



THE VARTA[®] AGM FOR ELECTRIC VEHICLES



► WHAT IS AN XEV?

xEV

Electric Vehicle

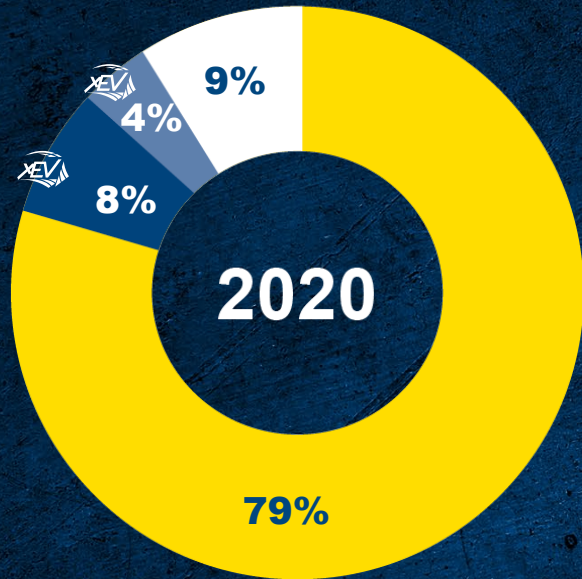
Placeholder for any subtype of EV

- BEV = Battery Electric Vehicle
- HEV = Hybrid Electric Vehicle
- PHEV = Plug-in Hybrid-Electric Vehicle
- FCEV = Fuel Cell Electric Vehicle

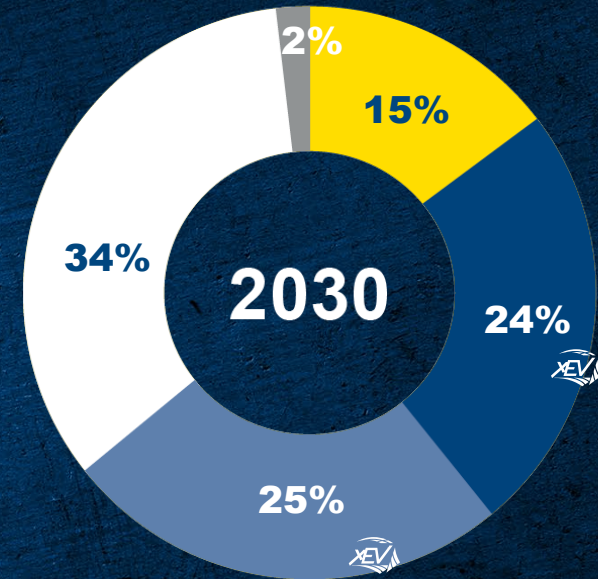
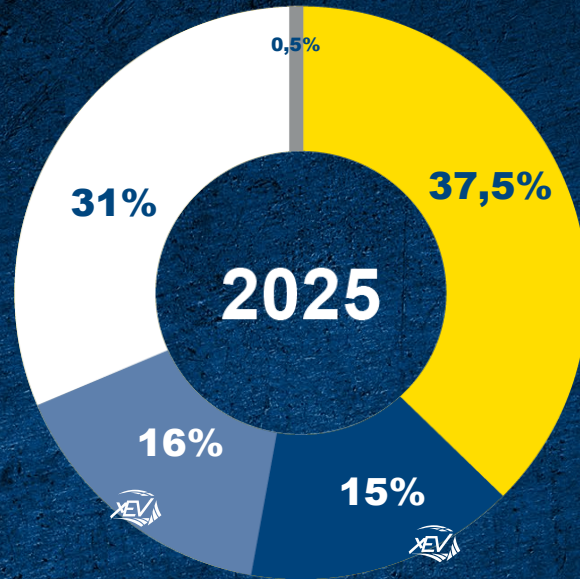
xEV is a generic term for all kinds of vehicles with an electric motor, independent from the drivetrain.



▶ NEW REGISTRATIONS FOR XEV UNTIL 2030



ICE car parc: 98%



ICE car parc: 89%

● Combustion engine, Start-Stop, Micro-Hybrid
 ● Mild-Hybrid-Electric-Vehicle
 ● Plugin-Hybrid-Electric-Vehicle
 ● Battery-Electric-Vehicle
 ● Fuel-Cell-Electric-Vehicle

New registrations have a gradual effect on the future evolution of the carpark. Start-Stop remains an important application in the aftermarket.



▶ XEV MARKET DEVELOPMENT OUTLOOK

VEHICLE TYPE						
	Conventional	Start-Stop	Mild Hybrid 48 / 12 V	Full Hybrid (HEV)	Plug-In Hybrid (PHEV)	Battery Electric Vehicle (BEV)
VEHICLE EXAMPLE	Opel Corsa	VW Golf	Audi A6	Toyota Auris	Toyota RAV4	Tesla Model 3
LOW VOLTAGE BATTERY FUNCTION	Starting, Lightning & Ignition	Supports Start-Stop and higher electrical loads		Required for increase electrical loads & critical safety functionality		
2020 EU PARC % (TOTAL PARK 309M) ¹	76%	22%	0%		1%	1%
2030 EU PARC % (TOTAL PARK 333M)	51%	38%	1%		3%	7%
OE CORPORATION F. VEHICLE TYPE						

Clarios partnered with all major vehicle manufacturers & therefore is ranked an original sparepart replacement battery.



