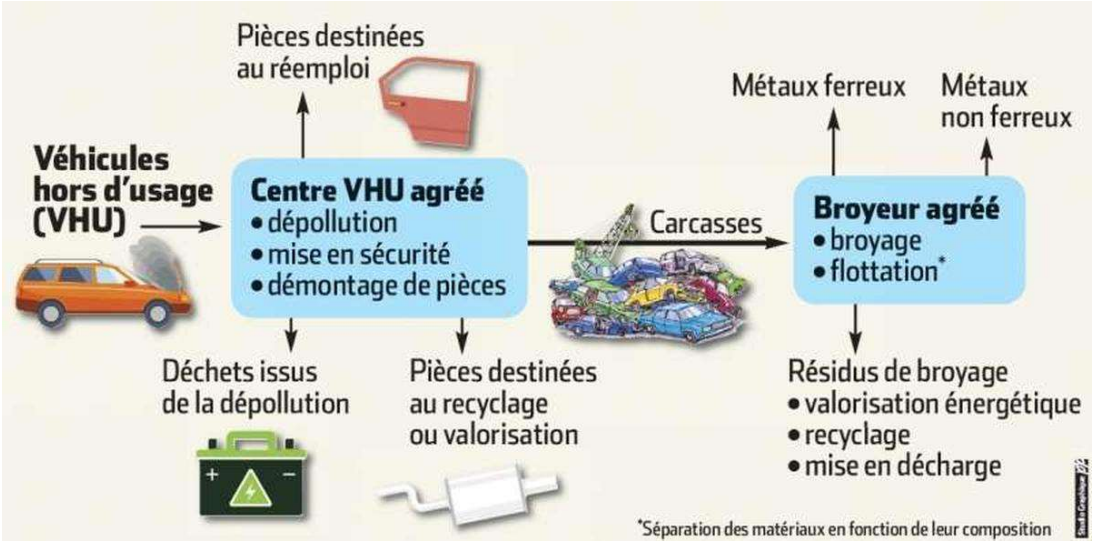
STELLANTIS develops a global & holistic action plan to reduce the Carbon footprint of its products in the design process from innovation to development.

