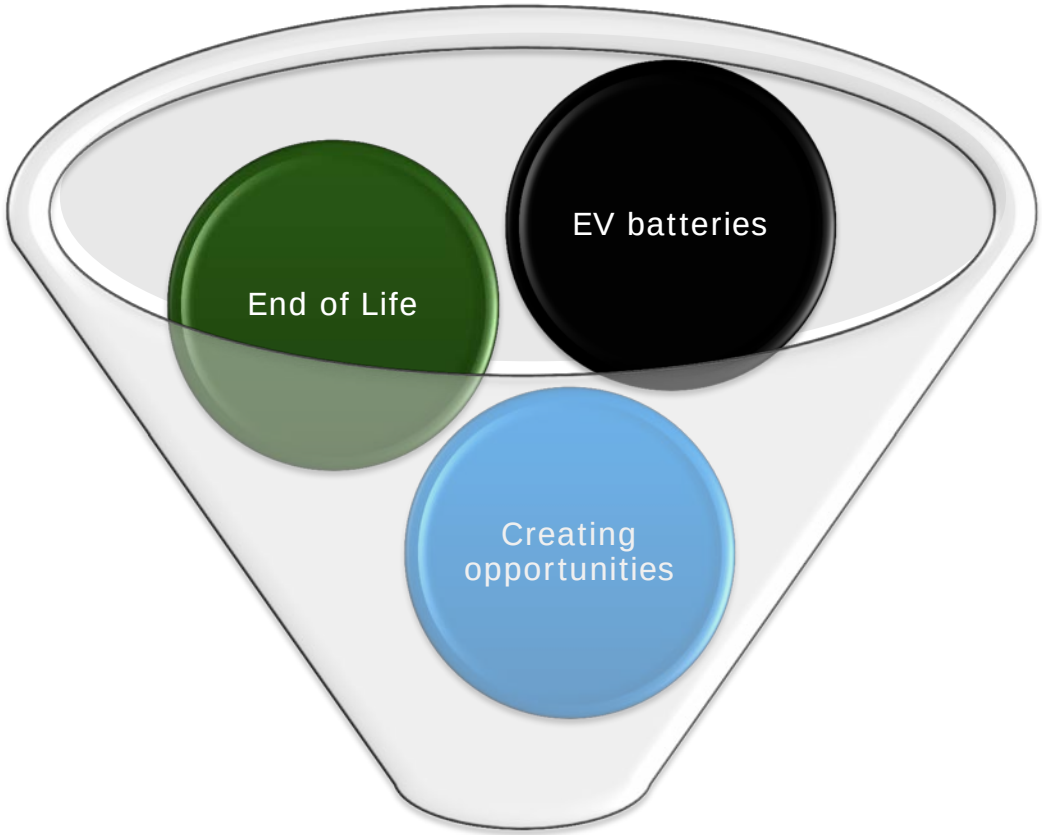
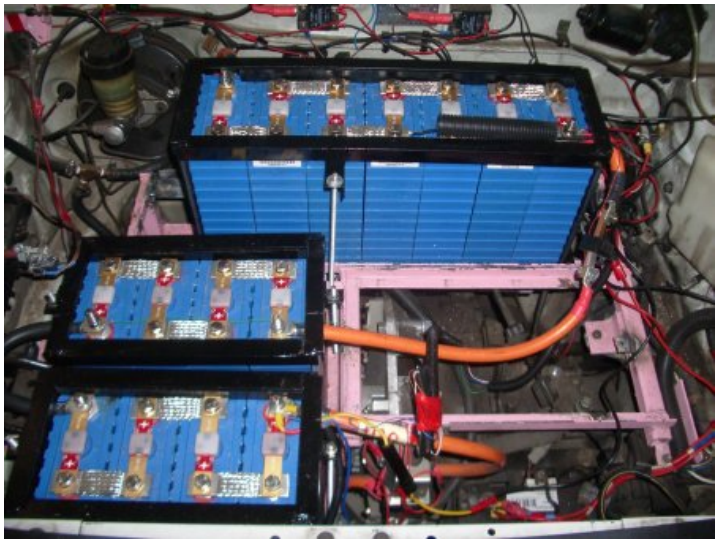



# 2BCYCLED

# DNV KEMA Energy & Sustainability

- Committed to driving the global transition toward a safe, reliable, efficient, and clean energy future.
- As an objective and impartial knowledge-based company, we advise and support organizations along the energy value chain.
- DNV KEMA Energy & Sustainability is part of DNV, a global provider of services for managing risk with more than 10,000 employees in over 100 countries. For more information on DNV KEMA Energy & Sustainability visit www.dnvkema.com.
- > 2,300 experts
- > 30 countries around the world,
- innovative solutions:
  - business & technical consultancy,
  - testing,
  - inspections & certification,
  - risk management, and
  - verification.



