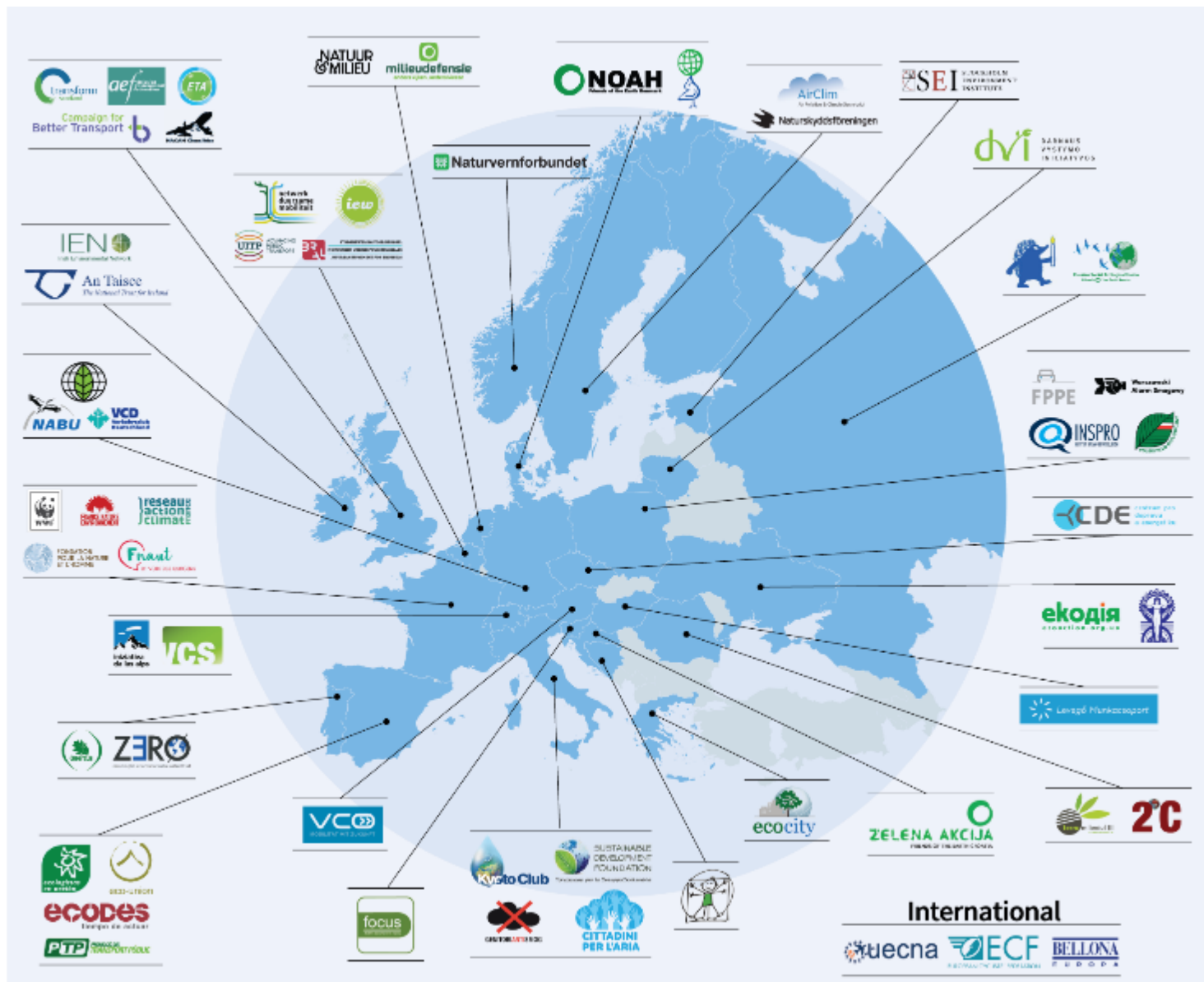


ELECTRIC VEHICLES INTEGRATION INTO THE GRIDS