Sustainable Design

HOLISTIC APPROACH IS NEEDED TO INTEGRATE ENVIRONMENTAL AND SUSTAINABLE STAKES DESIGNING THE VEHICLES

STELLANTIS

End of Life vehicle EU Directive

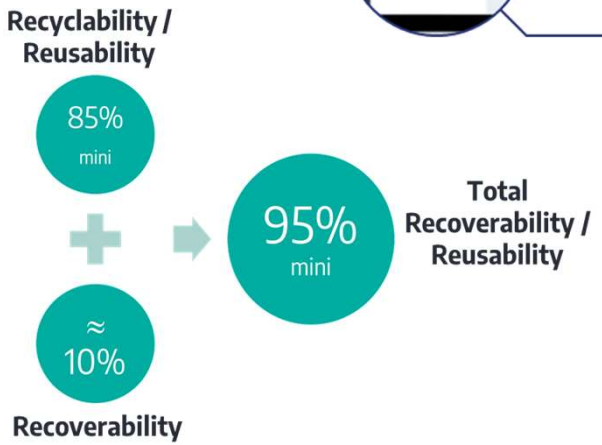


Design for Recycling
Recyclability
Heavy metals & Plastic and elastomere marking

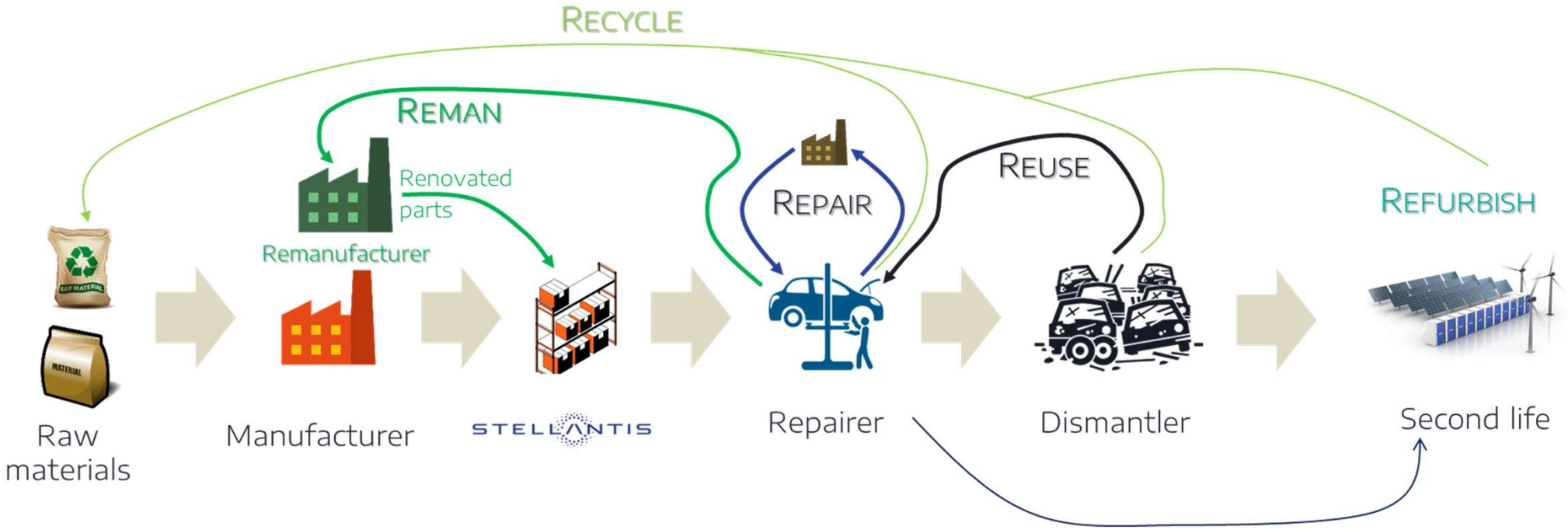
Operationnal performance
Free takeback
Recycling efficiency

Communication
Dismantling information (IDIS)