# **ARN Advisory:** Research and Recycling under one roof

- Competence centre sharing fundamental expertise on **mobility** recycling issues
- **Combining** chain management, technology and industrial knowledge
- Originating from **recyclers**: Auto Recycling Nederland, Dutch ELV monitoring body
- Growing portfolio on **new mobility** recycling research and services.
- Running a unique Shredder Residue industrial **recycling facility** and R&D centre





**Electrified** mobility: ARN's EV **battery life** cycle challenges:

- Design for Reuse: an effort between R&D, Manufacturing and Recycling ---> Technological
- Recycling versus reuse: no value - or other value ---> Economical
- Life Cycle liability: an uncovered regulatory issue ---> Legislative
- Chain management: from conception to secondary application ---> Systematical

Safety measures, value creation, disassembling methods

# PROPOSED PROJECT: 2BCYCLED

## Description

Assess the *technological, regulatory and structural* requirements achieving a optimal battery life cycle, as well as the most appropriate technologies for end of life treatment (2nd life and recycling)

## Potential Actions

- Design for Recycling of EV batteries
- The development of a monitoring structure for batteries in end-of life phase
- Second life economic feasibility assessment
- Battery reconditioning for high-reuse (such as new traction battery)
- Battery reuse in new (2nd life) applications (such as stationary storage).
- Battery recycling for closing resource loops (mass balance Co, Ni, Li, Cu, plastics etc)
- Framing high voltage battery recycling technologies.

## Targets

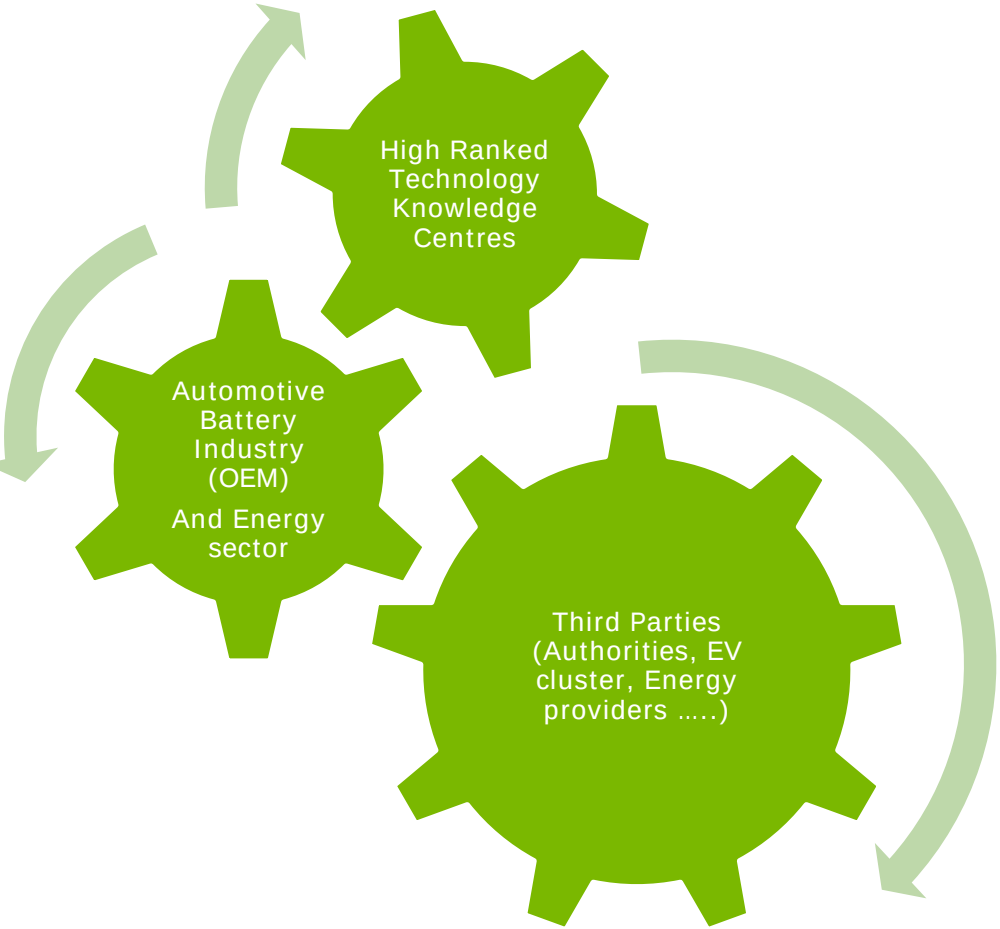
**Creating a safe and economical collection, handling and processing structure for EV batteries**

**Conducting research to investigate Reuse of EV batteries in a Community Energy Storage (CES)**

**Recycling of batteries**

# PROPOSED PROJECT: 2BCYCLED

## Potential Consortium Structure




## Expectations

- Examining mutual interests among potential consortium members, around secondary storage solutions
- Abilities to reach out to OEMs, recyclers and other EV battery stakeholders.
- Discussing funding possibilities for 2BCYCLED
- Creating a common understanding and strategy for 2BCYCLED
- Understanding Regional strategies for EV infrastructures