

Environmental Stakes for the Automotive Industry: Our Strategy

CFE



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GROUPE RENAULT

AGENDA

01- CONTEXT & OBJECTIVES

02 - CLIMATE: THE 2DS STAKES FOR THE AUTO INDUSTRY

03 - RESOURCES: OUR STRATEGY

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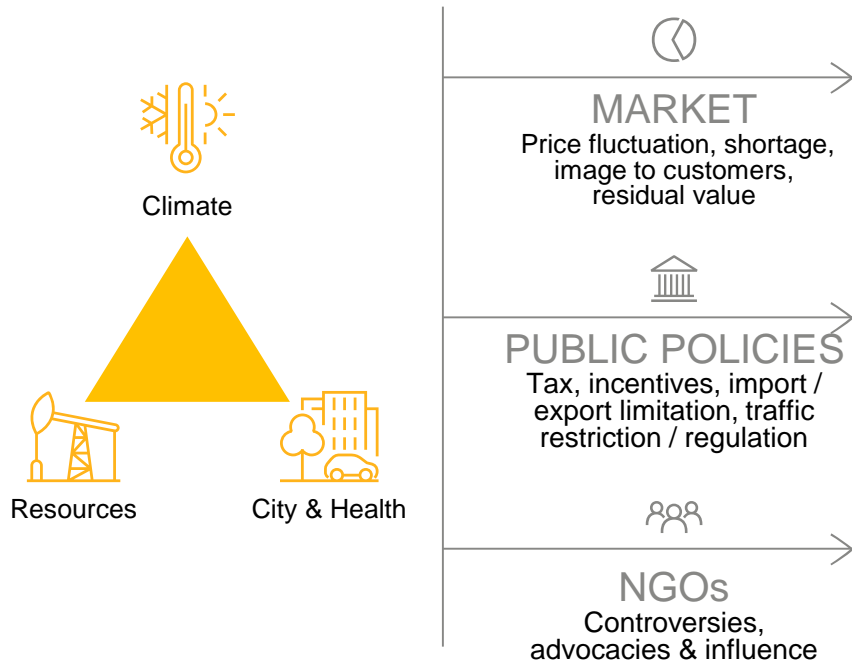
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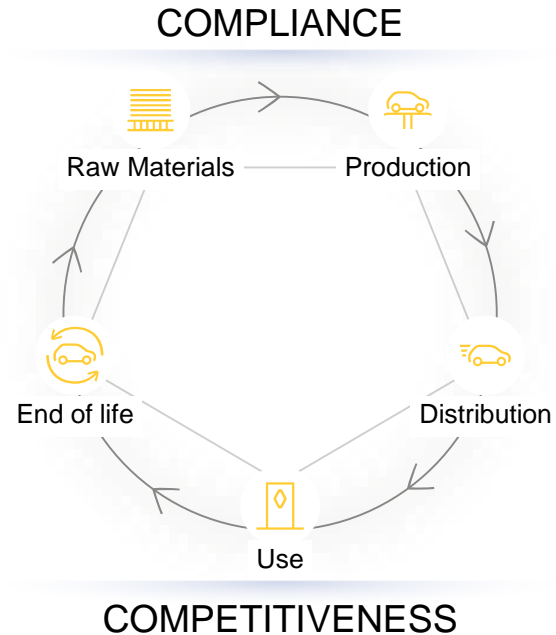
03 - RESOURCES: OUR STRATEGY

ENVIRONMENTAL STAKES, MARKET & STAKEHOLDERS PRESSURE CHALLENGE THE CAR INDUSTRY BUSINESS COMPLIANCE & COMPETITIVENESS

3 MAJOR ENVIRONMENTAL STAKES CHALLENGING...



...THE AUTOMOTIVE INDUSTRY LIFE CYCLE



THE CAR INDUSTRY NEEDS TO CUT ITS GREENHOUSE GASES EMISSIONS BY 32% IN 2050 TO REACH COP21 OBJECTIVE AND LIMIT CLIMATE CHANGE TO 2° C