Vehicle recyclability level

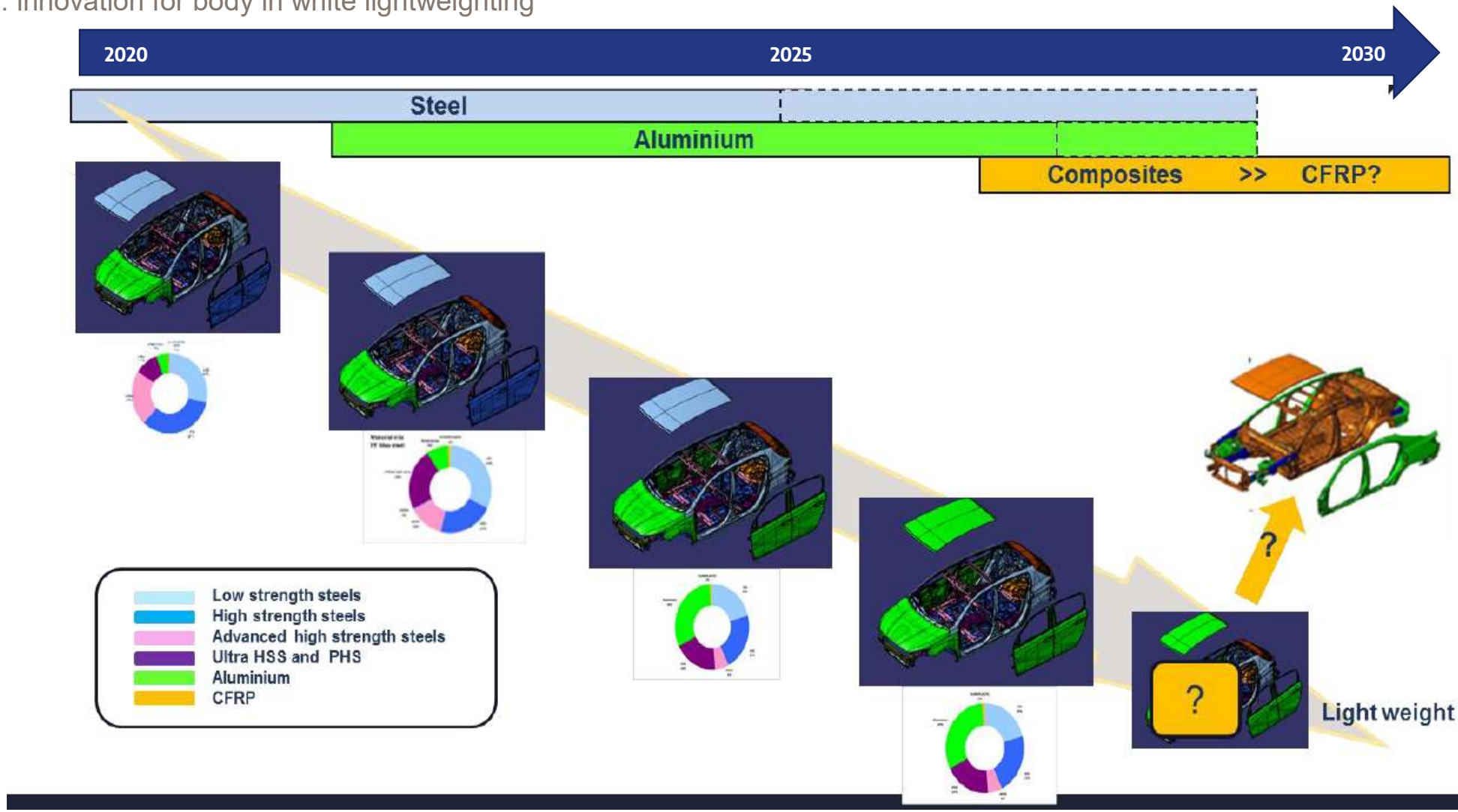


Stellantis Circular Economy in after sales



ECODESIGN FOR CIRCULARITY - RECYCLABILITY

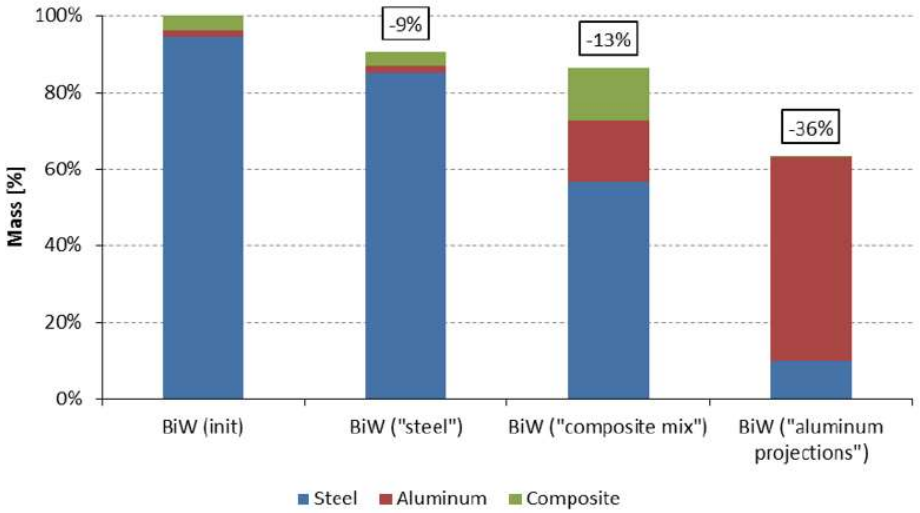
Case study: innovation for body in white lightweighting



