WELCOME
TO THE

BENELUX CIRCULAR ECONOMY BUSINESS FORUM

4 October 2022

Benelux

CHAMBER OF COMMERCE LUXEMBOURG

enterprise europe network
Business Support on Your Doorstep

Lets GO Circular

BETRIBER &EMWELT
ENTREPRISES &ENVIRONNEMENT

Groß — Grande REGION
Französische Präsidentschaft
Présidence française
2021 — 2022

Thematic Workshop N°1:

Circular economy in the industry sector: Tools and methods to meet the challenges of the industry sector towards circular economy

Mr Rafael Jaimes Contreras

Head of Circular Economy Unit,
Cluster MecaTech (BE)

Mr Lionel Scaloni

Managing Partner,
General Technic (LU)

Ms Stéphanie Sauce

Marketing Manager,
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MECATECH CLUSTER
WALLOON COMPETITIVENESS CLUSTER IN MECHANICAL ENGINEERING

Avec le soutien de la Wallonie

Benelux Circular Economy Business Forum

Luxembourg

Cluster MECATECH
Rafael Jaimes Contreras
Head of Circular Economy Unit

04 October 2022

CIRCULAR WALLONIA

Stratégie pilotée par le Ministre Borsus et co-pilotée par les Ministres Morreale et Tellier

Cellule de coordination :
Direction du Développement durable (SG) –
Direction de la Politique économique (SPW EER)

CHAINES DE VALEUR PRIORITAIRES – **Coordinateurs**

Wallonie service public SPW

CONSTRUCTION

PLASTIQUES

TEXTILES

ALIMENTATION

EAU

MÉTALLURGIE

GREEN WIN FROM INNOVATION TO BUSINESS

CENTEXBEL

wagralim APPETITE FOR INNOVATION

SPGE Société Publique de Gestion de l'Eau

PÔLE MECATECH LE PÔLE DE COMPÉTITIVITÉ WALLON EN GÉNIE MÉCANIQUE

Biosourcé

ValBiom valorisation de la biomasse asbl

Wallonie service public SPW

CIRCULAR WALLONIA

Pôle MecaTech – Mission

Create **jobs** and boost **economic activity**

Act as a driving force for the Walloon Mechanical Engineering sector; contribute to the re-industrialization of the Region.

by **setting-up and implementing innovative projects** with an international dimension, combining large corporations, SMEs, universities, research and competence centers.

Key Figures

147 financed projects since 2007

232M € total project budget & **147M €** representing subsidies

370 members

of which

243 companies

+ 7.494 jobs created

Main Application Domains

PÔLE MECATECH
LE PÔLE DE COMPÉTITIVITÉ WALLON EN GÉNIE MÉCANIQUE

MEDTECH

ENERGY

DIGITAL

DEFENSE

CIRCULAR ECONOMY

Metallurgy value chain:

- A Roadmap for Walloon's Metallurgy and Battery Value Chain
- Monitoring and evaluation of the relevant indicators defined by the roadmap,
- The annual update of the roadmap,
- The quality and the efforts to animate the network of companies, research centres, universities, etc.
- The collaborations carried out at the Walloon, Belgian and European levels,

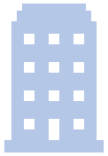
Metallurgy and Batteries ecosystem

1113 establishments based in Wallonia, in the metallurgy sector

14,8 (% total of goods againts)