Climate change



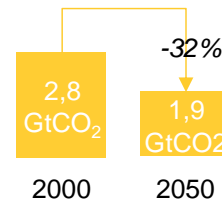
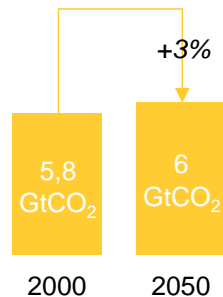
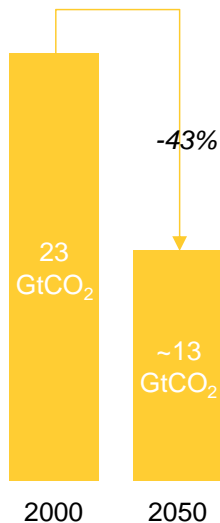
Global GHG emissions



Transports emissions

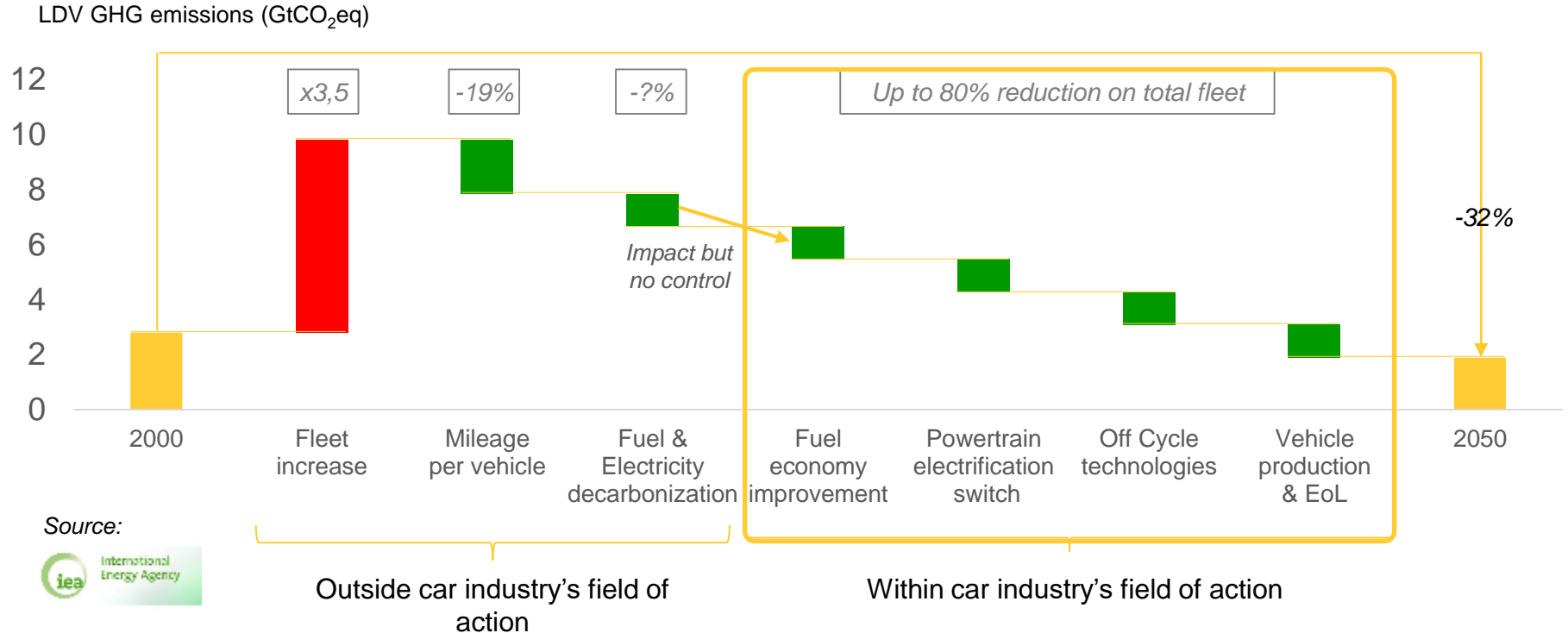


PLDV emissions



Source : IEA, IPCC

THE CAR INDUSTRY WILL ABSORB THE BULK OF THE EFFORT THROUGH POWERTRAIN TECHNO SWITCHES, ICE IMPROVEMENT AND OTHER INNOVATIONS

