

Outline of research

Analysis of tendency and feasibility for MPR from GTR22

Prepared by Korea

65th EVE IWG

Overview

- Background
- Research scope and objective
- Plan and strategy

Background

- Need to develop user-friendly Baas (Battery as a service) technology as electric vehicles become more prevalent.
- Need for technology to improve social acceptance of electric vehicles by analyzing actual driving data of EV.
- EVE setting MPRs for category 1 and 2 vehicles for GTR 22.
- Need for reliable data base to analyze tendency and feasibility for MPRs from GTR 22.
- Need for battery degradation data according to end user's driving patterns.
- Korea Gov. is considering introduction of a regulation based on GTR 22, but requires battery degradation data and study.

Electric car sales, 2010-2023

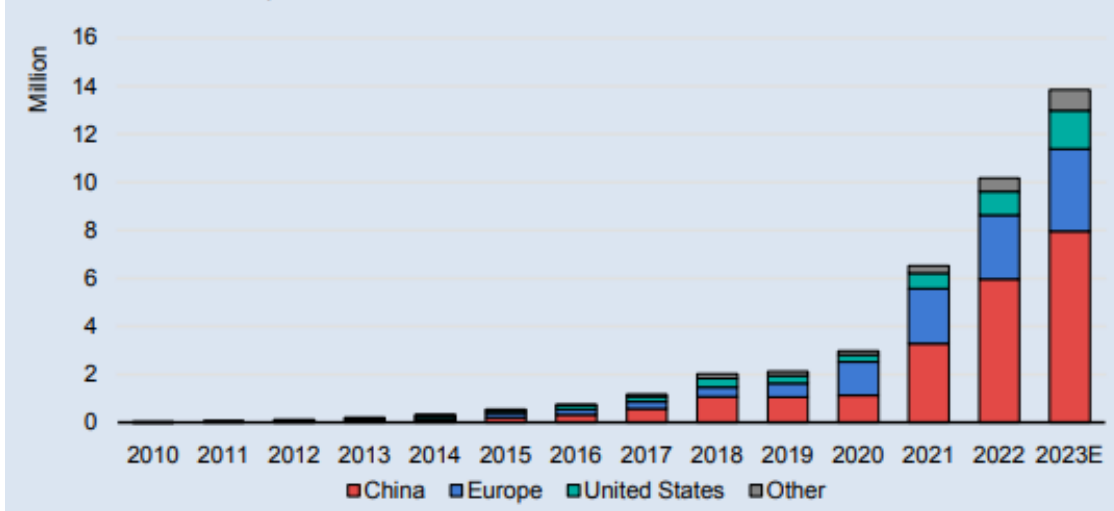


Chart : International Energy Agency

Battery Energy based (SOCE) MPR

Vehicle age/km for categories 1-1 and 1-2 in the scope of this GTR	OVC-HEV	PEV
From start of life to 5 years or 100,000 km, whichever comes first	80 per cent	80 per cent
Vehicles more than 5 years or 100,000 km, and up to whichever comes first of 8 years or 160,000 km	70 per cent	70 per cent
Vehicles more than 8 years or 160,000 km, and up to whichever comes first of 10 years or 200,000 km	(Reserved)	(Reserved)
Vehicle age/km for category 2 in the scope of this GTR	OVC-HEV	PEV
From start of life to 5 years or 100,000 km, whichever comes first	75 per cent	75 per cent
Vehicles more than 5 years or 100,000 km, and up to whichever comes first of 8 years or 160,000 km	65 per cent	65 per cent
Vehicles more than 8 years or 160,000 km, and up to whichever comes first of 10 years or 200,000 km	(Reserved)	(Reserved)

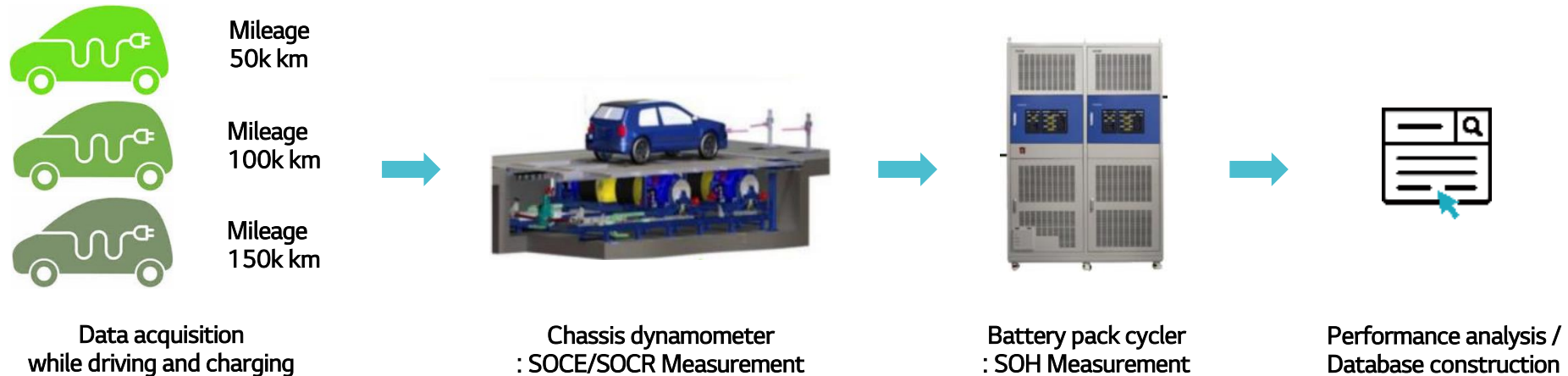
Research Scope and Objective

Scope

- Vehicles under test
 - 1) ○○ OEM's and □ □ OEM's pure electric vehicles each (several cars with 50k, 100k and 150k mileage)
 - 2) All of test cars would be chosen from taxis which are being operated in Korea