23 075
employees

Of which…



80% sme's <20 employees

447
self-employed

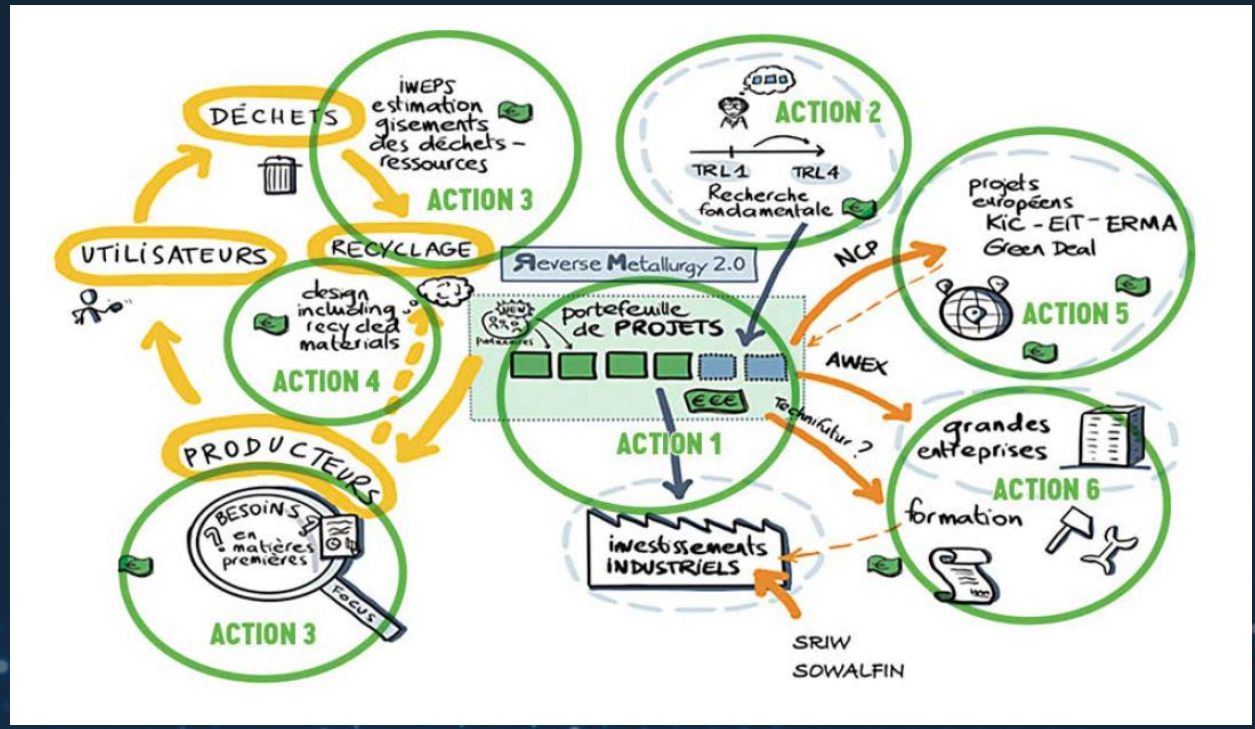
MECATECH CLUSTER
WALLOON COMPETITIVENESS CLUSTER IN MECHANICAL ENGINEERING

Avec le soutien de la Wallonie

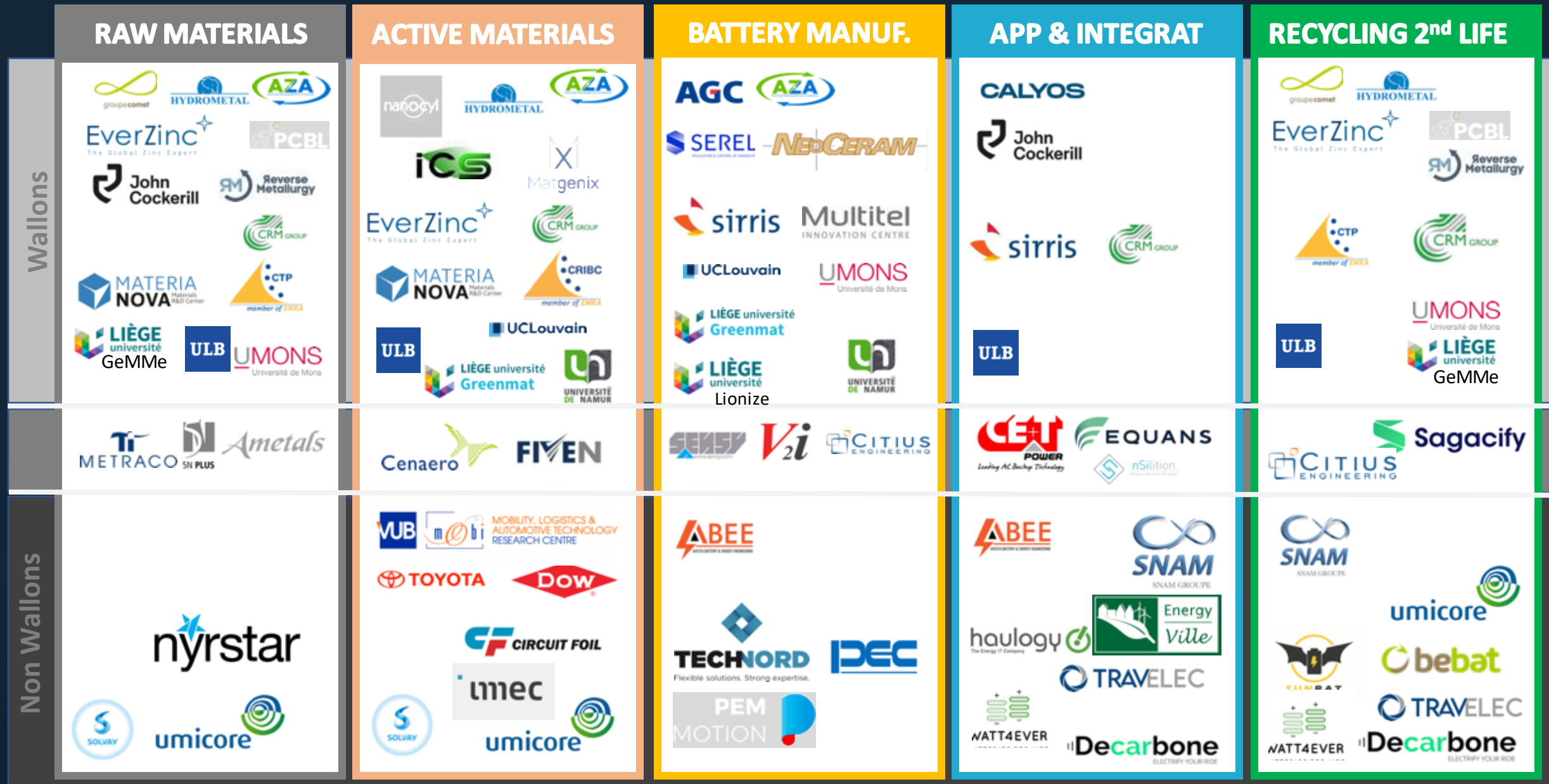
Sources : ONSS - statistiques décentralisées juin 2019 et INASTI 2019, calculs le Forem