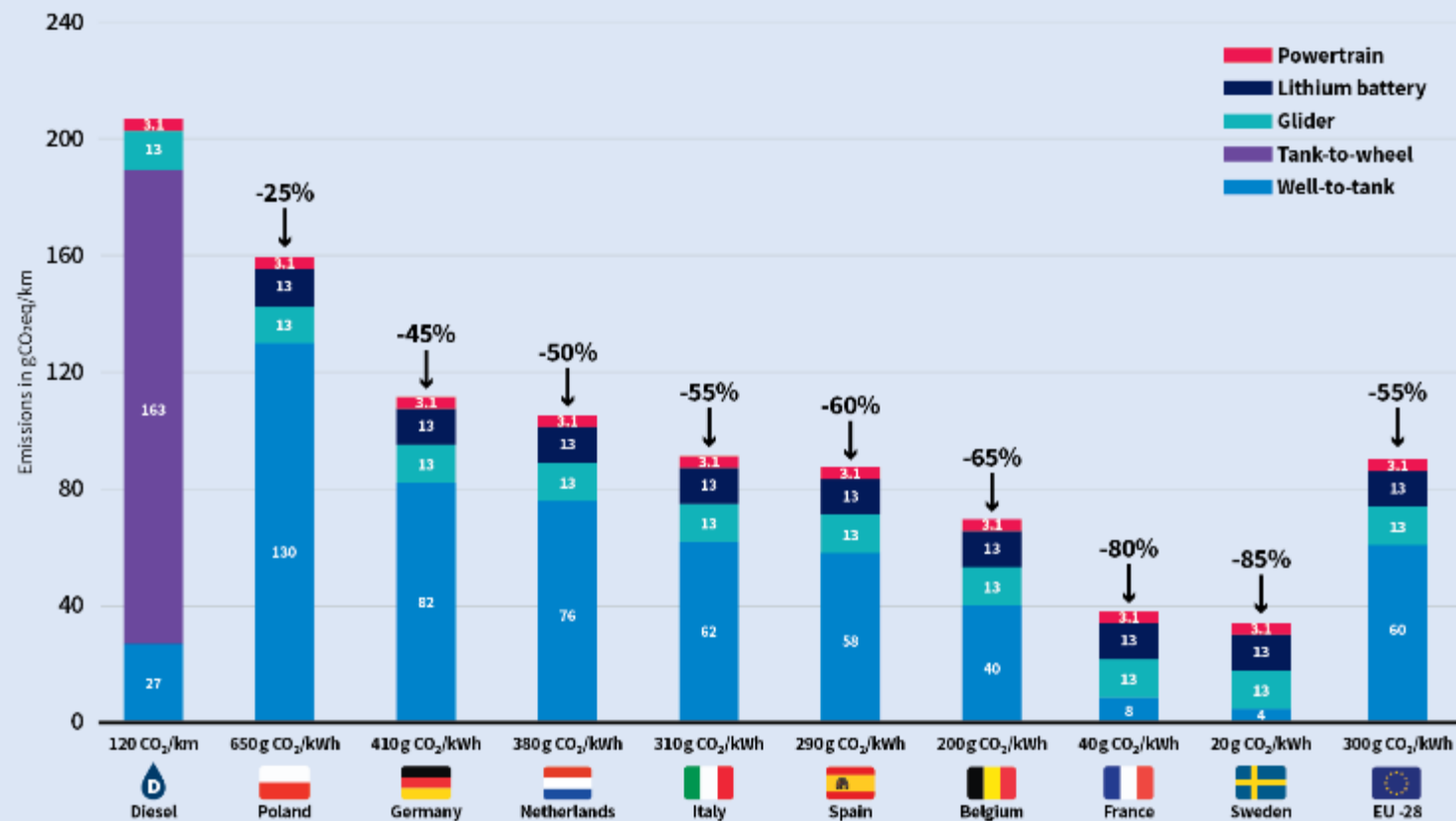
**JULIA POLISCANOVA
CLEAN VEHICLES MANAGER, TRANSPORT & ENVIRONMENT
28 JUNE 2019**

