

AUTOMOTIVE BMS TEACH-IN

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SECURE CONNECTIONS
FOR A SMARTER WORLD

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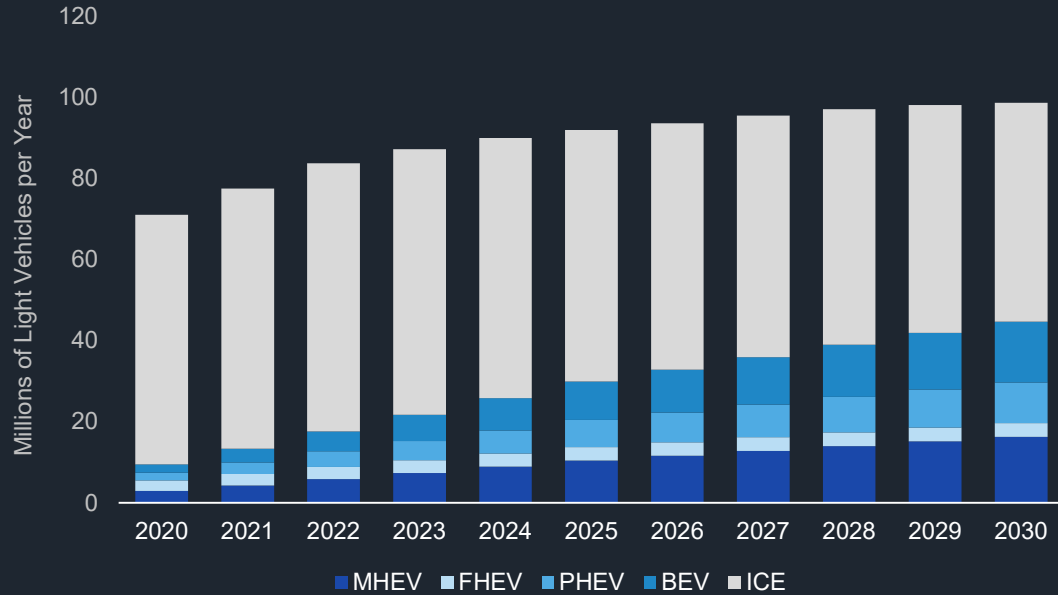
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XEV MARKET CONTINUES STRONG GROWTH



EMERGING MARKET HAS REACHED INFLECTION POINT

Cost parity of xEV & ICE expected ~2024;
 xEV performance improved: up to 400 miles & fast charging;
 Infrastructure established: 7M chargers WW by 2019;
 Number of annual launches of xEVs increases.



Legislation demands drastic decrease of fleet CO² emissions.



By 2030 half of all vehicles sold contain electrified powertrain.



Current EU & China stimulus programs focused on xEV.



China continues to be major market driver for xEVs.



EU drives complete fleet electrification leading in HEV/PHEV.