Roadmap for Walloon's Metallurgy and Battery Value Chain

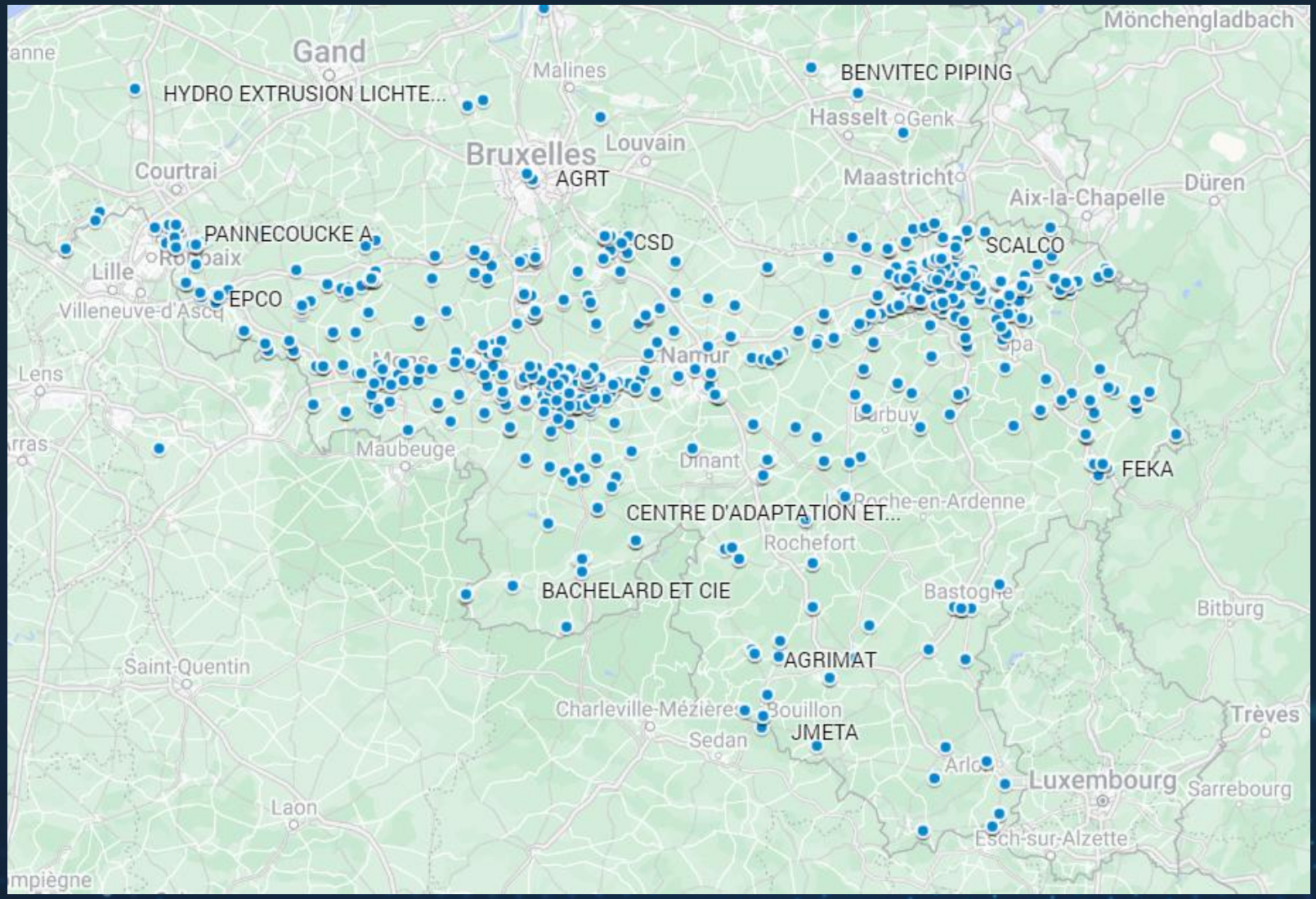
1. Creating a portfolio of collaborative innovation projects
2. Stimulating research into the circular economy of metals
3. Mapping resources and needs
4. Circular design and eco-design
5. Capturing European funding
6. Creating value in Wallonia by enhancing its innovation capital and geographical position



Roadmap for Walloon's Metallurgy and Battery Value Chain



Roadmap for Walloon's Metallurgy and Battery Value Chain

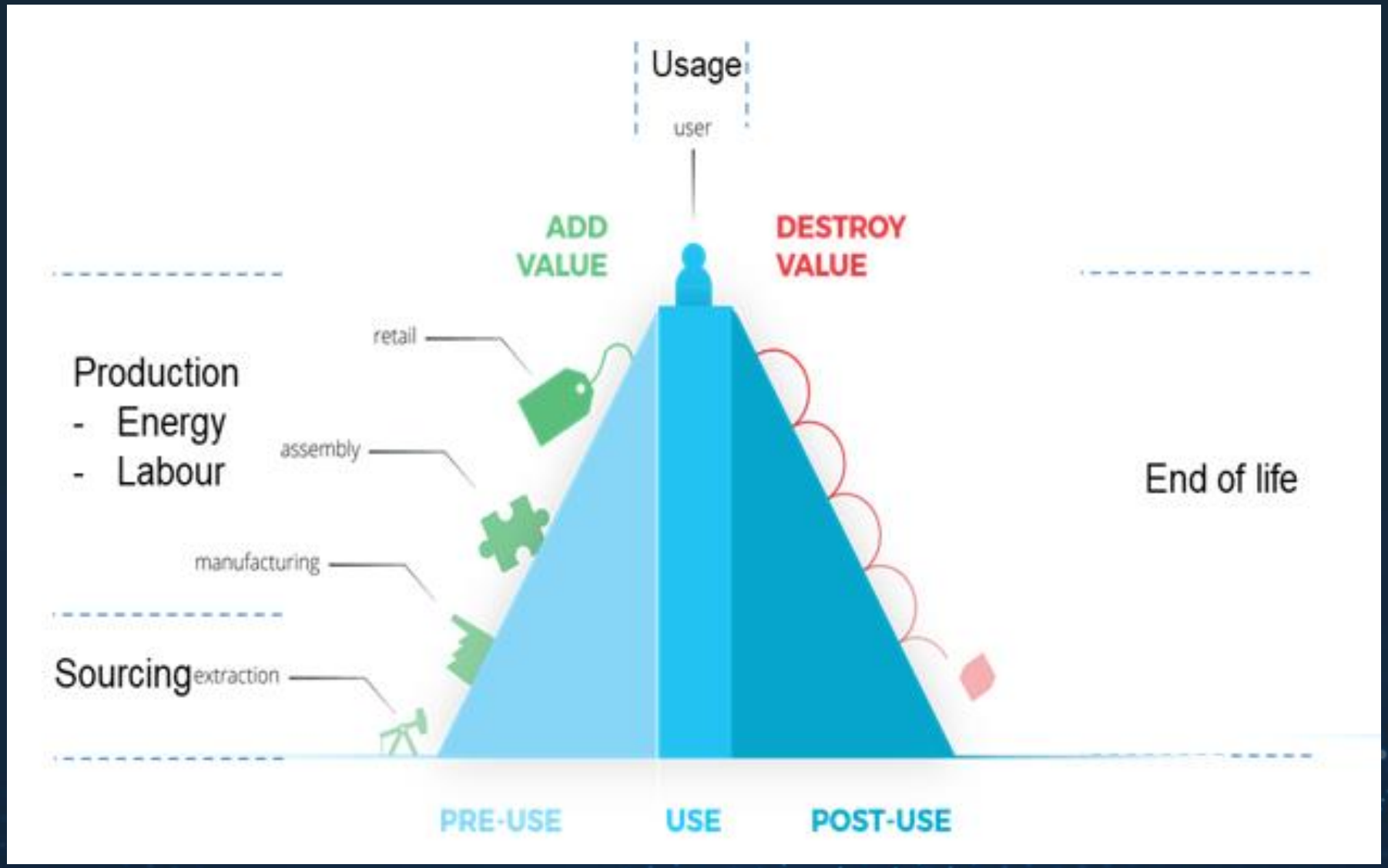


Circo Hub?