T&E: GREEN THINK-TANK WITH OVER 50 GROUPS



BATTERY ELECTRIC CARS BETTER ON LIFECYCLE, EVEN IN CARBON INTENSIVE COUNTRIES

Electric vehicles' climate impact in different energy mixes

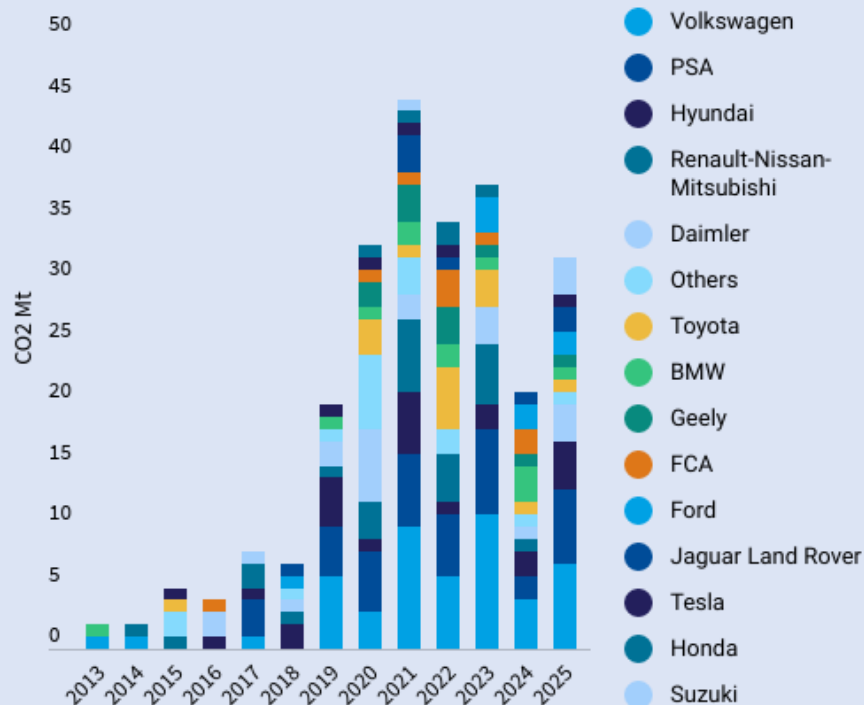




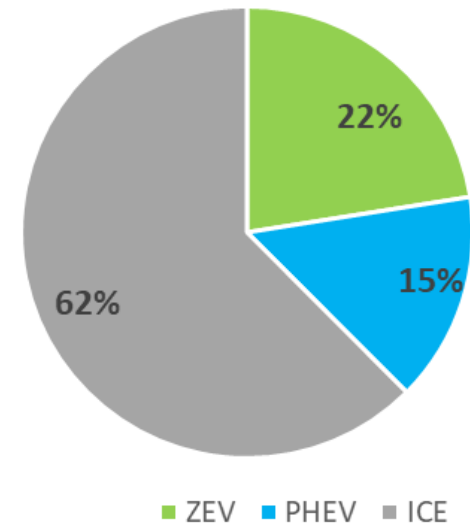
EV - BATTERIES ON WHEELS

EV'S ARE COMING: UP TO 40% OF NEW SALES IN 2030

New BEV models in Europe: steep increase

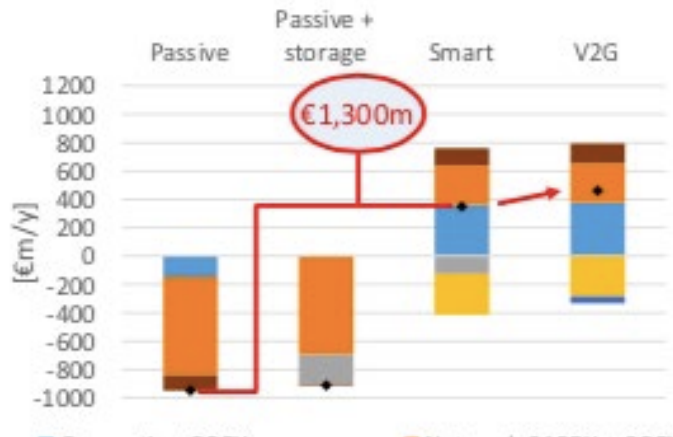


Source: T&E analysis of IHS Markit dataset (2019)



SMART EV CHARGING SAVES EUR 1.3 BLN IN GRID COSTS

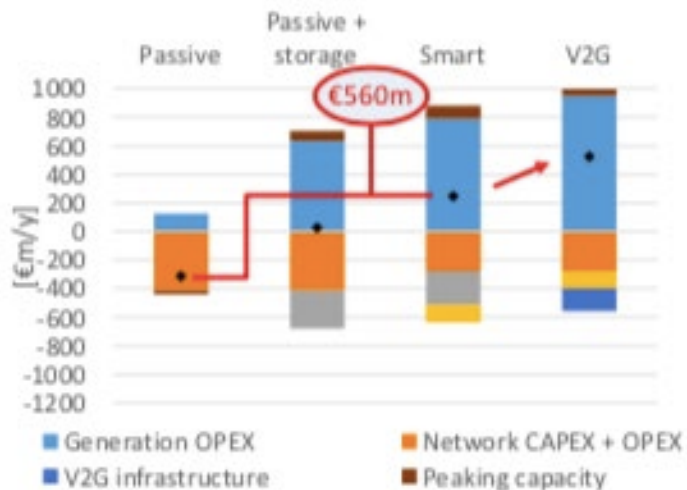
Costs & benefits UK rel. to ENTSO-E baseline