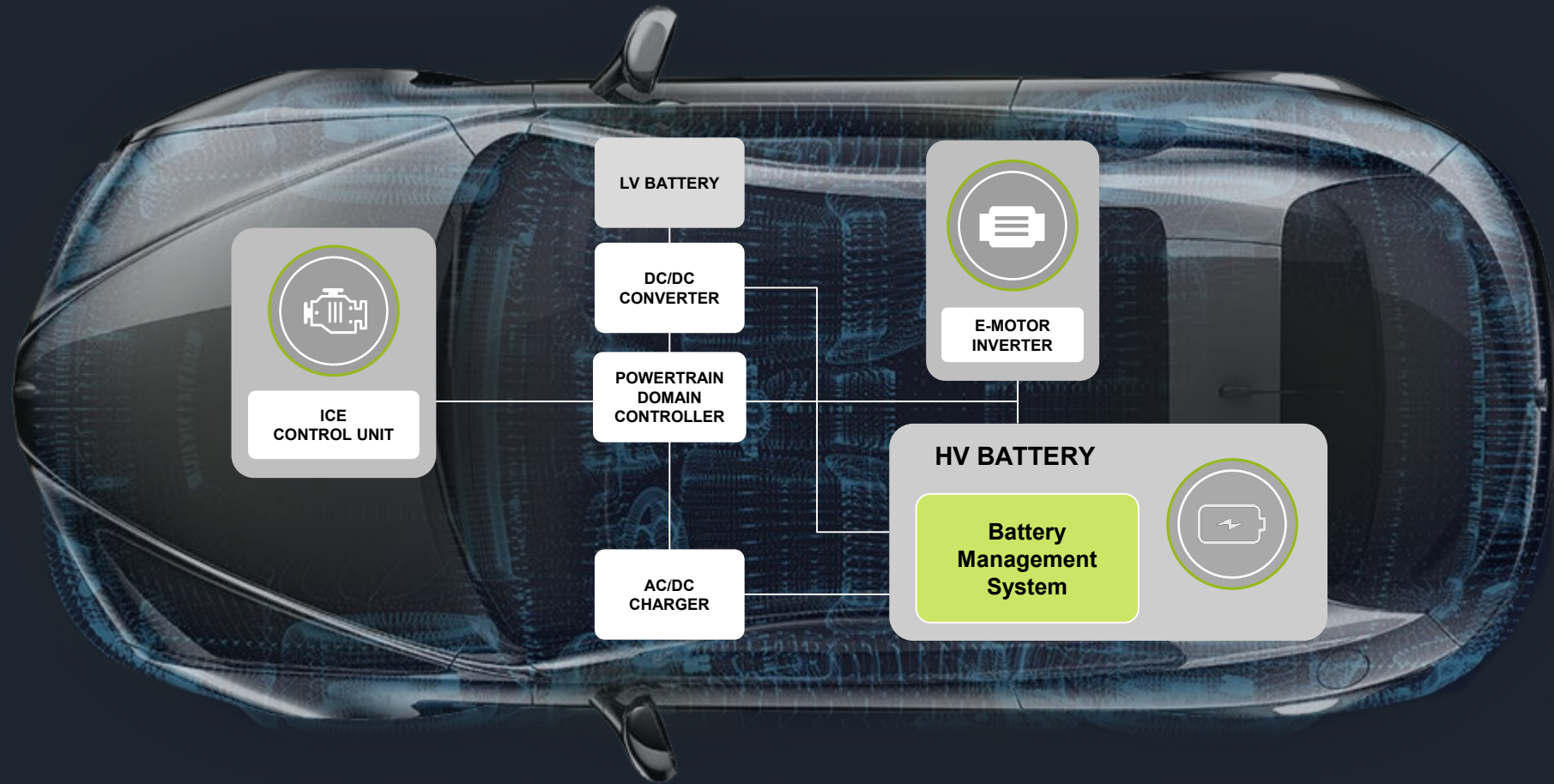
Tesla stays strong; US Big-3 increase xEV focus.