Point de contact unique du programme Circo

Circo Hub Wallonie

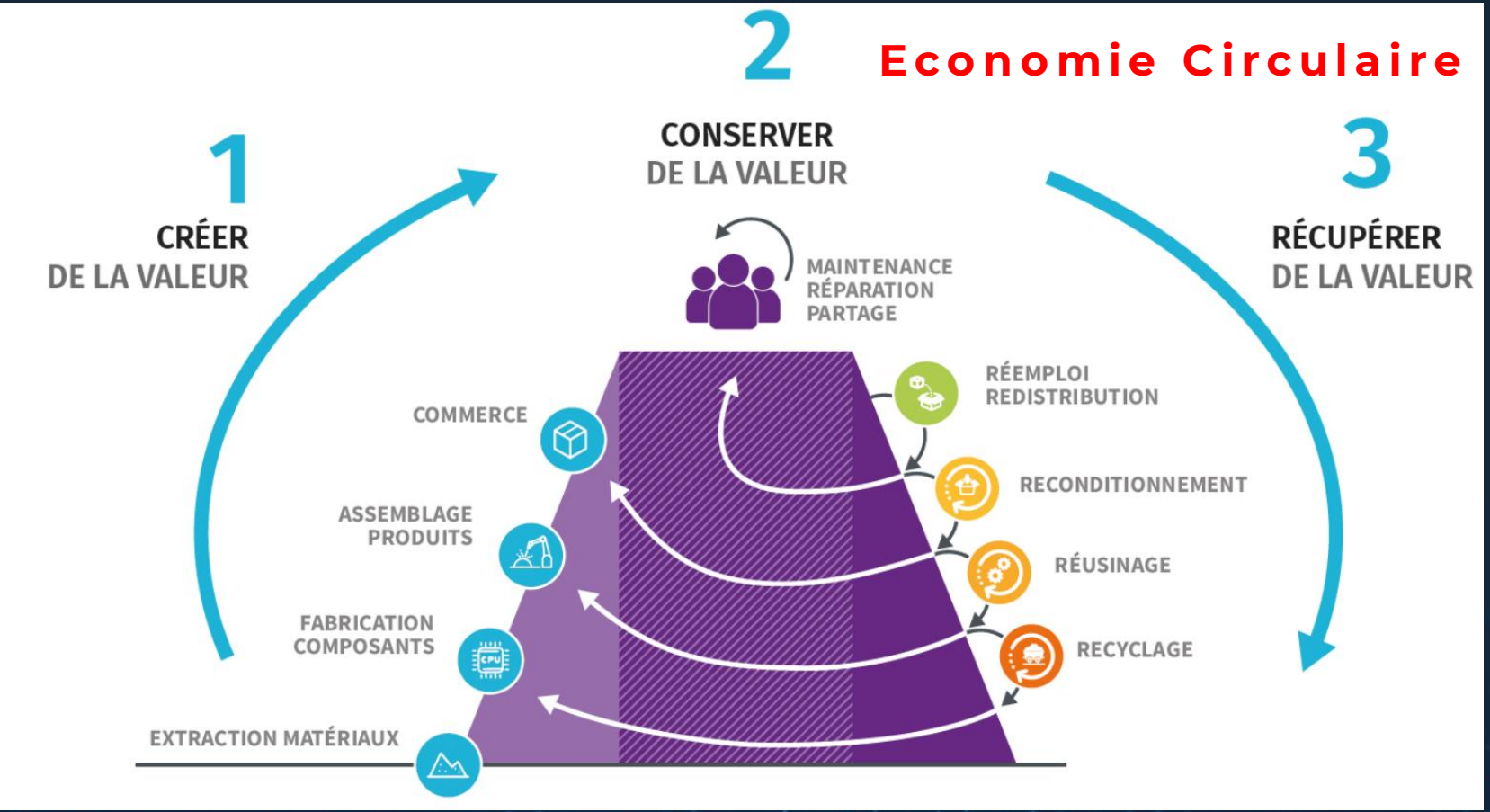
From Linear business model…



… to a Circular business model

Economie Circulaire 3.0: Récupère la Valeur

- Fidélité et confiance
- Durabilité
- Normalisation et compatibilité
- Facilité d'entretien et de réparation
- Mise à niveau et adaptabilité
- Démontage et remontage