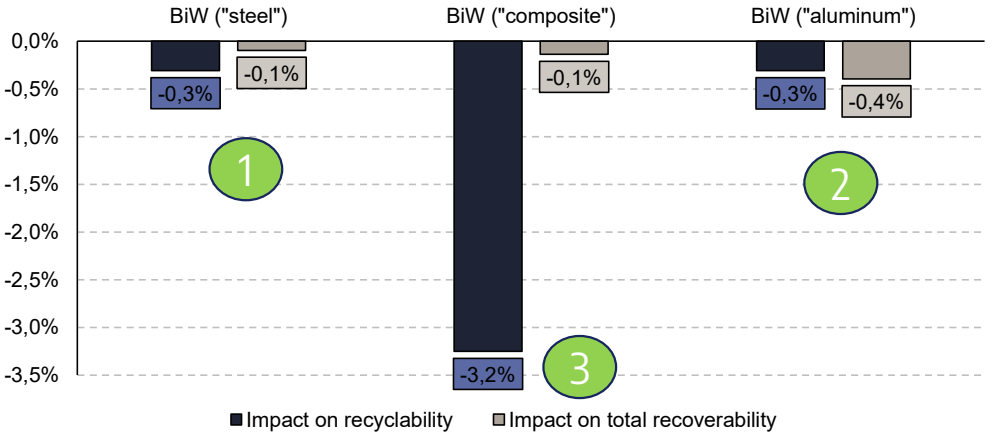
ECODESIGN FOR CIRCULARITY - RECYCLABILITY

Case study: innovation for body in white lightweighting

BIW Lightweight simulations



Recyclability impacts regarding 95% recoverability / 85% Recyclability. Comparison with init solution



OSIRIS Evaluation allows :

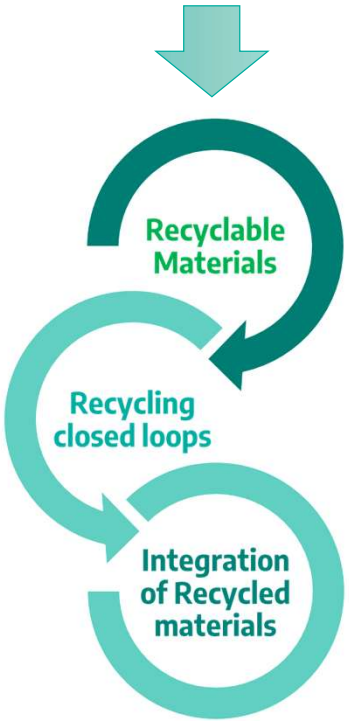
- to identify **the recyclability impact** due to the integration of one innovation or set of innovations in a reference vehicle
- To define related action plans
  - For instance research of **recycling solution** or integration of **recycled materials**

Recyclability Results / Scores :

1- « Steel » solution
2- « Aluminium » solution
3- « Composite » solution

ECODESIGN FOR CIRCULARITY - RECYCLABILITY

Material ecodesign for circularity



Recycling closed loop

- Identify and develop closed recycling loop thanks to R&D collaboration and improve recycling efficiency

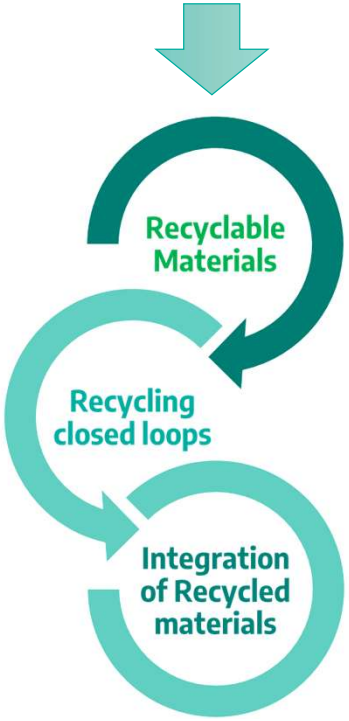
PSA GROUPE, WIPAK, UMET Unité Matériaux Et Transformations, nutripack PACKAGING CONCEPTS, GALLOO PLASTICS, ARMINES

RUSTINE :
Recyclage par extrUSion assisTée fluIde pour la valorisatioN de déchEts polymères

Objectif : améliorer la qualité des plastiques (PP) issus du recyclage des VHU pour une utilisation dans des pièces en intérieur habitacle. Dépollution des matières par le développement d'un procédé d'extrusion assistée fluides (CO_2 à l'état supercritique et/ou eau)