OEM SUCCESS FACTORS

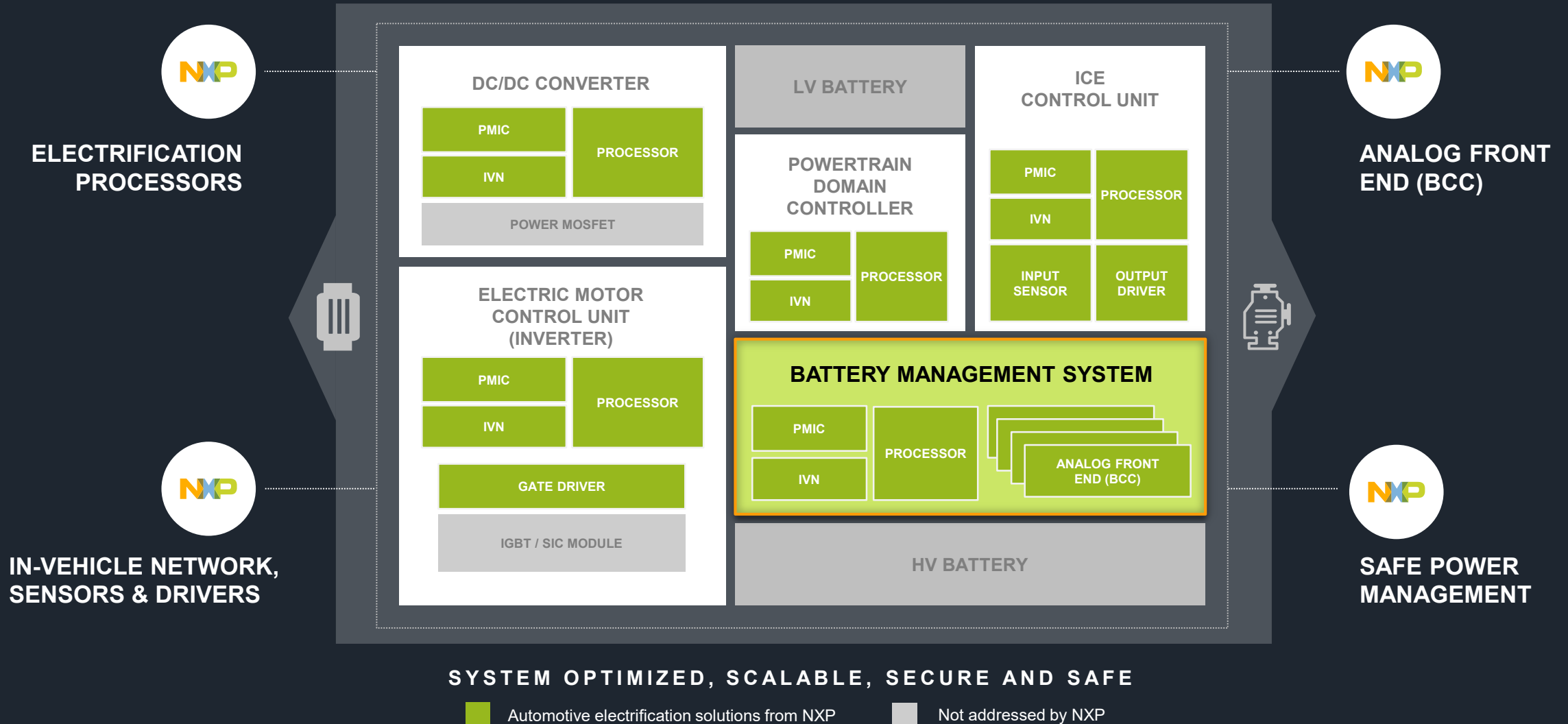


Continuous cost & performance optimization;
 Increasing functional safety;
 Short innovation cycles & scalable platforms;
 High volume automotive xEV mass production.

KEY SYSTEMS IN XEV POWERTRAINS



NXP POWER CONTROL SYSTEM SOLUTIONS FOR XEV POWERTRAINS



RECONFIRMING BMS MARKET ATTRACTIVENESS AND NXP GROWTH VECTOR

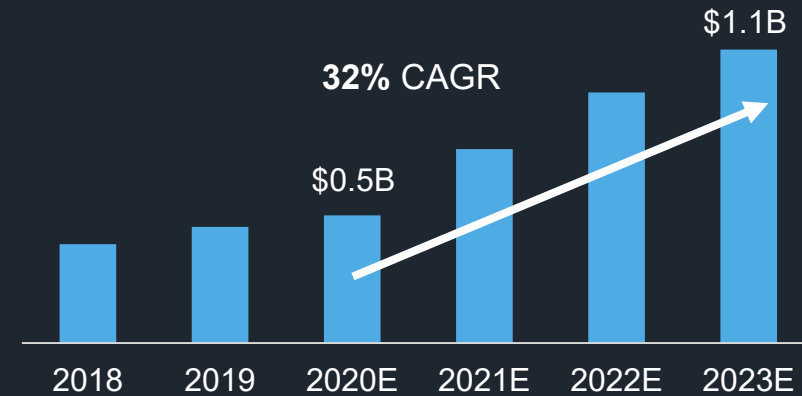
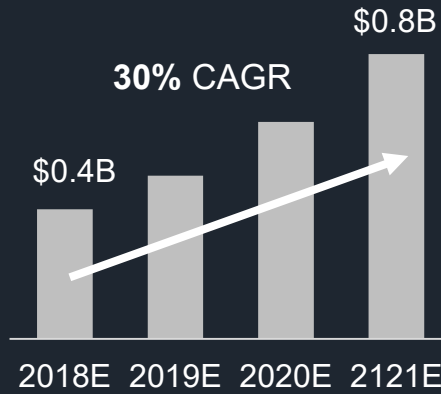
SEPT 2018 ESTIMATE