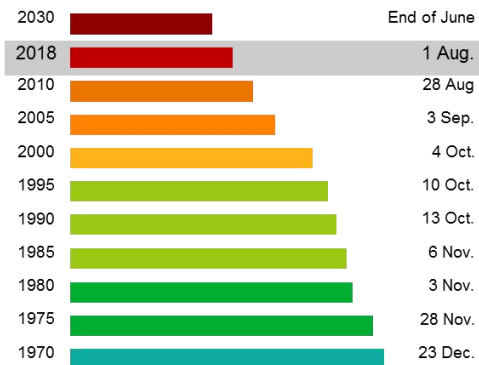




RESOURCES ISSUES: INCREASING RAW MATERIALS SHORTAGES, TRACEABILITY AND COSTS VOLATILITY AND GROWTH

AVAILABILITY OF RAW MATERIALS

EARTH OVERSHOOT DAY



WORLD COPPER RESERVES: 37 YEARS



Source: Deutsche Bank, United States Geological Society

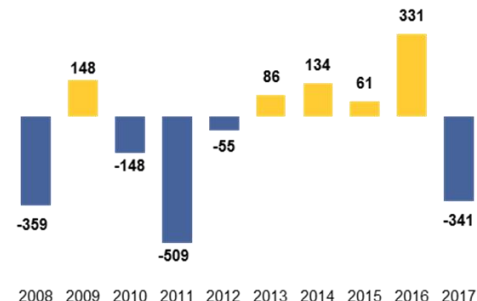
SOCIAL RESPONSIBILITY RELATED TO RAW MATERIAL SUPPLY

SOCIAL AND ENVIRONMENTAL IMPACTS OF MINERAL EXTRACTION



VOLATILITY OF RAW MATERIAL PRICES

IMPACT ON THE GROUP'S OPERATING MARGIN (M€)



RENAULT ADDRESSES THOSE ENVIRONMENTAL STAKES WITH SPECIFIC ACTIONS, 3 TRANSVERSAL LEADERSHIP CLAIMS, AND 1 CONSOLIDATING KPI

△ 3 environmental stakes challenge automobile industry & reshape the market

○ Renault address those stakes through 3 leadership claims able to enhance innovation and transformation

Those solutions support future performance

- Maintain and develop leadership in EV, NMS and CE
- Provide & Secure competitiveness
- Agile & Sustainable transition

ONE INDICATOR FOR OVERALL GLOBAL
PROGRESS: **CARBON FOOTPRINT -25%**
(2022/2010 PER VEH SOLD) IN LINE WITH COP21 2DS OBJECTIVE





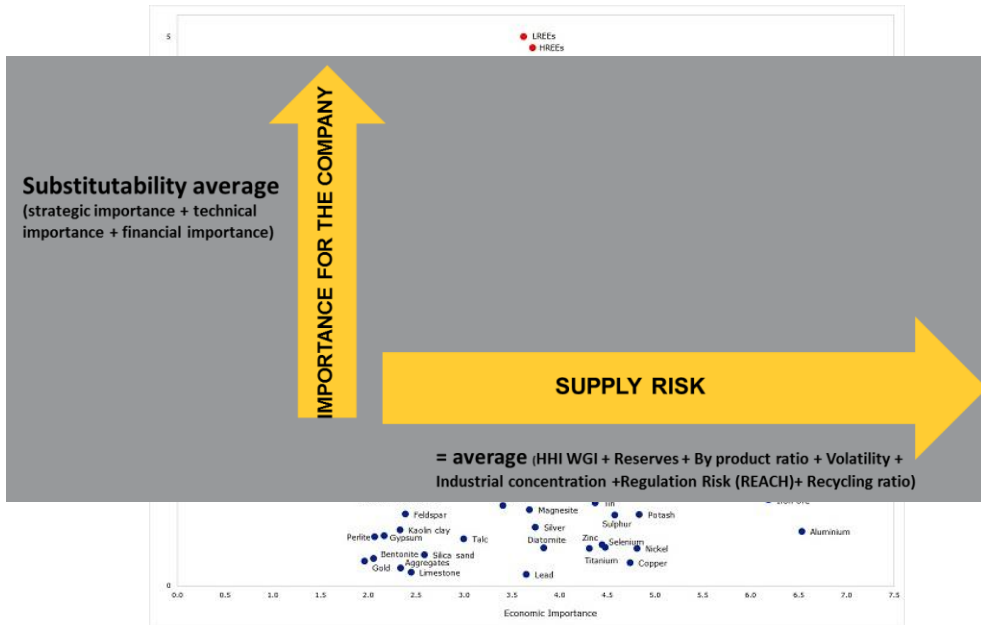
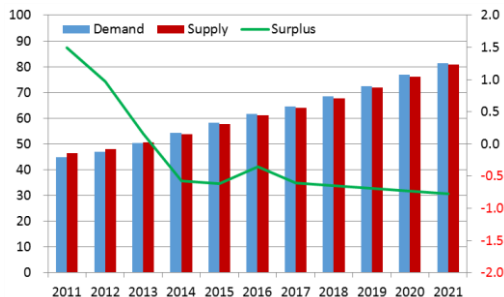
RENAULT MUST ANTICIPATE AND HEDGE THOSE RISKS ON ITS COSTS AND SOURCING FOR BOTH STRATEGIC MATERIALS AND COMMODITIES