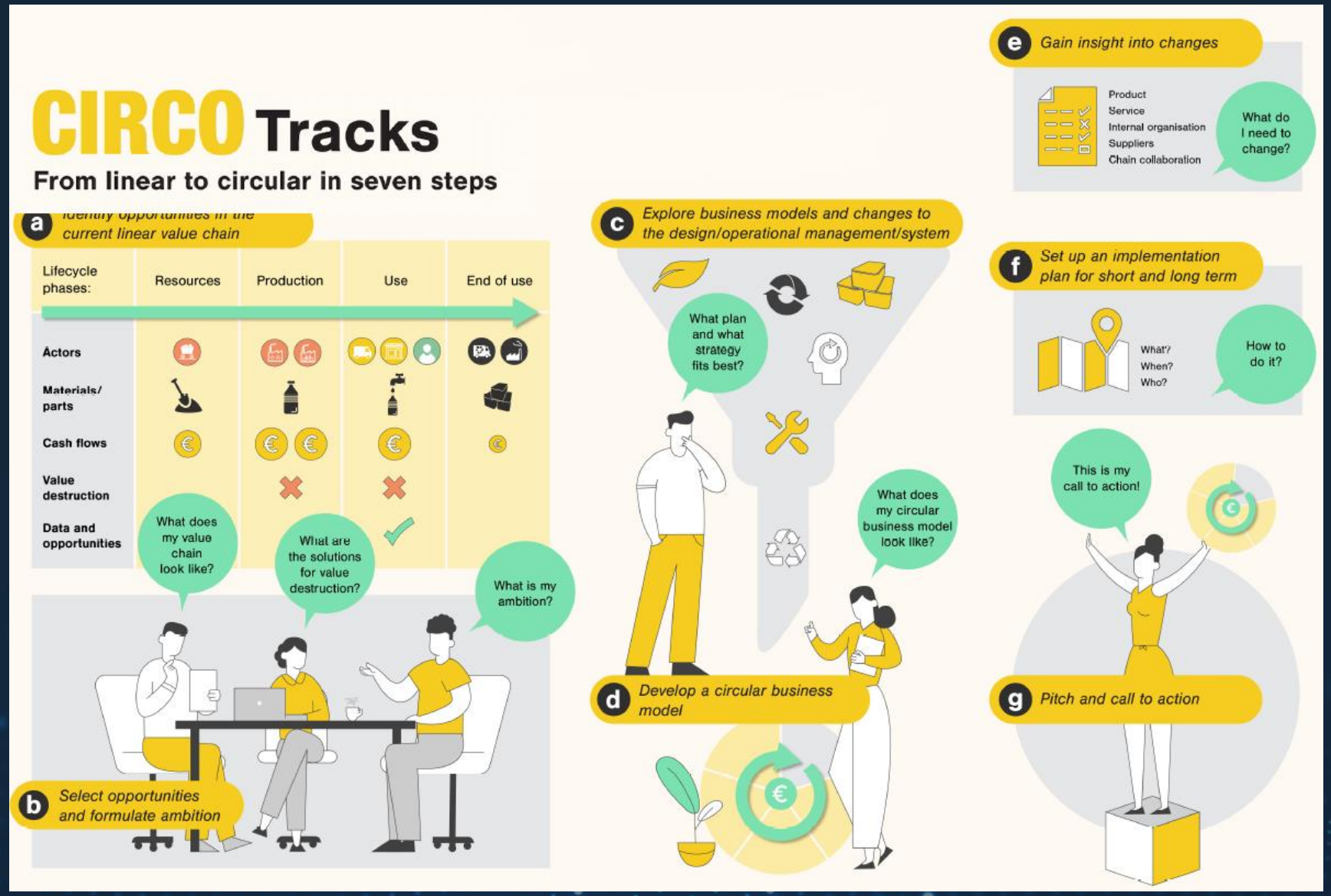


Le Track?

7 étapes

3 Workshops

- Cours
- Traitement du cas
- Interaction



Circular Wallonia Days

MATERIALS AND METALS IN A CROSS-BORDER ECONOMY

16TH - 18TH NOVEMBER 2022

16

REVERSE METALLURGY IN THE SPOTLIGHT

Conference & walking dinner
Where? Hotel Dolce · La Hulpe
When? 5:30 – 10:00 PM

17

COMPANY VISITS IN WALLONIA

A day dedicated to the discovery of companies, of Walloon and European projects
Places and timing to be confirmed

18

MATERIALS AND METALS IN A CROSS-BORDER ECONOMY

Circular Wallonia conference with ministers, industry leaders and experts & walking lunch
Where? Cercle du Lac · Louvain-la-Neuve
When? 9:00 AM – 02:00 PM

ORGANIZED BY

PÔLE MECATECH · CIRCULAR WALLONIA · Wallonie

WITH THE SUPPORT OF

LIÈGE université · Reverse Metallurgy · elt Manufacturing · elt RawMaterials · Wallonia.be EXPORT INVESTMENT · Wallonie - Bruxelles International.be · ncp

Contact

Le Pôle Mecatech rapporte régulièrement les activités réalisées dans le cadre de Circo Hub Wallonia, auprès du cabinet du Ministre de l'Economie et du SPW EER/DPE

rafael.jaimes-contreras@polemecatech.be

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eit InnoEnergy

Funded by the European Union

Accelerating sustainable energy innovations

Circular economy in the industry sector

Ramses Villa – Investment Manager

4th Oct 2022

Who we are

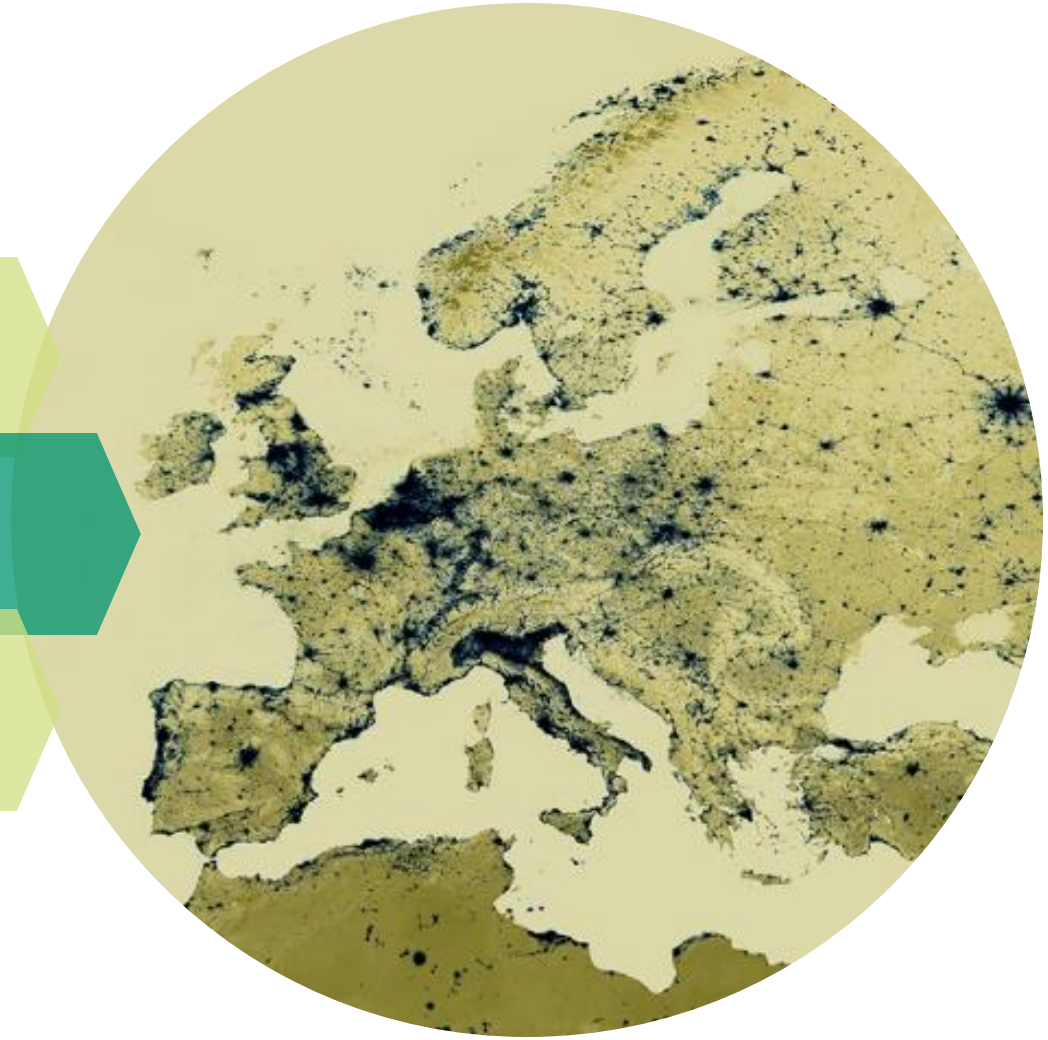
Europe's engine for innovation in sustainable energy