INVESTOR DAY 2018

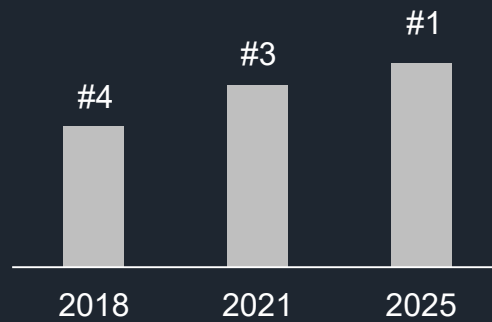
SEPTEMBER 2020 ESTIMATE

BMS TEACH-IN 2020

AUTOMOTIVE
BMS
SAM



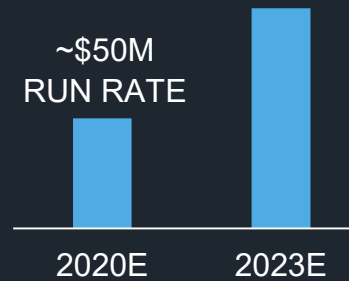
NXP BMS
GROWTH



NXP GROWTH
ESTIMATED
2020-2023



~\$50M
RUN RATE



NXP POSITION
ESTIMATED
2023



NXP – SCALABLE SYSTEM PLAYER READY FOR AUTOMOTIVE MASS PRODUCTION



Reduce battery cost
Simplified architecture
Automated assembly



**Extend range,
lower charge time**
Functional safety
Accurate diagnostics



Electrify entire fleet
Platform concept
Maximize reuse



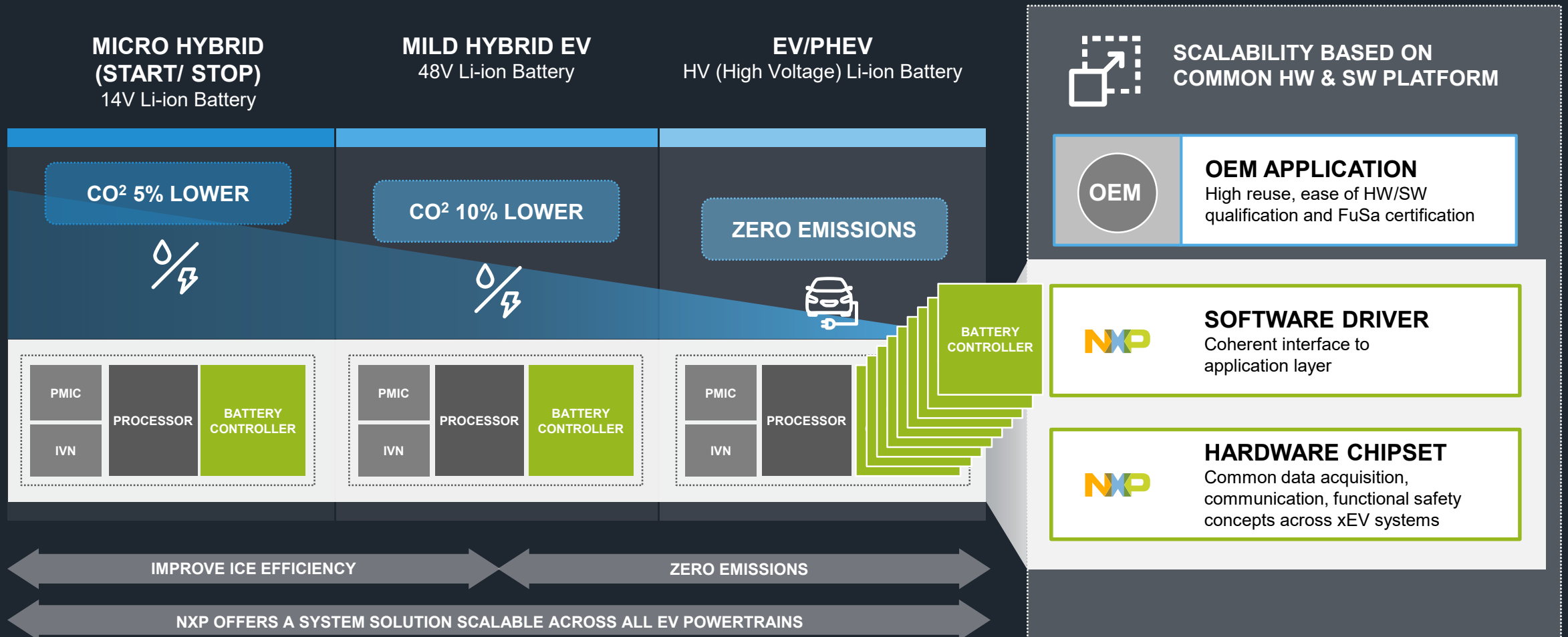
High volume production
Automotive quality
Simplify service