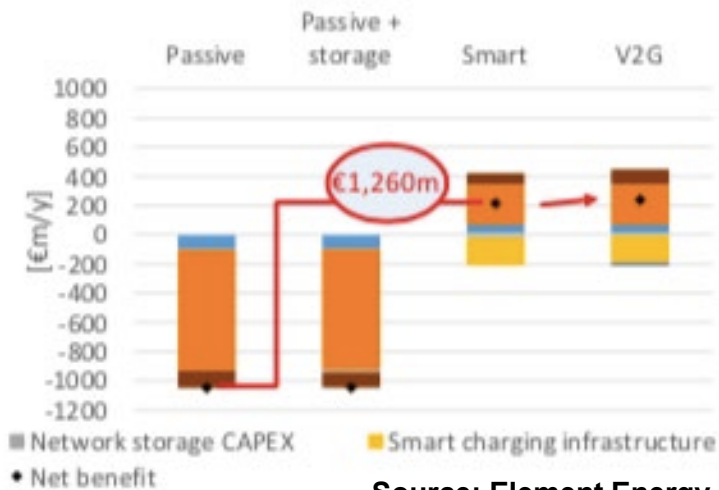
Costs & benefits FR rel. to ENTSO-E baseline



Costs & benefits ES rel. to ENTSO-E baseline



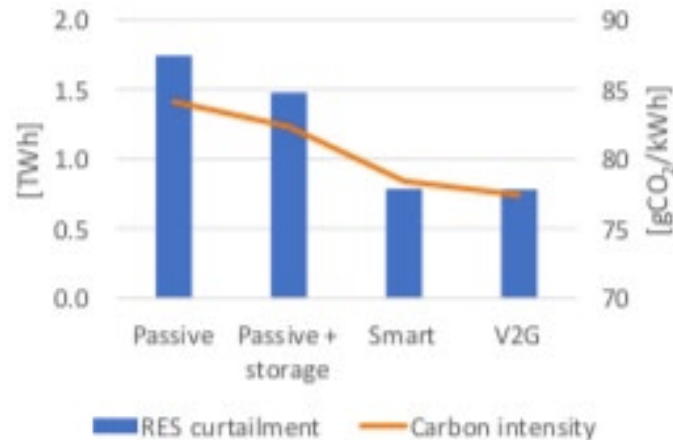
Costs & benefits IT rel. to ENTSO-E baseline



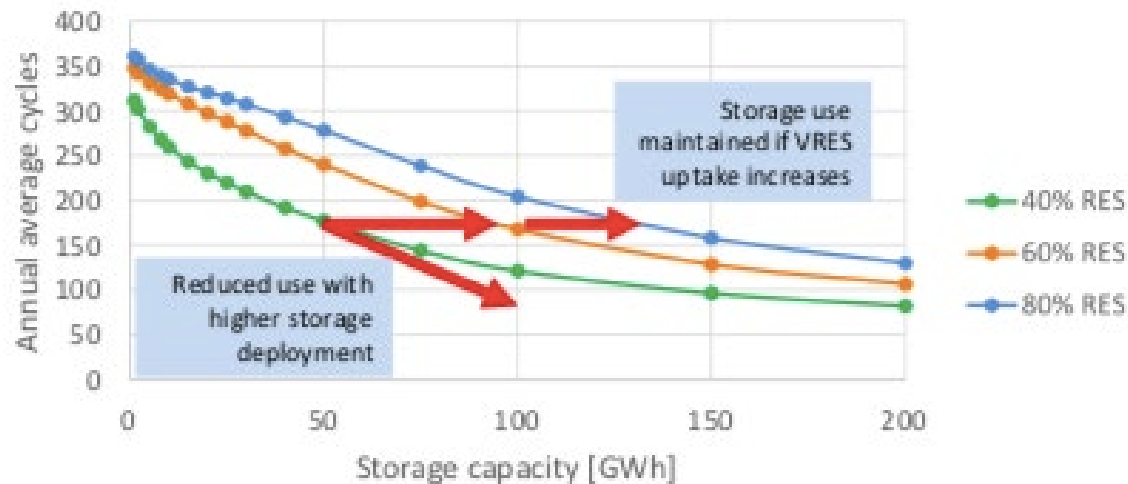
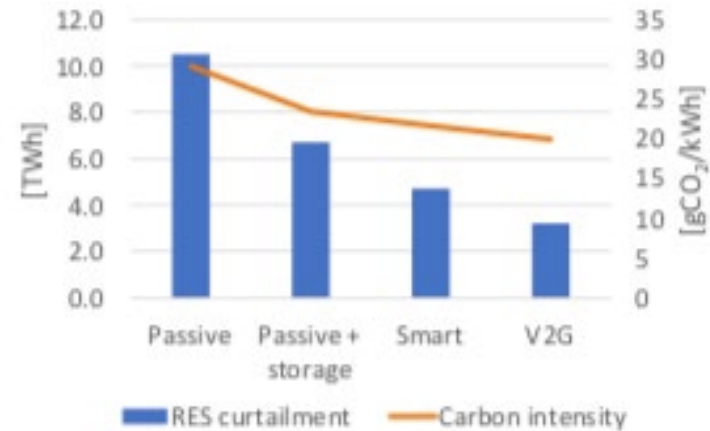
Source: Element Energy