Empowering every stage of the innovation process

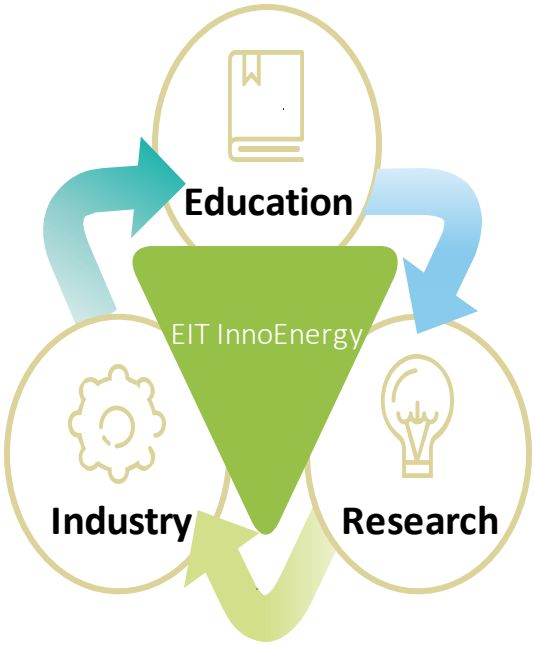
Investing in people, technologies, businesses

Established 2010: supported by the EIT

Public-private partnership aiming for financial sustainability



Knowledge Triangle



Our goal: accelerate the energy transition

- **Ensure security and safety of supply**
- **Reduce costs in the energy value chain**
- **Reduce CO_2 emissions**
- **Improve European competitiveness**
- **Remove barriers to innovation**
- **Encourage sustainable growth**
- **Create jobs**

Thematic fields and technology focus

Energy for Circular Economy

Energy storage

Energy efficiency

Energy for Transport and Mobility

Renewable energies

Smart and efficient buildings and cities

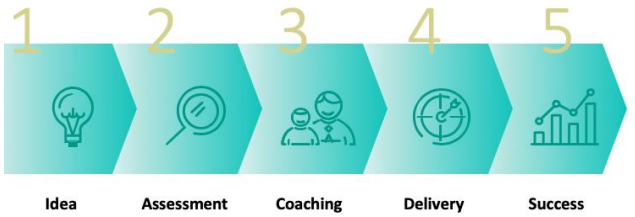
Smart electric grid


+200 VENTURE IN OUR PORTFOLIO

Connecting entrepreneurs and start-ups to markets and customers

Tailored business support

- Product: potential, development, pilot, launch
- Market: opportunities, positioning, modelling, planning
- People: capabilities, training, support, mentoring
- Finance: seed money, VCs, angels, equity



FlexiDAO

Enabling a new decentralised, green energy world

Netherlands / Spain

Renewable energy

C-Green

Converting sludge into clean biofuel

Sweden

Energy for circular economy

Elestor

The large scale storage solution

Netherlands

Energy storage

Viable technologies, sustainable businesses, entrepreneurial spirit


Circular Economy
Industry decarbonization

Why circular economy?

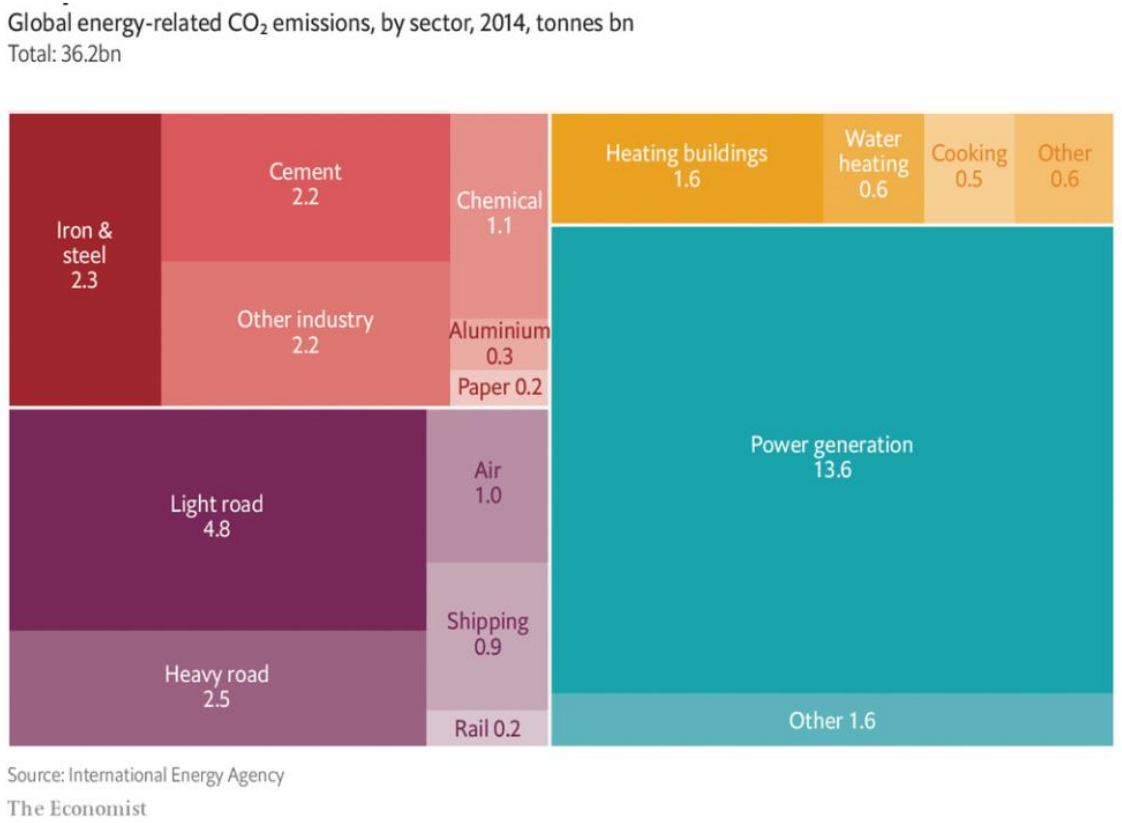
Electrification is already underway with the increased renewable penetration (wind, solar and storage) driven by falling cost and supportive policies to reduce fossil fuels and CO2 emissions.