EXTENDED EXPERTISE & PARTNERSHIPS

PROSPECTIVE NEEDS

CRITICALITY MATRIX (EC)

MATERIAL & FUEL TREND AND SCENARIOS



Priority for Renault: Circular Economy projects & Renault Environnement entities

AGENDA

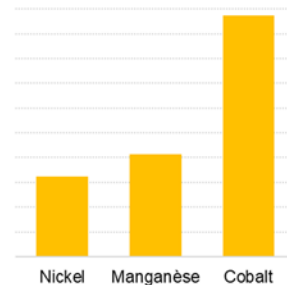
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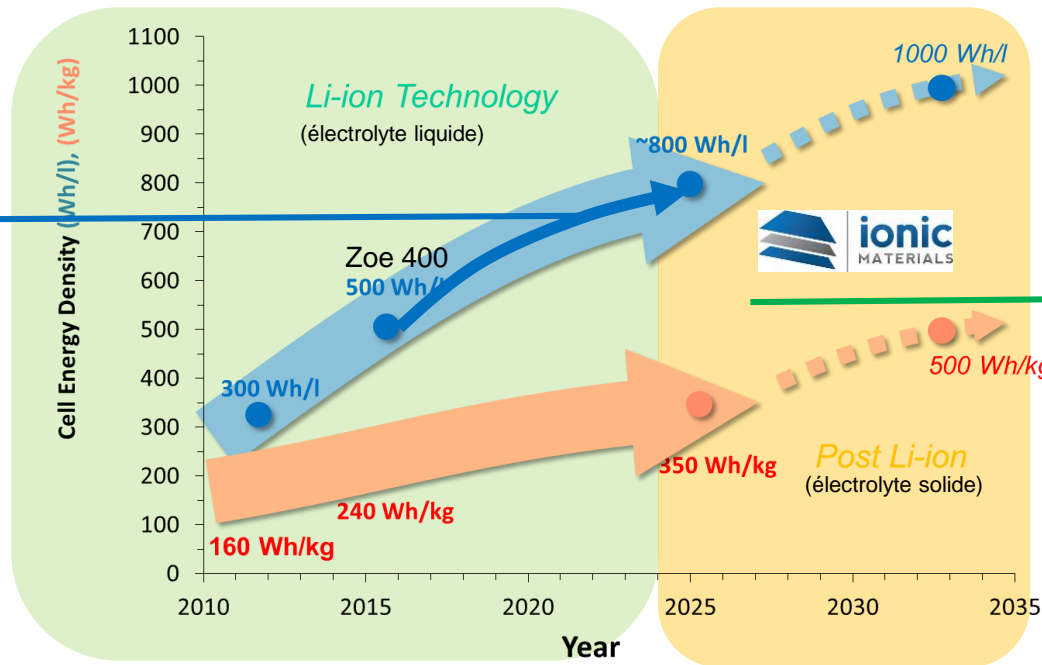
03 - RESOURCES: OUR STRATEGY

1- NEW CHEMISTRY OR CELL DESIGN: A CHALLENGING TRADE-OFF

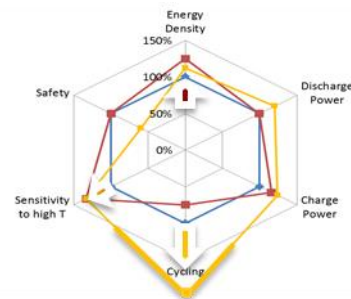
Kg CO₂-eq for 1 kg NMC materials (extraction & refinement)



With Co : Decrease in Co from NMC chemistry 622 to 811, **targetting 50% Co decrease**