UNIQUE VALUE PROPOSITION

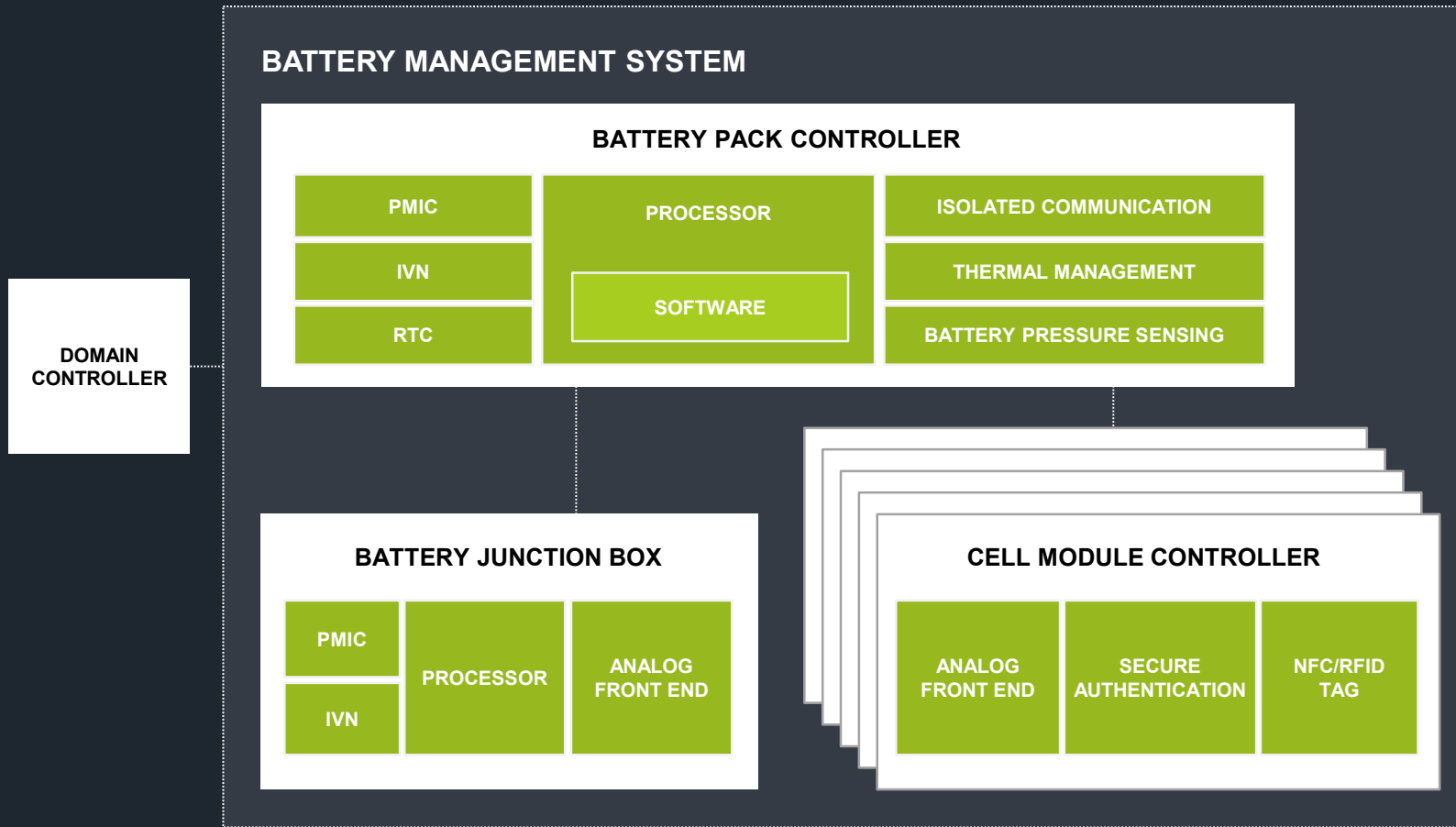


NXP can address every OEM pain point

NXP BATTERY MANAGEMENT SCALABLE ACROSS ALL EV POWERTRAINS



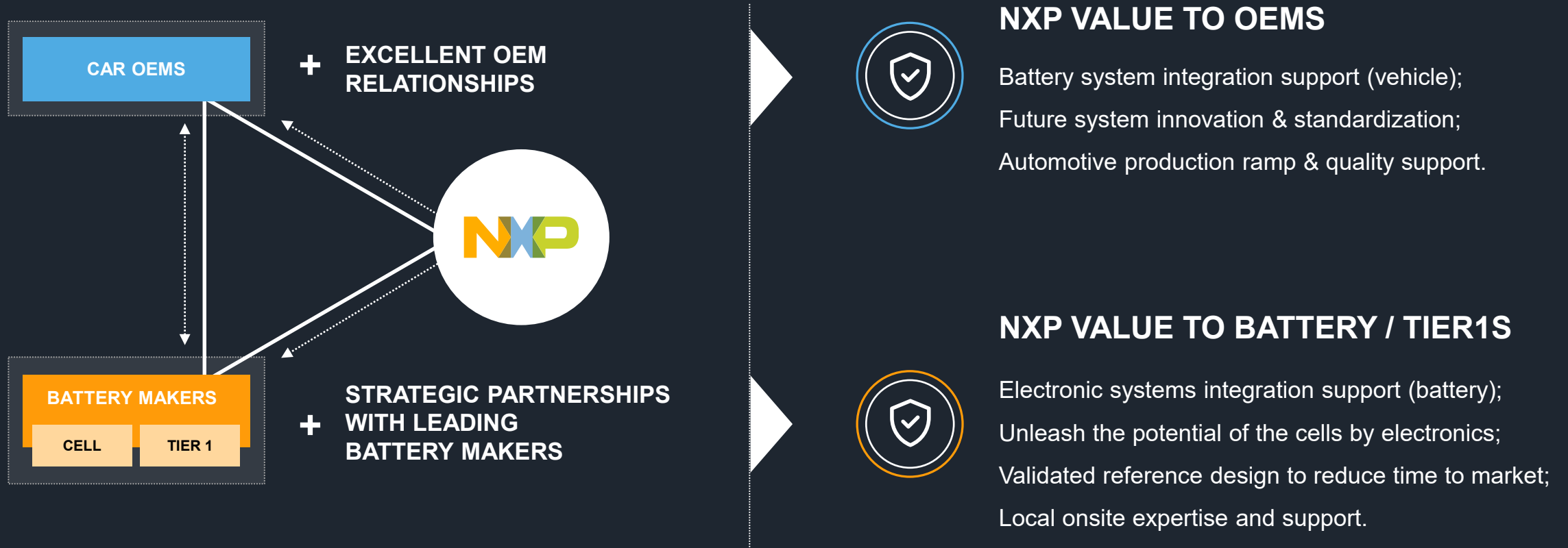
NXP DIFFERENTIATES BY OFFERING COMPLETE SYSTEM SOLUTIONS



- Capability to optimize & standardize system;
- Fully validated reference designs;
- Coherent functional safety concepts;
- Embedded software drivers;
- System level EMC robustness.