Industrial CO2 emission, so far, has focused on the **supply-side:** reducing emissions from the production of steel, cement, chemicals, etc.

Far less attention has been given on the **demand-side**: how a more circular economy can reduce emissions by use-and-reuse materials that already exits.

Hard-to-abate industry CO2 emissions:

8,3 bn tonnes (23%)



Electrification (Power and light road) CO_2 emissions:

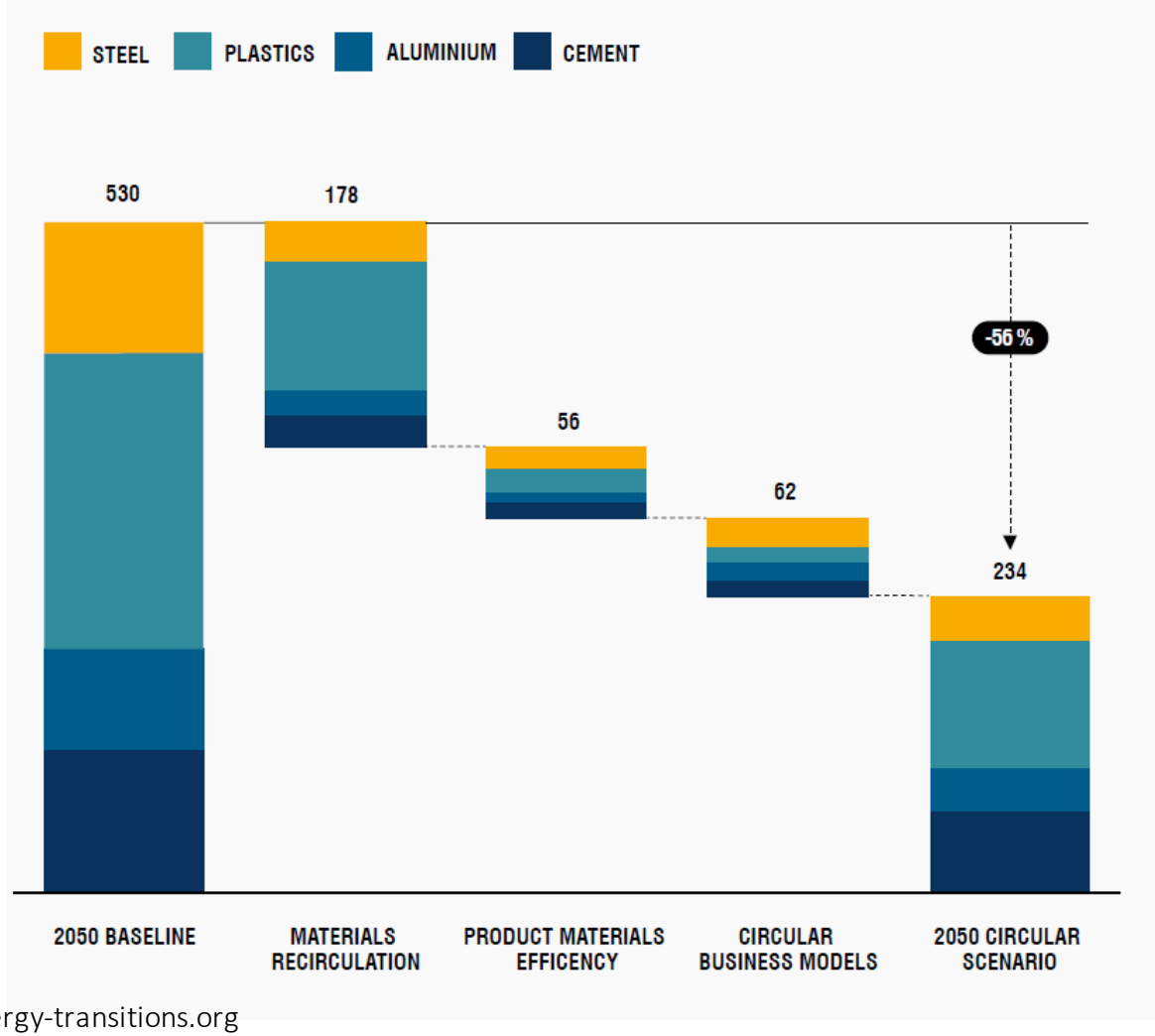
18,4 bn tonnes

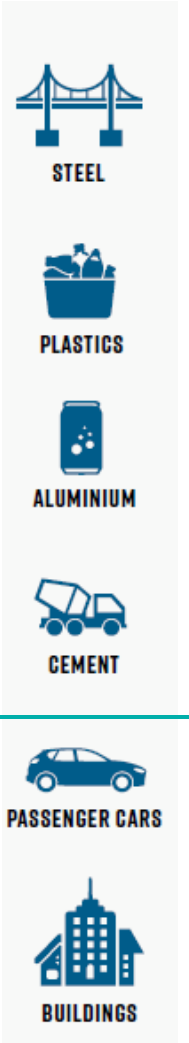
(50%)

