



CHALLENGE 2 **CIRCULAR ECONOMY OF TRANSPORT**



CHALLENGE STATEMENT

Design or manufacture solutions to reuse or recycle batteries and other vehicle components.

CHALLENGE DESCRIPTION

The circular economy offers a plethora of potential innovations to improve the sustainability of manufacturing and transport. Clean Futures aim to contribute to the circular economy in transport by reusing and recycling some of the biggest contributors to emissions today, which are rarely reused or recycled, especially batteries which represent 50% of the value of EVs today.

This means focusing on products known to be needed for clean transportation technologies and elevating them to a higher tier of energy conservation within the circular economy; reduce > rethink > reduce > reuse > repair > refurbish > remanufacture > repurpose > recycle > recover.

All solutions must consider their full lifecycle impact on emissions, financial viability, availability of components being reused or recycled, and demand for the new-life application. They should also have transferable learnings to identified additional opportunities beyond the circular material or product being tested or developed.

SOLUTION EXAMPLES

Solutions that address this challenge could include:

- New battery or other component designs which are more recyclable, or more easily disassembled: first life design with end-of-life kept in mind.
- Solutions to accelerate or reduce costs of testing used batteries and other components to grade them and enable them to be reused, and to know for which applications they are likely to be viable.
- Solutions to help recycle existing battery and other component designs, including the structure around battery cells including electronics beyond the life of the battery cells themselves.
- New natural, fibre-based composite systems designed with end-of-life in mind.
- Reduction in the need for primary sourcing of materials.
- Solutions to recover and reuse fibre reinforcements, taking fiberglass or plastic systems used for reinforcement to reuse as part of a first-life application.
- Solutions to directly redeploy vehicle systems or sub-systems, with as little additional transformation as possible.
- Recycling or redeploying other components of vehicles which have a significant impact on emissions, and are not currently widely recycled or reused.