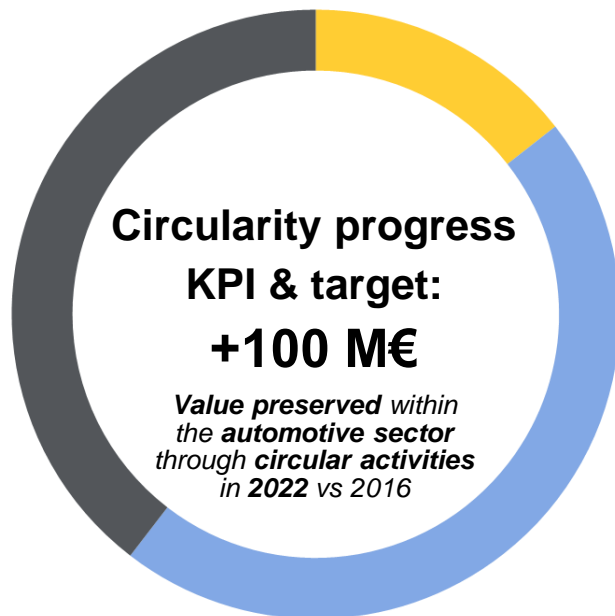


Without Co : **targetting 100% Co decrease with all-solid-state technology**



2 - RENAULT'S CIRCULAR ACTIVITIES ARE MONITORED THROUGH A CIRCULARITY PROGRESS KPI

RENAULT RECONIZED WORLDWIDE AS A BENCHMARK, BEYOND AUTO SECTOR
FUNDING MEMBER & GLOBAL PARTNER OF ELLEN MAC ARTHUR FOUNDATION (FOR 10 YEARS)



Increase recycled content (especially plastics) in cars



Recycle materials in closed loops



Reuse, Repair & Refurbish parts (incl. EV batteries)

RENAULT HAS BEEN A PIONEER BY SETTING UP A UNIQUE CIRCULAR ECONOMY ECO-SYSTEM

▼ 100% GROUPE RENAULT



CHOISY PLANT

2017 Turnover : 82 M€

Mechanical parts remanufacturing



Yearly :

