Second Life EV Batteries

Second life: repurposing of lithium-ion Electric Vehicle Batteries

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In this video you will learn:

- What is end of life management of EV batteries
- How to move towards circularity in EV batteries
- The basics of repurposing EV batteries

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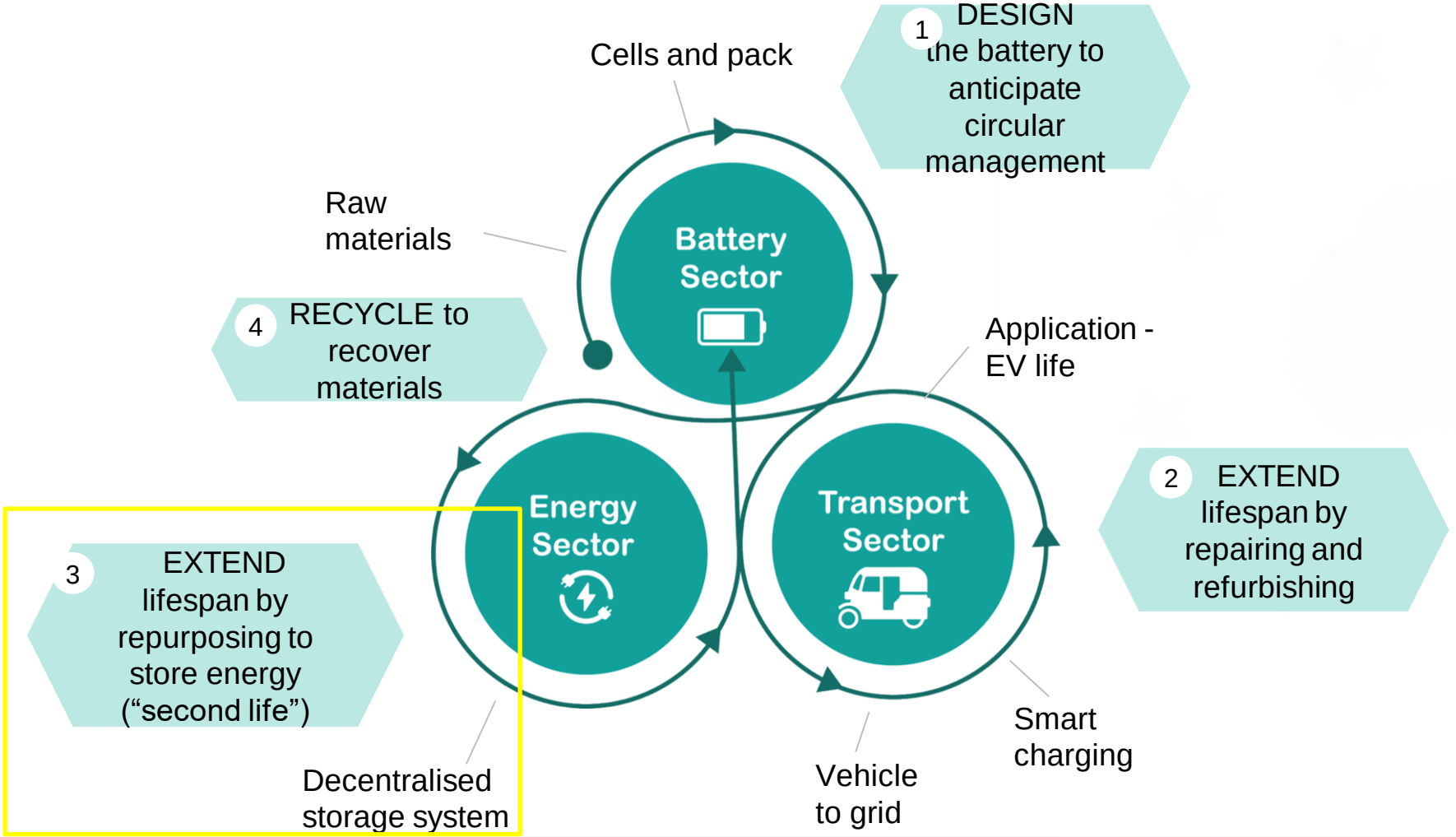
End-of-life management of EV batteries

- Li-ion battery to dominate the electric vehicle market for the next 10 years
- 100-120 GWh of EV batteries retired by 2030, comparable to current annual battery production (IEA, 2020)
- Policies and practices so far focussed on other types of e-waste and lead-acid batteries

Need for a circular management of batteries

Vital to make the best use of refurbishing, repurposing, and recycling options

Towards Circularity



(Authors, adapted from World Economic Forum/GBA, 2019)