ECODESIGN FOR CIRCULARITY - RECYCLABILITY

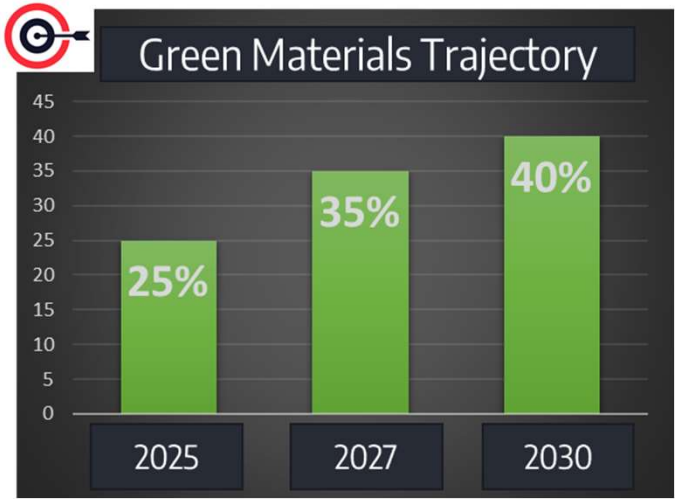
Material ecodesign for circularity



Recycled materials

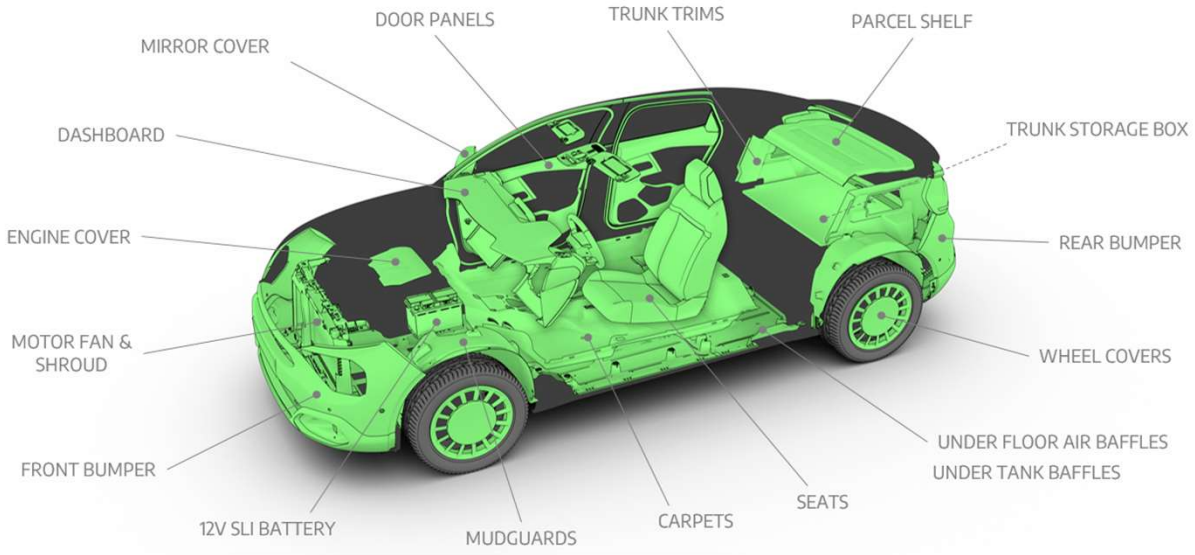
- Increase the use of recycled materials in cars in order to develop sustainable recycling solutions