- 15,000 engines
- 18,000 gearboxes



▼ 33% GROUPE RENAULT

BOONE COMENOR METALIMPEX

2017 Turnover : 436 M€

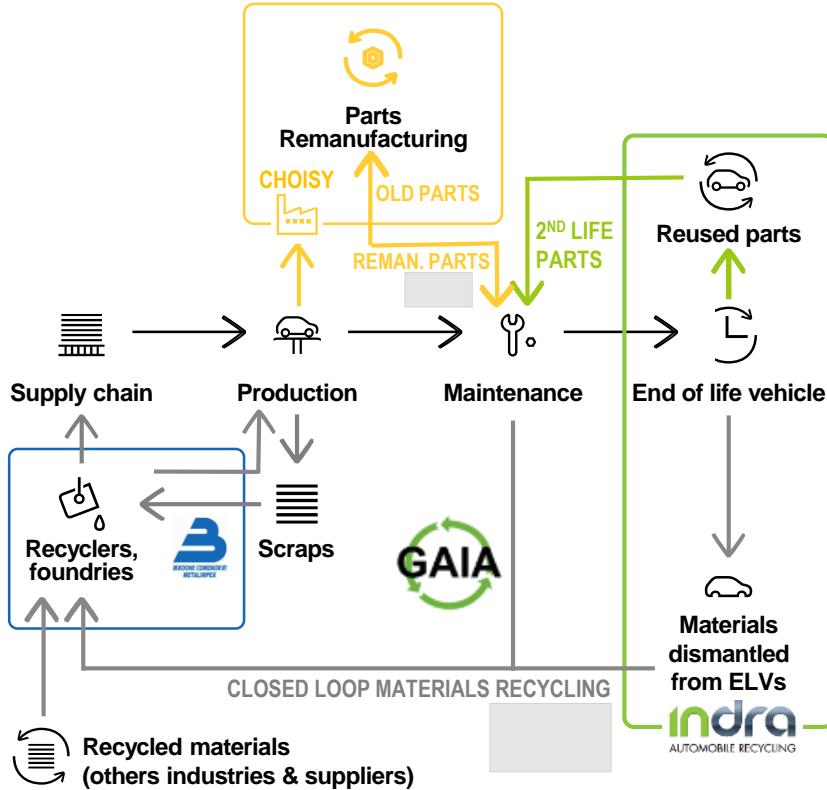
Metallic scrap conditioning & trading



- 2 M Tons/yr
- 400 people
- 28 sites worldwide



▼ 67% SUEZ



▼ 50% GROUPE RENAULT

▼ 50% SUEZ

indra
AUTOMOBILE RECYCLING

2017 Turnover : 43 M€

- ELV dismantling
- Second life parts



- 350 ELV centers
- 350,000 ELVs/yr



▼ 100% GROUPE RENAULT

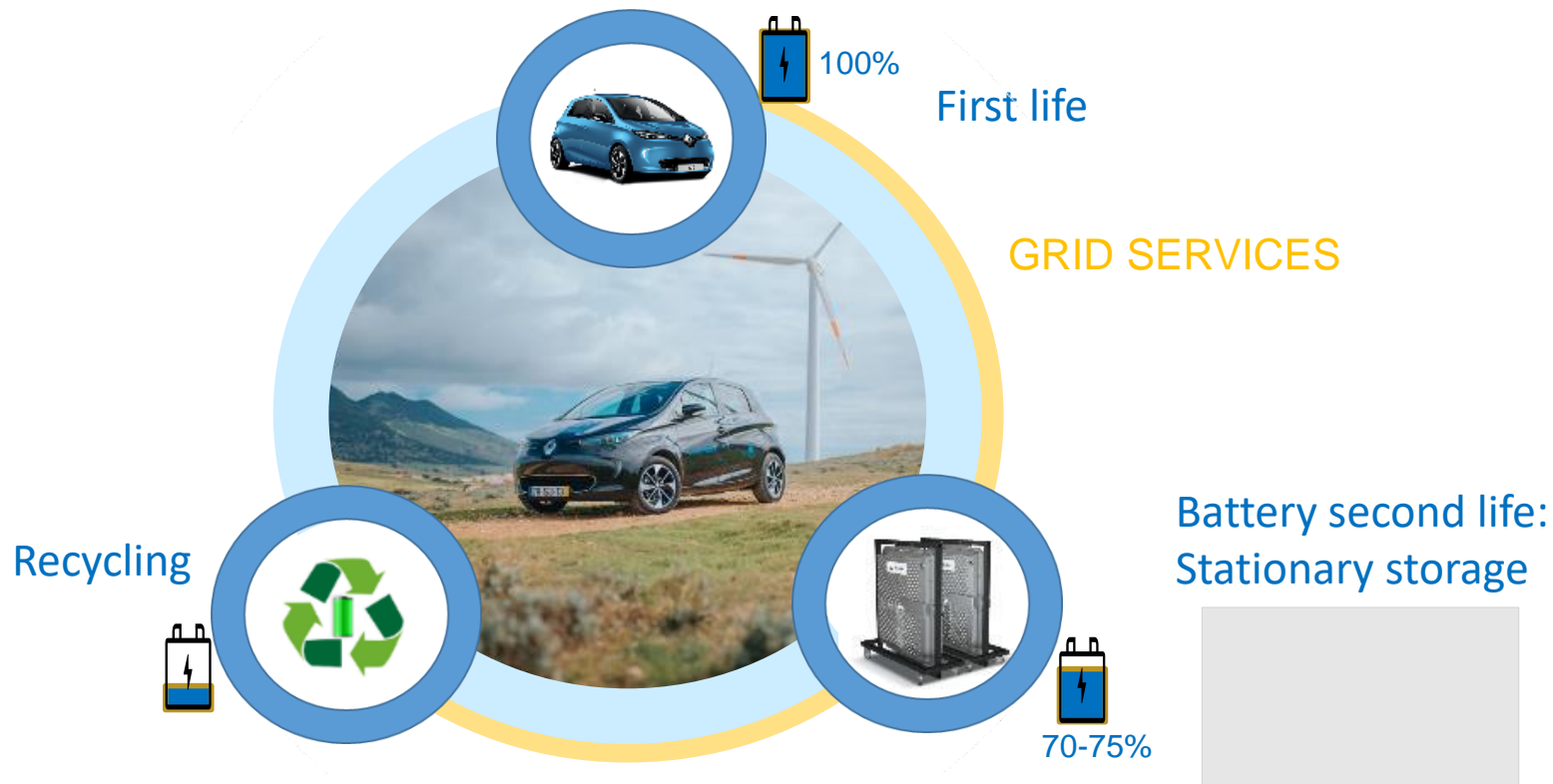
GAIA

2017 Turnover : 18.4 M€

- Second hand parts business
- EV Battery Diagnosis & Repair
- Materials closed loops :