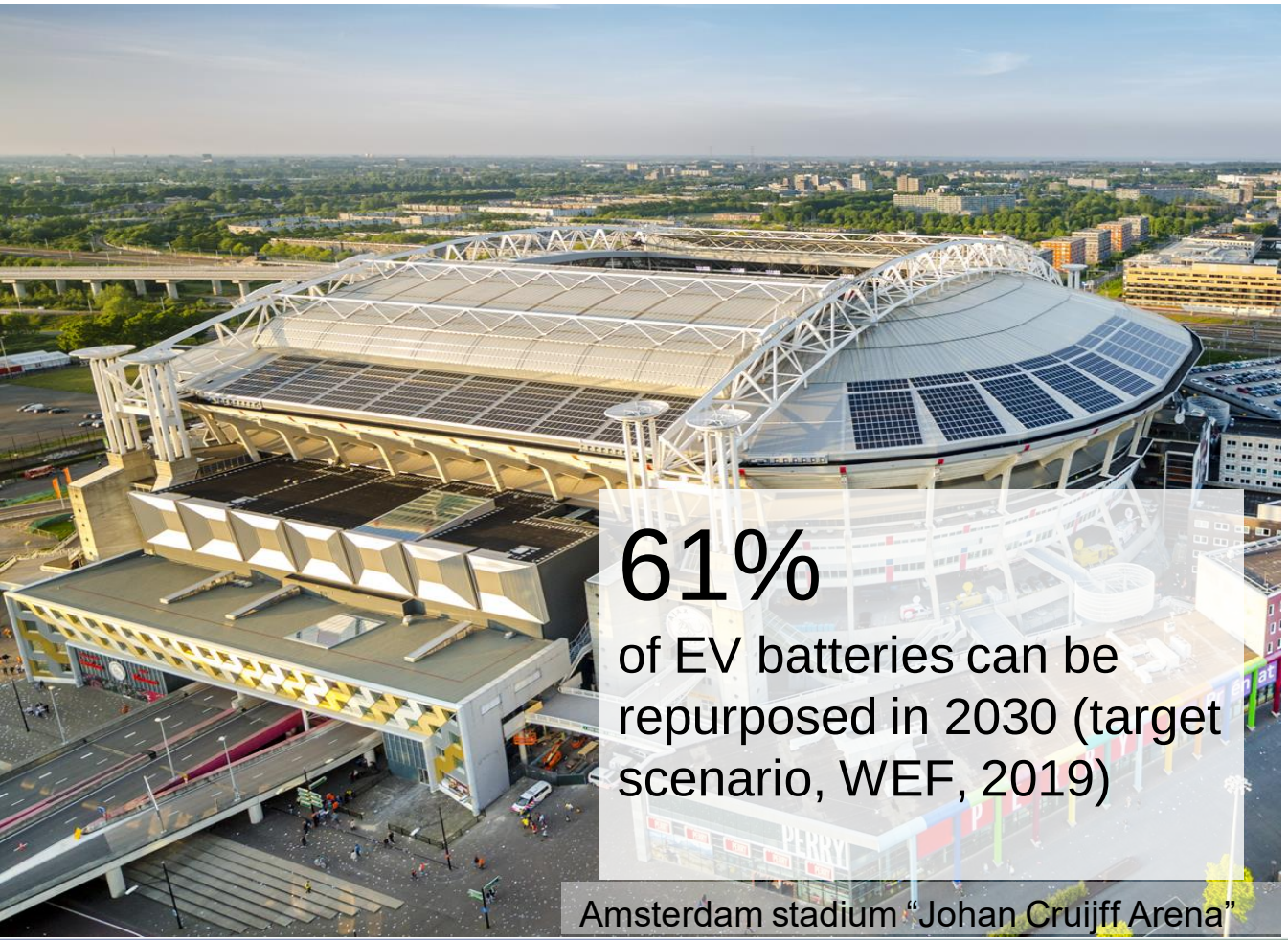
Repurposing

Portland General Electric, 2013

Second life as energy storage systems (ESS)

- Grid support and management
- Storage and integration of renewables
- Power back-up
- Decentralized energy solutions

Repurposing



Amsterdam stadium "Johan Cruijff Arena"

Environmental gains

- Postponing recycling
- Substitute to new ESS

Economic gains

- Discount on EV battery costs
- Reducing the costs of ESS
- Employment opportunities
- New business models

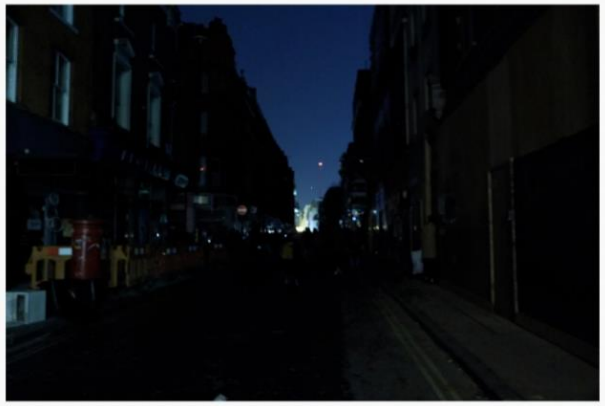
Challenges and answers

	Lack of data	Safety & liability	Economics
Challenges			
Possible answers	- A “**battery passport**” displaying and sharing information on origin, chemistry, SoH - Supporting **business models** with close monitoring of the battery’s first life performance - Foster **exchange of data**	- Technical performance **standards**, safety norms, certification - **International dialogue** on product design, technical specifications, harmonization of transport rules - **Legal clarification** of liability	- **Demonstration projects** and disseminated data - Decreasing repurposing costs: streamlining, regional integration, **economies of scale** - Maximize **battery collection rates** - Improving economics of renewable energies
Instruments	Regulatory & legal, institutional, financial, demonstration actions, R&D, communication		