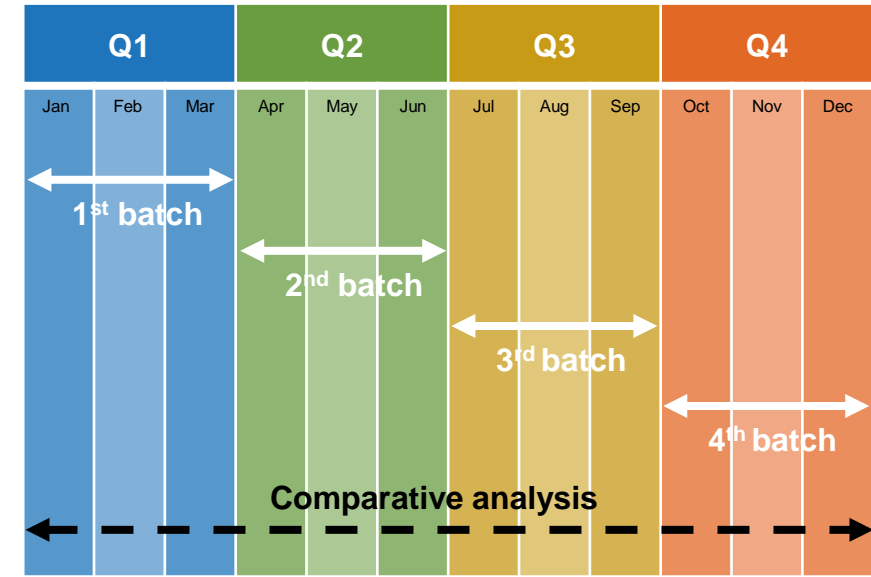
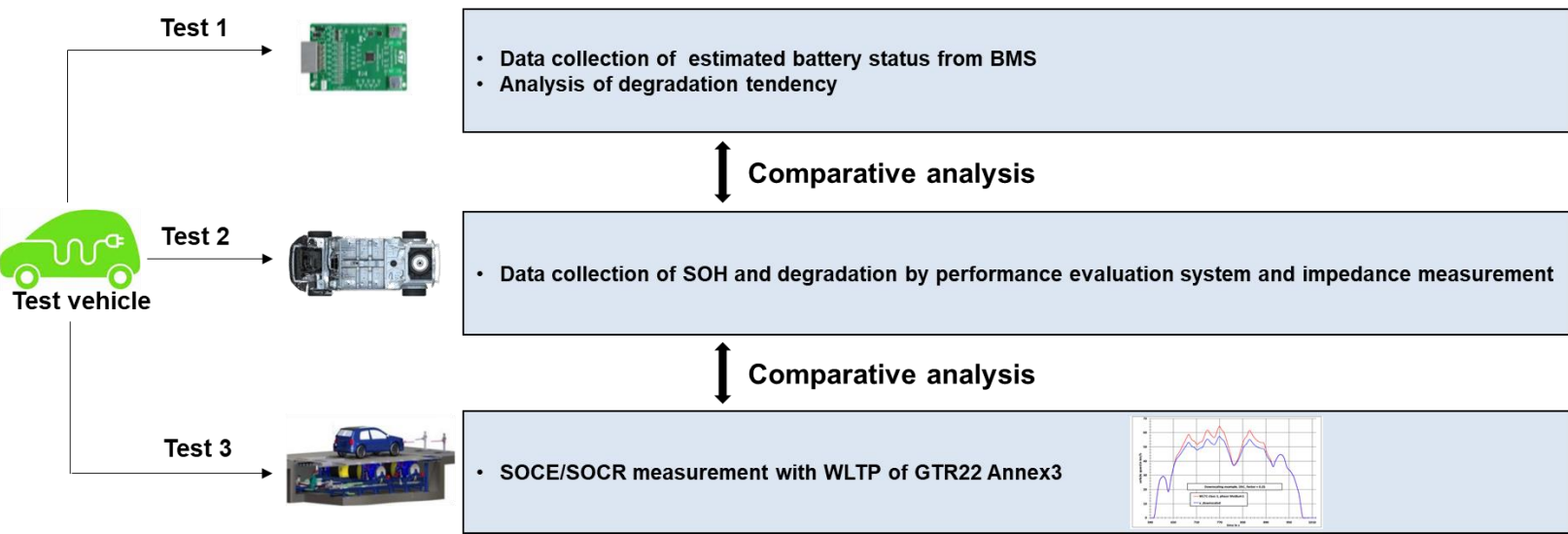
Objective

- Acquisition of real driving data
- Measurement of SOH after removing battery from vehicles according to mileage
- Data collection of degradation tendency in vehicle/battery levels
- Correlation and accuracy analysis of SOCE/SOCR(Vehicle)/SOH(Battery)



Plan and strategy

- Comparative analysis in Test 1: estimated value of SOH(BMS), Test 2: measurement value of SOH(Battery pack) and Test 3: measurement value of SOCE/SOCR(Vehicle)
- Research plan : Quarterly follow up test starting from the first quarter of 2024
- Research bodies : KATRI(Korea Automobile Testing & Researching Institute), KITECH(Korea Institute of Industrial Technology), LG Energy Solution



Flow chart

