CIRCULAR ECONOMY STAKEHOLDER CONFERENCE
CIRCULAR SOLUTIONS FOR THE LOW-CARBON TRANSITION
WHAT TO DO WITH END-OF-LIFE PRODUCTS? REUSE OR RECYCLING?

RENAULT CIRCULAR ECONOMY CASE

FEBRUARY 2018

JEAN-PHILIPPE HERMINE
RENAULT VP STRATEGIC ENVIRONMENTAL PLANNING
CIRCULAR ECONOMY ACTS ALL ALONG THE PRODUCT LIFE CYCLE TO REDUCE RESOURCE CONSUMPTION AND PRESERVE VALUE THANKS TO CLOSED LOOPS

EFFICIENCY IN RESOURCES AND VALUE ADDED USE INTENSITY

1. Raw materials
2. Intensify usage
3. Extend life
4. Recycle materials
5. Reuse / Remanufacture parts
6. Use Recycled materials

MOBILITY
RENault
1 CIRCULAR ECONOMY

CIRCULAR ECONOMY IS A CORE LEVER, EMBEDDED IN RENAULT BUSINESS MIDTERM PLAN, TO ADDRESS MAJOR ENVIRONMENTAL STAKES.

3 environmental stakes challenge automobile industry & reshape the market
Renault address those stakes through 3 transversal leadership claims able to enhance innovation and transformation

ONE INDICATOR FOR OVERALL GLOBAL PROGRESS: CARBON FOOTPRINT -25% (2022/2010 PER VEH SOLD) IN LINE WITH COP21 2DS OBJECTIVE
RENAULT SHOULD OVERPASS ITS COP21 OBJECTIVE BY 2030, THANKS TO ITS EV LEADERSHIP

Renault Life-cycle tCO2eq / veh sold / yr

Reminder target COP21 IEA: -40%

Impact of Robotaxis not evaluated yet

Circular Economy

Resources

City & Health

Climate
RENault must anticipate resources issues (sourcing and costs) for strategic materials and commodities to secure sustainable business.

Sourcing Risks

Copper Reserves 37 Years
1 EV = 4 × 1 ICE
(80kg engine + battery + electric cables)

Source: Deutsche Bank, United States Geological Society

COBALT PRICE $ by tonnes
RDC >60% production > 50% reserves
CHINA >50% Refining

Over Cost Risks

RM Cost on Group COP (M€)
-359
-341
-148
-148
-55
86
134
61

Carbon Tax & ETS

Tax 20€/T ➔ +150 M€ Purchase cost

Implemented
Scheduled
Under discussion

Source: London Metal Exchange - World Bank - iMoney

CHINA source: National Bureau of Statistics

RENAULT HAS BEEN A CIRCULAR ECONOMY PIONEER BY SETTING UP A UNIQUE CIRCULAR ECONOMY ECO-SYSTEM ON FULL VALUE CHAIN

3 ORGANIZATION

DATA 2017

STRATEGIC ENVIRONMENTAL PLANNING

CONFIDENTIAL
PROPERTY OF GROUPE RENAULT

FEB 2018

TO: 415 M€

Renault: 33% 67%
Suez:

Key points:
- Conditionning & Trading
- 2 M Tons/yr
- 400 people
- 28 worldwide site

TO: 17 M€

Renault: 100%

Key points:
- Production waste valorisation
- Materials closed loops
- Second hand parts business
- Batteries life cycle

TO: 61 M€

Renault: 100%

Suez:

Key points:
- Remanufacturing 6 parts families
- 45% Reuse – 40% Recycled
- 15,000 engines,
- 18,000 gearboxes

TO: 43 M€

Renault: 50%
Suez: 50%

Key points:
- E.L.V treatment (FR)
- 300 kveh/yr through French network
- 210 people
RENAULT ECOSYSTEM HAS DEVELOPED SEVERAL CLOSED LOOPS IN 2010-2016