E2Ws in sub-Saharan Africa: enabling conditions

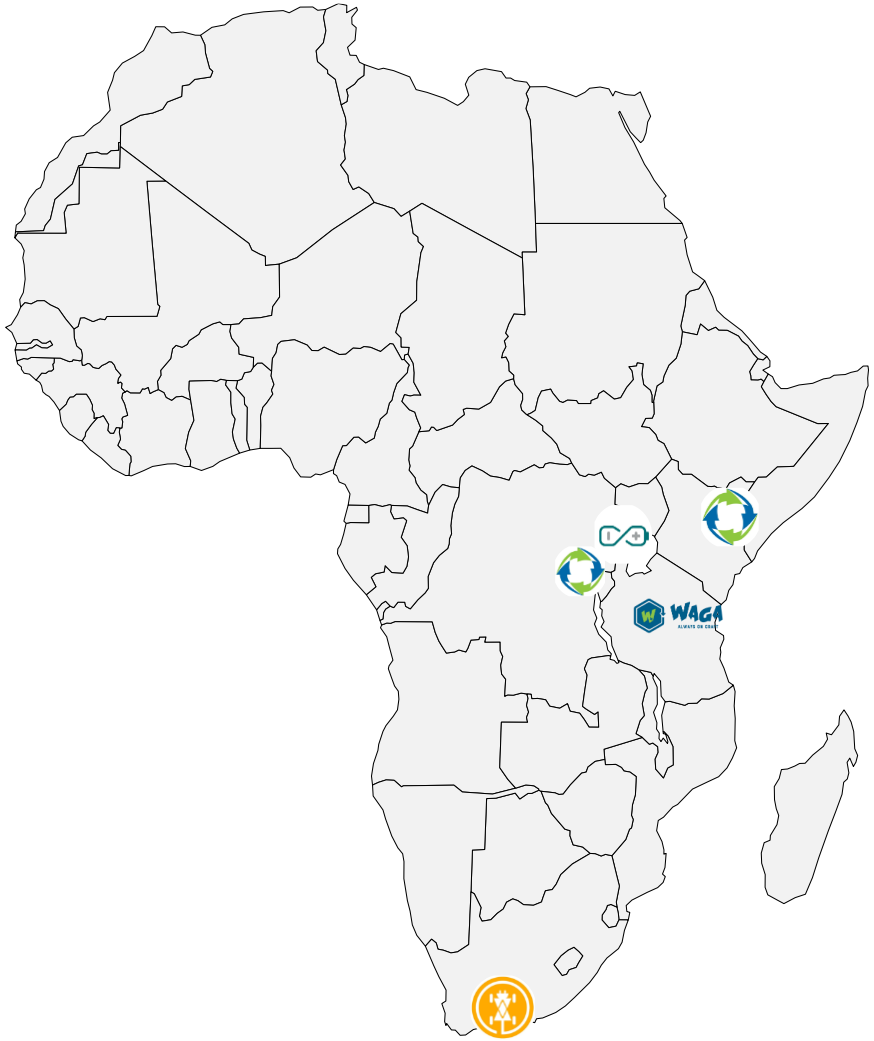
Battery-as-a-Service model for electric two-wheelers

Easier conditions for sustainable End-of-Life management



Energy Storage Systems to address power cuts and integrate renewables

Some examples of Innovative companies



SLS Energy
Energy storage-as-a-service using repurposed battery cells for telecom operators

Enviroserve
Entire supply chain from collecting up to recycling
Partnered with AMPERSAND

uYilo
National e-mobility programme with technical facilities for accredited battery testing, working on 2nd life

WAGA
Re-using li-ion batteries and producing durable and affordable battery packs

And leverage on the experience from numerous other organisations working on e-waste, such as WEEE Center, Bodawerk, M-Kopa, WeTu

Regional Needs

↗ Develop local value chains in Africa
↗ Huge opportunity of Second life EV batteries in Africa cost-wise

Technical challenges

- Supply of EV batteries
- Data, safety & liability

Financial challenges

- Business model
- Awareness raising with potential customers

Pathways toward improvement

- Various forms of collaborative approaches
- Regulatory leverage
- Investments
- Capacity building & awareness raising

THANK YOU

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