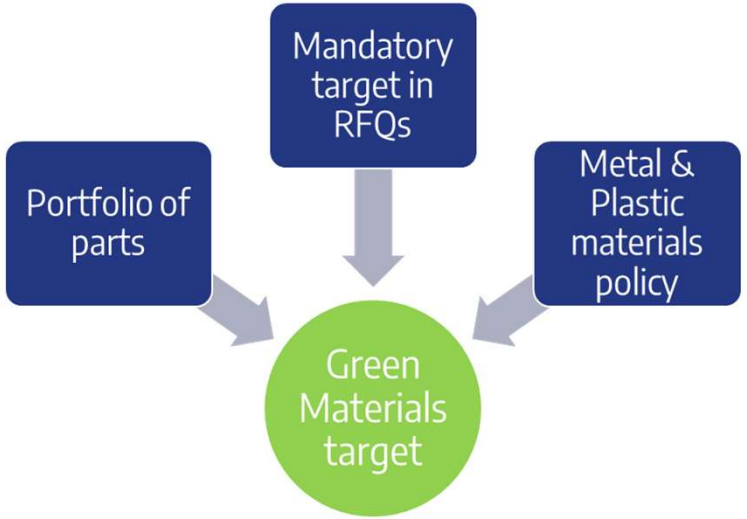
STELLANTIS green materials policy



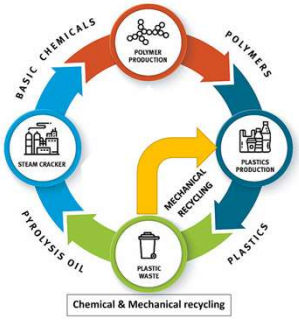
% in weight in the vehicles

Green Materials – Ambitious targets

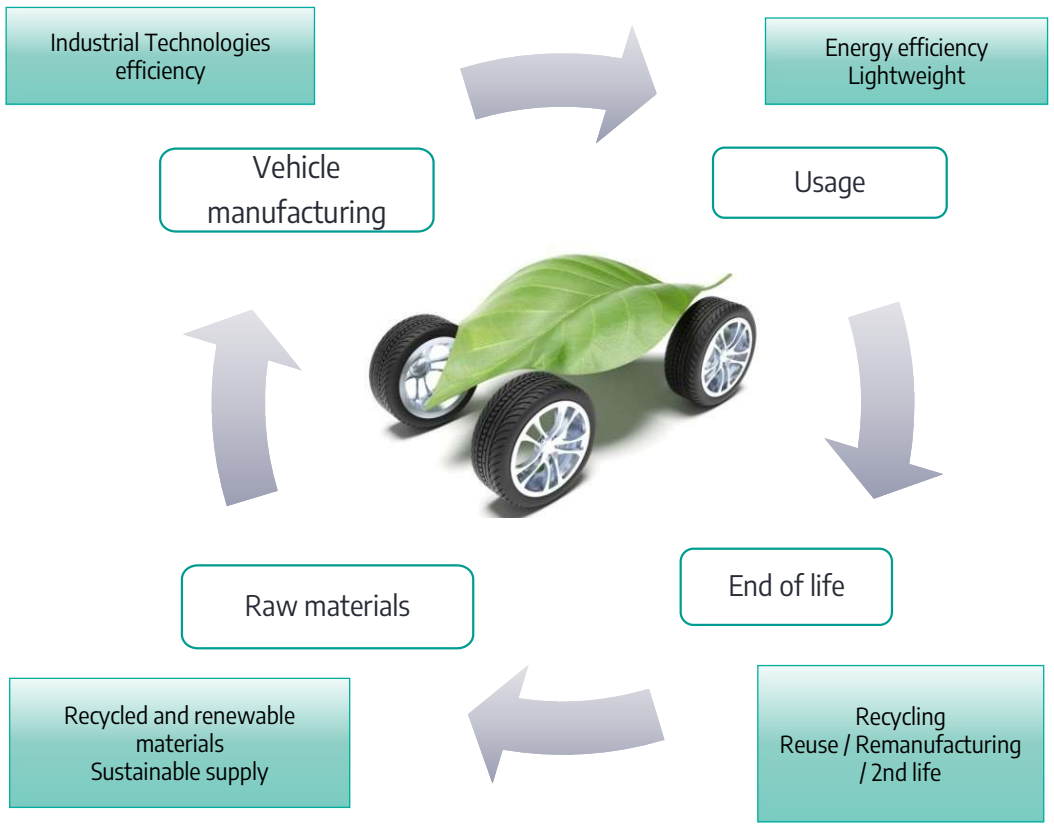




Green Materials are recycled materials, natural fibers used as fillers, and bio polymers



ECO-DESIGN FOR AUTOMOTIVE INDUSTRY



- **HOLISTIC** AND **MULTICRITERIA** APPROACH
- FIND A **COMPROMISE SOLUTION**
- DEFINE **CORPORATE TARGETS** AND **COMMITMENTS**
- CREATE **DESIGN RULES** AND DEDICATED **ACTION PLANS**

THANK YOU FOR YOUR ATTENTION !

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