EFFICIENCY IN RESOURCES AND VALUE ADDED USE INTENSITY

USE RECYCLED MATERIALS

RECYLE MATERIALS IN SHORT LOOPS
- Wiring (Copper)
- Industrial waste metal loop
- Catalytic conv
- Bumper (PP)

REUSE PARTS
- Resell of 2nd life parts
- Parts Remanufacturing
- Battery repair and reconditioning

EXTEND LIFE

INTENSIFY USE

RECYCLED MATERIAL USE IN RENAULT CARS
4 CE MTP

BY 2022, RENAULT COMMITS TO CONSOLIDATE AND EXPAND ITS CE BUSINESS TO NEW ZONES AND ACTIVITIES (ESPECIALLY EV RELATED)

EFFICIENCY IN RESOURCES AND VALUE ADDED USE INTENSITY

- USE RECYCLED MATERIALS
- RECYCLE MATERIALS IN SHORT LOOPS
- REUSE PARTS
- EXTEND LIFE
- INTENSIFY USE

RECYCLED MATERIAL USE IN RENAULT CARS

+50% 2022/2013 (tones used)

RECYCLED MATERIAL USE IN RENAULT CARS

- Wiring (Copper)
- Industrial waste metal loop
- Catalytic conv
- E-Motor (Copper)
- Bumper (PP)
- Textiles Seats
- Parts Remanufacturing
- Battery repair and reconditioning

RECYCLE MATERIALS IN SHORT LOOPS

- Electric Motor parts remanufacturing
- Battery 2nd life reconditioning

REUSE PARTS

- Resell of 2nd life parts

EXTEND LIFE

- Battery (Co, Ni...)
- EV
- Mobility as a Service
- New mobility

INTENSIFY USE

- 4CE MTP
- STRATEGIC ENVIRONMENTAL PLANNING
- CONFIDENTIAL
- PROPERTY OF GROUPE RENAULT

FEB 2018

10
EV BATTERIES ARE INTEGRATED IN A CIRCULAR ECONOMY LOOP OPTIMIZING THEIR ENVIRONMENTAL IMPACT

- Collecting 100% of batteries (battery lease)
- RM supply for new battery

**BATTERY RECYCLING**

**2ND LIFE BATTERY**

Stationary usage for grid balancing, local storage
*Ex: high power charging station with connected energy in Europe*

**RENAULT EV BATTERY LEASING MODEL**

**1ST LIFE OPTIMIZING SERVICES**

**RENAULT ENERGY SERVICES**

Pilot charging to avoid peak charging and balance RE production
*Ex: Smart city / Island*

Pilot charging to replace costly & emitting electricity production
*Ex: We drive Solar in NL*
5 CONTEXT
RENAULT’S ACTIONS INCREASINGLY NEED TO INTEGRATE INTO ECO-SYSTEMIC SOLUTIONS TO DELIVER EFFICIENT RESULTS

MOBILITY ECO-SYSTEM MUTATION

- NGOs
- NEW TECH PLAYERS (AI, DIGITAL…)
- MOBILITY OPERATORS
- CITIES & PUBLIC AUTHORITIES
- INFRASTRUCTURE DEVELOPERS
- AFTER SALES & EOL PLAYERS
- ELECTRICITY UTILITIES
- CITY PLANNERS

CONTEXT
RENAULT’S ACTIONS INCREASINGLY NEED TO INTEGRATE INTO ECO-SYSTEMIC SOLUTIONS TO DELIVER EFFICIENT RESULTS
5 Context

Renault’s actions increasingly need to integrate into eco-systemic solutions to deliver efficient results.

Circular Economy Eco-System Mutation

New Tech Players
Start up Battery Second Life

Academics
University Research

European & National Public Authorities

EOL Players
(Dismantlers Shredders Recyclers…)

Electricity Utilities

NGO

After Sales
(Reused & Remanufactured Parts)

Automotive Supply Chain

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