EU Abatement opportunities

EU EMISSIONS REDUCTIONS POTENTIAL FROM A MORE CIRCULAR ECONOMY, 2050

Million tons OF CARBON DIOXIDE PER YEAR





Value Chain
&
Business Model
Innovation

Source: energy-transitions.org

Circularity Innovation – Innoenergy investment focus

EIT InnoEnergy Knowledge Innovation Community
EIT InnoEnergy is supported by the EIT, a body of the European Union

Energy for Circular Economy

Bioeconomy

- Solid biomass
- Biogas & bio-SNG
- Biofuels

Waste solutions

- Waste-to-energy
- Waste-to-fuels
- Recycling and materials recovery

Power-to-X

- Power-to-hydrogen / gas / liquids
- Power-to-heat
- Carbon capture storage and utilization (CCSU)

Circular materials

ecobean, RETEX PANELS

Biowaste streams

MEVA ENERGY, NAŌDEN

Waste-to-Fuels

C-GREEN, etgas

Recycling in renewables

Reciclalia, ROSI

Power-to-X

hps, LUMENION

Digital circularity

inex, POLY POLY

Waste heat valorisation

HeatVentors, ETC

e-Fuels

CAPHENIA, Liquid Wind

Carbon valorisation

Carbon Upcycling, ARBOREA

C-Green provides HTC technology for converting wet biowaste into dry and solid bio-coal

Use case: pulp mill`s sludge conversion into biofuel, which will be used as electricity in the mill and district heating in the nearby town Heinola, Finland

OxyPower HTC™

Key features:

- Sludge capacity: 25,000 tons/year
- Biocoal capacity: 5,000 tons/year
- Low OPEX
- Low CAPEX - Easy to deploy, operate and maintain
- Uses the chemical energy in the sludge – no external heat needed.
- Facilitates the recovery of nitrogen (N) and phosphorus (P)
- Reduces transportation costs and emissions by handling sludge on-site.

Patented hydrothermal carbonization (HTC) and wet oxidation technology sold in pre-manufactured container-size modules.

EcoBean is the first bio-refinery that will fully process spent coffee grounds into valuable products leaving no waste behind

Source: EcoBean

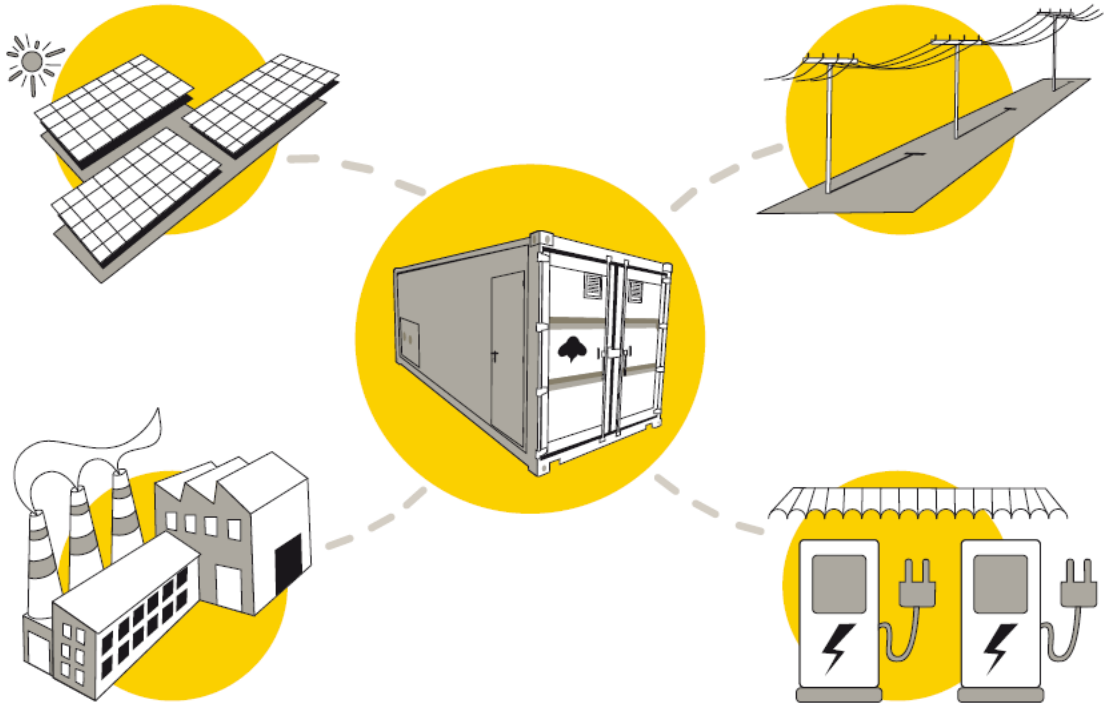
At BeePlanet Factory we integrate management of second-life batteries from electric vehicles following the principles of the circular economy

SUSTAINABILITY AND DECARBONIZATION

One **BeePlanet Factory** battery reduces CO2 emissions into the atmosphere by up to 70%, compared to a new battery. Also, it does not consume new raw materials, including such complex and limited materials as lithium, nickel, cobalt, copper and aluminum. In addition, they are housed in reused second-hand maritime containers.

HIGH PERFORMANCE

We reuse the highest-quality resources: lithium-ion batteries from the automotive industry. We group them into replaceable units so that there is no end date on this second useful life.



CHALLENGES AND OPPORTUNITIES:

- ✓Policy: industrial roadmap should include Circularity
- ✓Better CO2 pricing / ETS
- ✓Investment in innovation and R&D
- ✓New Business models (Circularity-as-a-Service, Mobility)
- ✓Digitalization of the supply-chain (CO2 tracking, industry value chain footprint)
- ✓Enabling technologies (blockchain, AI, robots)
- ✓Demand-side opportunities (recirculation and efficiency of materials)

Thank you, any questions?

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EIT InnoEnergy is supported by the EIT, a body of the European Union

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