EV'S WILL HELP INTEGRATE MORE RENEWABLES

Curtailment and carbon intensity UK



Curtailment and carbon intensity Spain

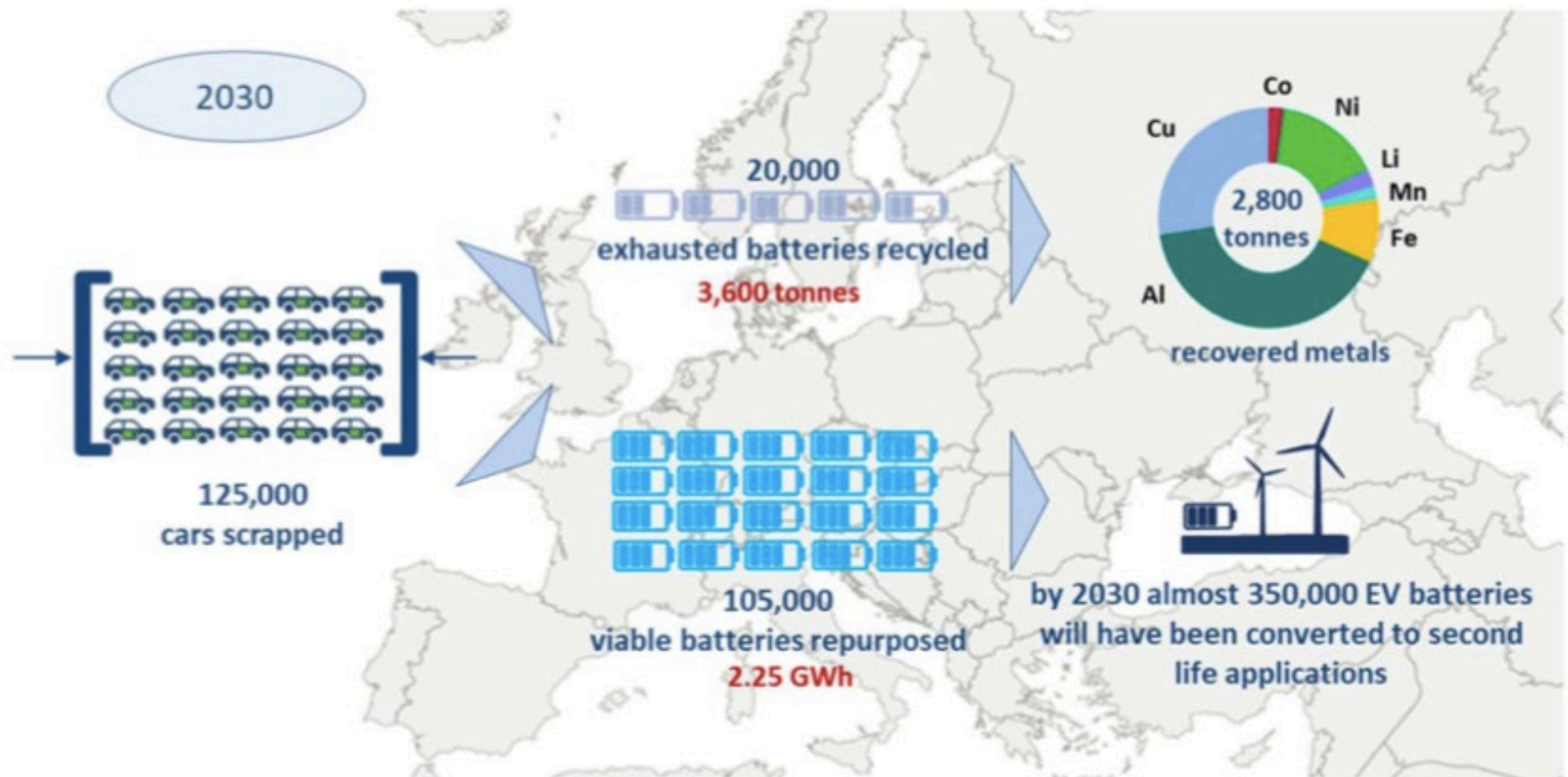


Source: Element Energy



EV END-OF LIFE

T&E BATTERY STUDY ON REUSE & RECYCLING



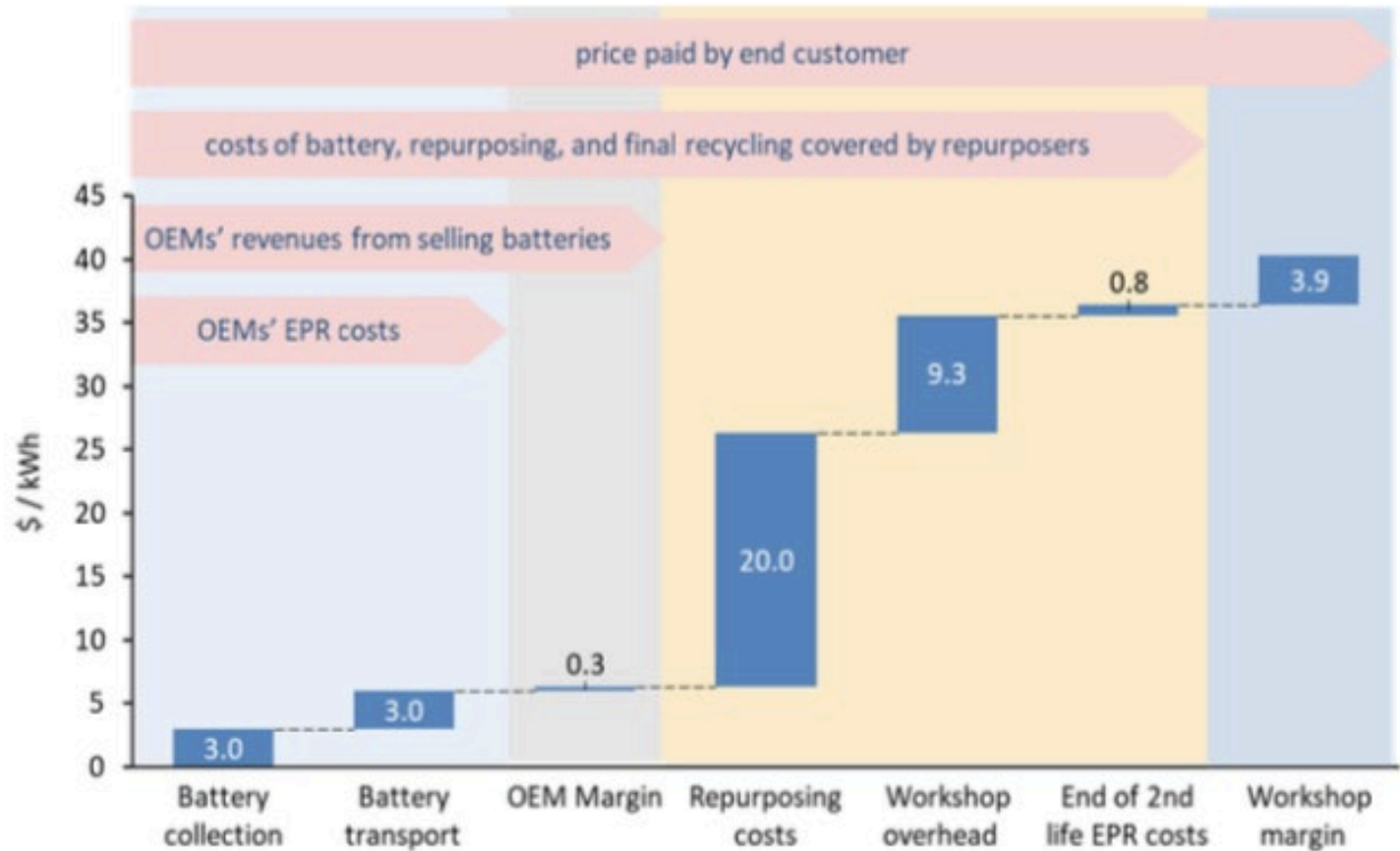
Source: Element Energy

2ND LIFE APPLICATIONS: ECONOMICS IS THERE

42% cost saving

OEMs extra
revenue

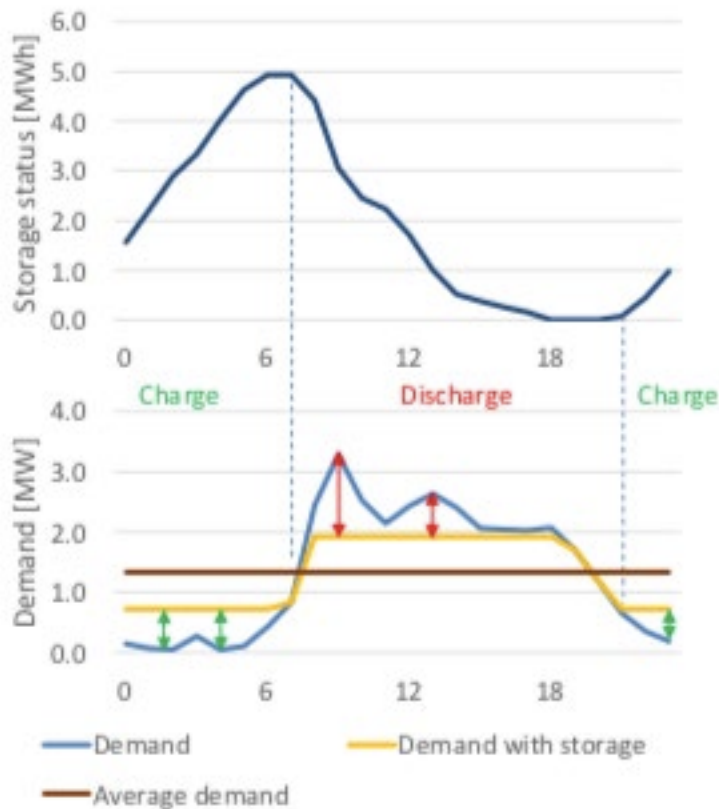