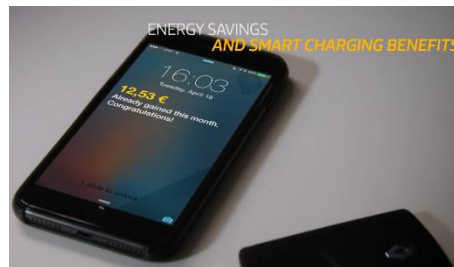


3 - OPTIMIZED LIFE CYCLE OF AN EV BATTERY



THE E.V. PILARS FOR ACCELERATION : ECO-SYSTEM PERFORMANCE AND REVENUES

SMART CHARGING



Launch of *Renault Z.E. Smart Charge* Apps.

Z.E.
Smart Charge

RENAULT



Pilot home charging to match electricity operators needs
25% stake in JEDLIX

**GENERATE VALUE FROM ENERGY
FAVOR RENEWABLE ENERGY**

**Customer support
Lean experience**

**PILOT YOUR HOME ENERGY
INTEGRATED OFFER**

Smart grids & New Revenue



Charging support

SECOND LIFE: GENERATE VALUE FROM ENERGY & MOBILITY SECTORS

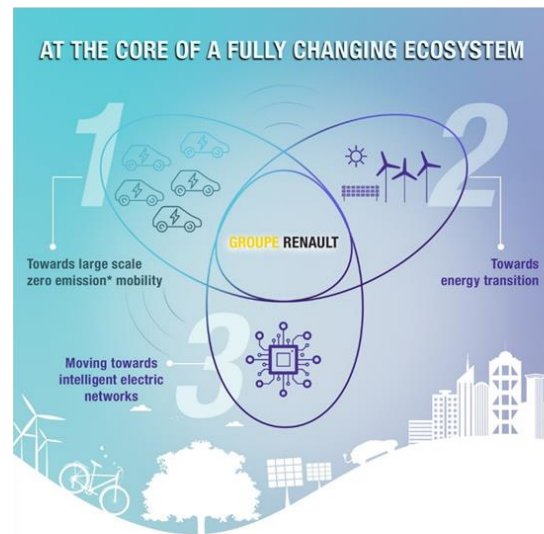
BATTERY SECOND LIFE



Connect clean energy
to grid and buildings

*Ex: High power charging station
with Connected Energy in Europe*

GRUPE RENAULT'S NEW SUBSIDIARY **RENAULT** ENERGY SERVICES



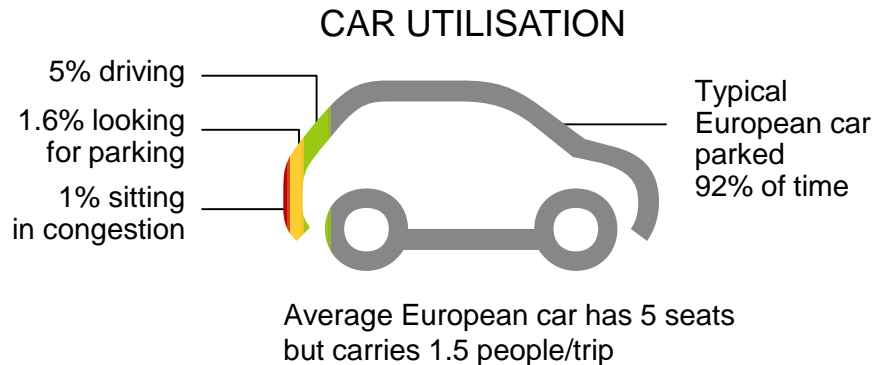
Favour the expansion of electric mobility
Invest in the field of smart grids



4- RESSOURCES ISSUES: AUTOMOTIVE INDUSTRY IS A MAJOR RAW MATERIAL CONSUMER AT A GLOBAL SCALE, WITH A VERY LOW USAGE EFFICIENCY

VERY LOW USAGE EFFICIENCY

50% of most city land dedicated to streets and roads, parking, service stations, driveways, signals and traffic



This inefficient resource management will be challenged (economically and politically) by new ownership and mobility models



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