Renault-Nissan

ACCELERATING THE TRANSITION TOWARDS SUSTAINABLE MOBILITY
Accelerating the transition towards sustainable transport: many challenges to tackle
ENERGY & ENVIRONMENTAL CHALLENGES

Resources
Reduce oil dependency

City & Health
“Airpocalypse”

Climate
Limiting warming < 2°C
TRANSPORT & SOCIETAL CHALLENGES

- **Mobility for all**
  Affordable mobility

- **Connectivity**
  Smart connections

- **Innovation**
  Connected and Automated Driving
GEAR 2030 OUTCOMES
Four mega trends

1. **A better protection of environment and health:** Allow for a better market penetration of ZEVs & PHEVs to reduce CO2 and pollutants emissions

2. **New consumer & societal demands:** Integrating new technologies and major shifts in societal demands for innovative mobility solutions

3. **Technological innovation:** Connected and Automated Driving constitute the first cornerstone of technological innovation and will transform the whole sectoral value chain.

4. **Shift of business models / New economy of the automotive industry:** Advanced manufacturing will allow for new players to enter the market while the traditional ones will need to adapt
Alliance Strategy: Building new Business Models & Developing Electric Vehicles
PROMOTING EV DEVELOPMENT
One ambition – Many challenges

1. Bring the customers on board by
   ✓ Managing the range level
   ✓ Speeding up EV cost reduction: Alliance platform & Battery cost breakthrough

2. Make the EV a volume reality by
   ✓ An integrated approach with all stakeholders
   ✓ A sufficient deployment of charging and filling infrastructure
   ✓ A good level of incentives for the roll-out of ZEVs and PHEVs (smart pricing, subsidies)
PROMOTING EV DEVELOPMENT: INCENTIVES AND PUBLIC POLICIES

LEGEND:
- Strong incentives
- Light incentives
- Very light incentives

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<tr>
<th>Country</th>
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<tr>
<td>GERMANY</td>
<td>Ban on sales of ICE vehicles under investigation → ICE car taxation</td>
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<td>NORWAY</td>
<td>Political consensus to impose non polluting vehicles by 2025</td>
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<td>UK</td>
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<td>AUSTRIA</td>
<td>Envir. &amp; Trans. Minister: budget of 72 M€ for 2017 &amp; 2018 to promote electromobility</td>
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<td>INDIA</td>
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<td>CHINA</td>
<td>Timetable for banning ICE vehicles under discussion « for a new future » Substantial national &amp; local subsidies</td>
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DEVELOPING ELECTRIC VEHICLES FOR A MORE SUSTAINABLE MOBILITY
Alliance Strategy:
Building an Eco-system for Electric Vehicles
PROMOTING CIRCULAR ECONOMY
FOR AN HOLISTIC APPROACH OF THE E-MOBILITY

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

3 Leaderships
- Competitiveness
- Sustainability

Climate

New Mobility services

Resources

City & Health

EV

Circular Economy

Drive The Future
2017 - 2022
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

- Raw materials
- Intensify usage
- Extend life
- Recycle materials
- Reuse / Remanufacture parts
- Use Recycle materials
- Waste

CEPS Conference
OPTIMIZING THE ENVIRONMENTAL IMPACT OF EV BATTERIES: INTEGRATION IN A CIRCULAR ECONOMY LOOP

- 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

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
RENAULT NISSAN PROJECT : EV SUCCESS
From E-mobility to recycling: the virtuous loop of electric vehicle

• **Rationale of the project**: increase access to electric mobility by reducing the total cost of electric vehicles and incentivize solutions based on circular economy

• **Objective**: analyzing regulatory barriers to the re-use of EV batteries for energy storage

• **Innovators**: Renault Group, Lomboxnet, Bouygues Energy Services, French Ministry for the Economy & Finance and French Ministry for minister for ecological and inclusive transition, Dutch Ministry of Infrastructure & Water Management and Dutch Ministry of Economic Affairs

• **European Commission partners**: DG RTD, DG ENVI, DG ENER
RENAULT NISSAN PROJECT: SECOND LIFE OF EV BATTERIES
Energy Local Storage Advanced System

- **Objective**: develop distributed storage solutions to maturity by combining 2nd life batteries with an innovative local ICT-based energy management system, develop the commercial use of storage solutions
- **Renault & Nissan** provided EV batteries to the project pilot sites and their expertise in storage solutions made of EV batteries
- **6 demonstrations sites** in 4 EU countries from 2015 to 2019
- **Funding**: H2020 framework program
- **Partners**: Renault, Nissan, RWTH Aachen University, UTRC Ireland, Engineering, B.A.U.M Consult GmbH, ASM Terni S.p.A, Gateshead college, Allgäuer Überlandwerk
DEVELOPPING NEW MOBILITY SERVICES
Generate value from Energy & Mobility sectors

SECTOR COUPLING
Connect clean energy to grid and buildings
E.g. High power charging station with connected energy in Europe

CARSHARING
Engage in main cities car-sharing projects
E.g. 500 ZOE with Ferrovial in Madrid

SMART CHARGING
Launch of Renault Z.E. Smart Charge Apps.

SMART CHARGING
Pilot home charging to match electricity operators needs
25% stake in JEDLIX
THANK YOU