Jobs & business
opportunities



2ND LIFE: APPLICATIONS & BUSINESS CASE

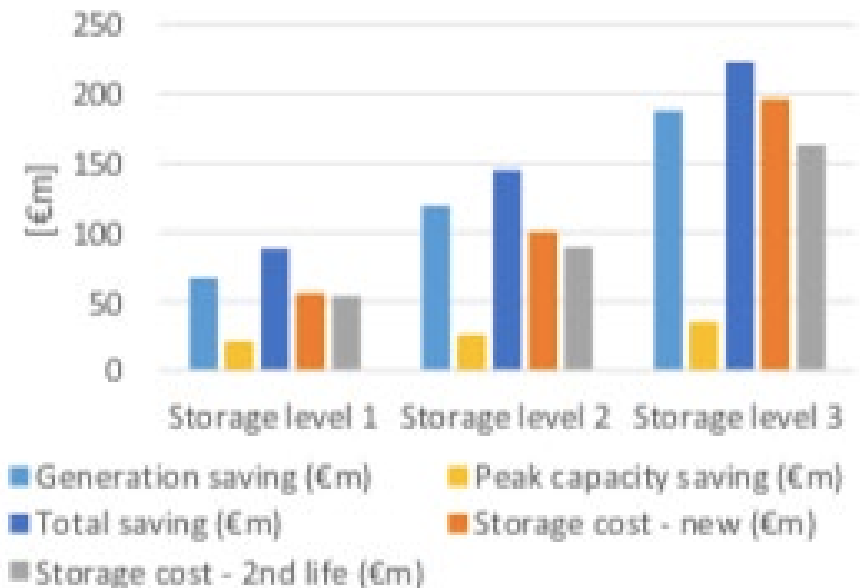
London bus depot: EV charging

Storage status



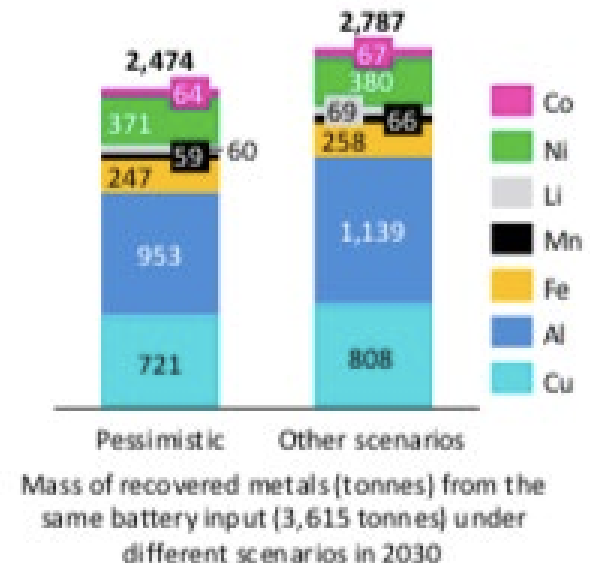
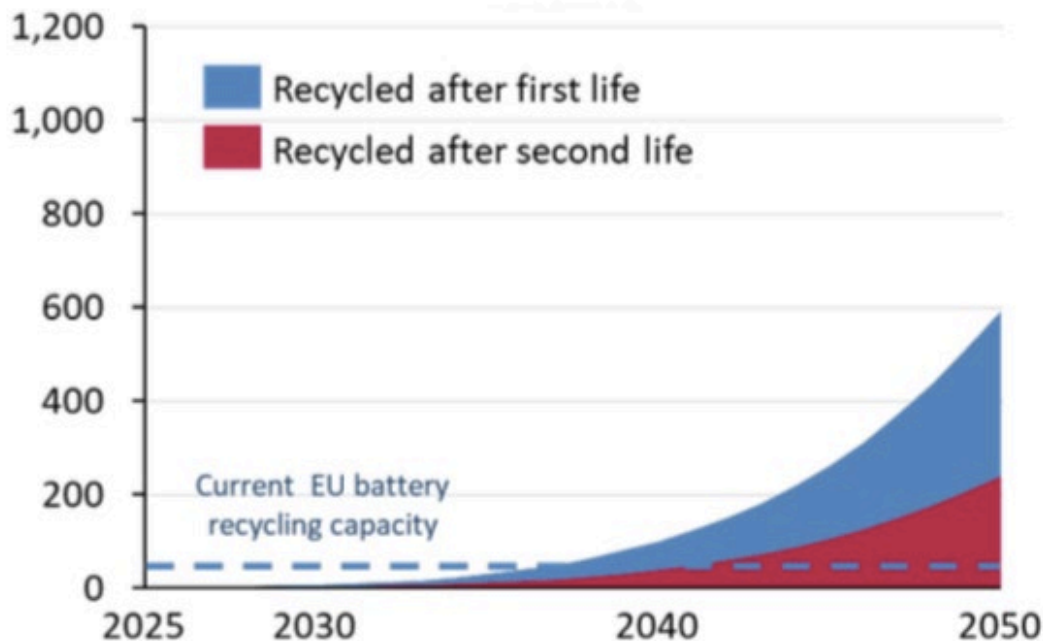
Long duration applications most attractive

Savings for different deployment levels



RECYCLING: EFFICIENCY & EU CAPACITY

Batteries (kt) recycled each in the EU



Insufficient capacity in Europe by mid 2030s when most EVs reach EoL

HOW TO REAP BATTERY ON WHEEL BENEFITS?

CO2 standard for battery manufacturing

Mandatory & faster smart meters roll-out

EU Infrastructure directive: smart-capable charging points only

Traceability of battery supply chain: auto-ID system

National transport & energy plans: joint thinking

An aerial photograph of a coastal city, likely Istanbul, showing a dense urban area with many high-rise apartment buildings. The city is situated on a peninsula or along a coastline, with the sea visible on the left. The sky is filled with soft, white clouds. In the bottom left corner, the wing and engine of an airplane are visible, suggesting the photo was taken from an aircraft. Overlaid on the center of the image is the text 'THANK YOU' in a large, bold, blue sans-serif font.

THANK YOU