¹ Includes Passenger Cars + Light Commercial Vehicles

▶ 12V BATTERIES IN DIFFERENT XEV TYPES

VW Golf 7 ICE	VW Golf 7 12V Micro Hybrid	VW Golf 8 48V Mild Hybrid	VW Golf 8 PHEV	VW ID 3 BEV
Energy storage @				
1. fuel tank	1. fuel tank	1. fuel tank	1. fuel tank	1. 400V battery Li-Ion 58kWh
2. 12V battery PbA	2. 12V battery PbA 69Ah	2. 12V battery PbA 59Ah	2. 12V battery PbA 59Ah	2. 12V battery PbA 59Ah
	3. 12V battery Li-Ion 6Ah	3. 48V by Latteri-Ion 14Ah	3. 350V battery Li-Ion 10Ah	
92kW – CO ₂ 120g/km	96kW – CO ₂ 113g/km	110kW – CO ₂ 108g/km	180kW – CO ₂ 34g/km (1.5l/100km)	107kW – CO ₂ 0 g/km
fuel / CO ₂ saving (driven by regulation)				

The role of 12V battery changes: From cranking to servicing increased electrical loads & critical safety functions.



▶ THE ROLE OF 12V BATTERIES IN XEV

12V batteries remain the technology of choice for energy storage, 12V electric consumers & security features in xEV.



▶ XEV READY. THE NEW VARTA AGM PORTFOLIO



The VARTA Silver Dynamic AGM Portfolio

ETN	Short code	Grp Size	Capacity	CCA	Circuit	Holddown	Terminal Type	EAN
550901054	A9	H4/LN1	50 Ah	540 A	0	B13	1	4016987165492
560901068	A8	H5/LN2	60 Ah	680 A	0	B13	1	4016987165508
570901076	A7	H6/LN3	70 Ah	760 A	0	B13	1	4016987165515
580901080	A6	H7/LN4	80 Ah	800 A	0	B13	1	4016987165522
595901085	A5	H8/LN5	95 Ah	850 A	0	B13	1	4016987165539
605901095	A4	H9/LN6	105 Ah	950 A	0	B13	1	4016987165546
Portfolio Extension 2023 and beyond		B20	35 Ah	340 A	0			
		B24	45 Ah	370 A	0			
		B24R/Grp 51	45 Ah	370 A	1			
		H3/LN0	35 Ah	380A	0			



▶ TWO NEW ADVANCED TECHNOLOGY BATTERIES EXPAND THE VARTA PORTFOLIO



AGM H4/LN1

Capacity: 50Ah
CCA: 540A

Hyundai Kona



Kia Rio



Kia Stonic



BMW i8



BMW iX3



EFB H4/LN1

Capacity: 50Ah
CCA: 540A

VW ID.3



Opel Ampera-e



Suzuki Swift



Suzuki Celerio



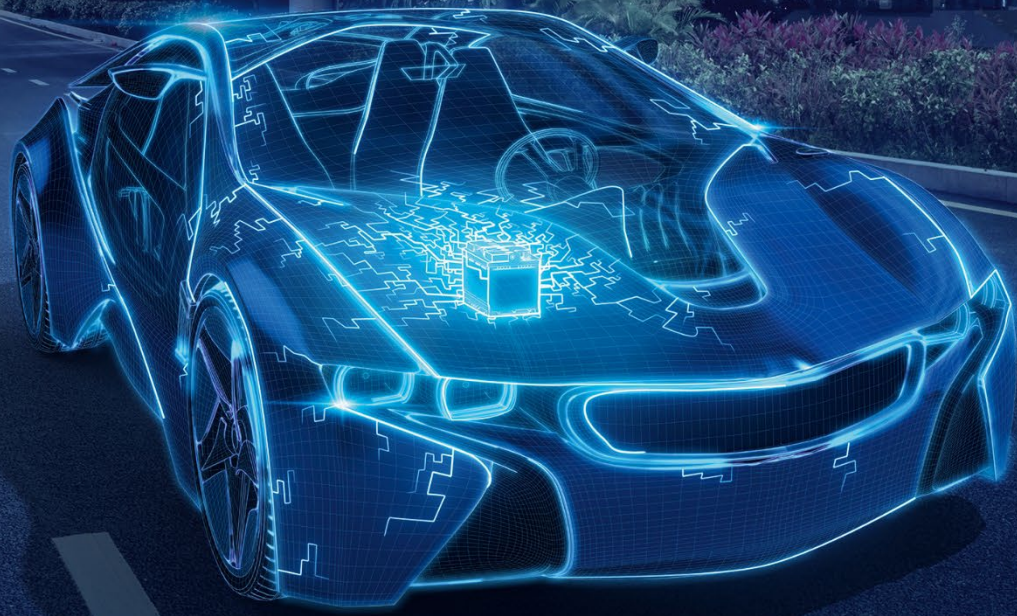
Suzuki Baleno



Advanced batteries in compact sizes play an increasing role for Start-Stop & electric vehicles.



**THE RIGHT PORTFOLIO
AT THE RIGHT TIME.**



 **VARTA**[®]