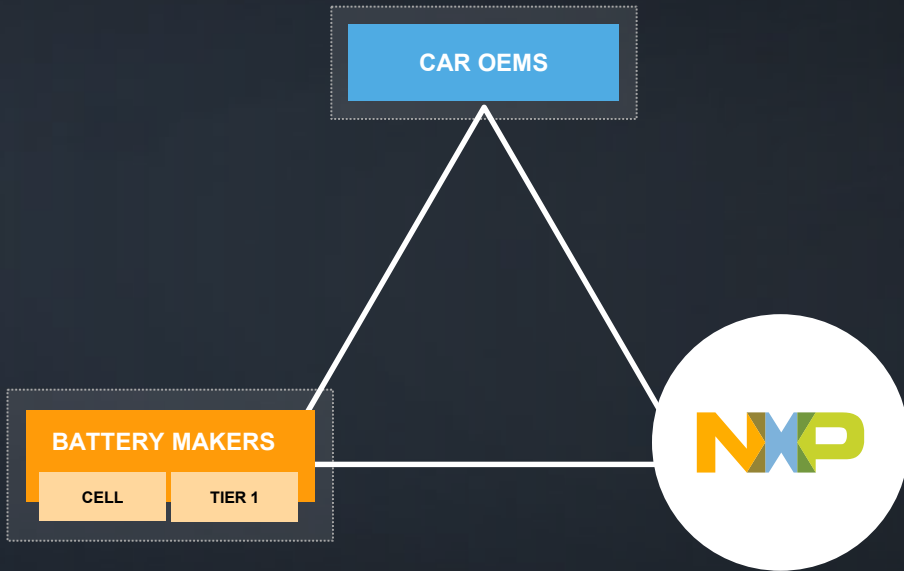
 NXP's embedded control & high precision analog solutions for battery management systems

NXP'S GO-TO-MARKET CONCEPT IN BATTERY MANAGEMENT ECOSYSTEM



System level support, scalable HW and SW platforms & automotive operational excellence make NXP the trusted partner for car OEMs and battery makers

NXP – THE TRUSTED ADVISER AND INNOVATION PARTNER WITH OEMS AND BATTERY MAKERS



WHERE WE ARE WINNING

- Global, high volume auto OEMs looking to electrify multi-brand fleets;
- Market leading battery OEMs looking for a scalable BMS solution;
- First/ fast mover, Chinese auto OEMs looking for system solutions;
- Start-up Chinese battery OEMs looking for system solutions.



1 out of 4 xEVs will use NXP BMS in 2023



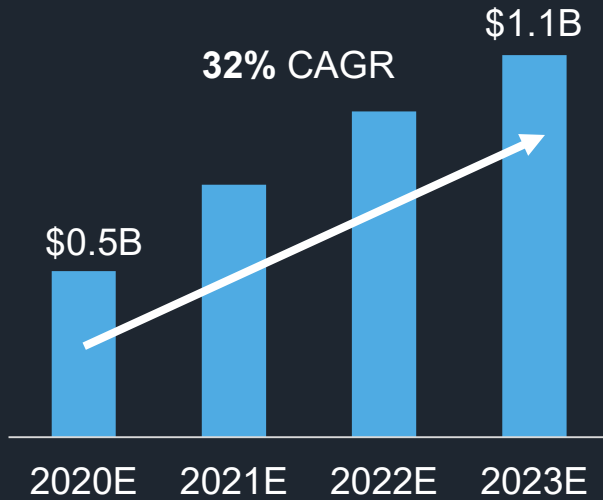
75% 2023 revenue underpinned by DW

DESIGNED IN TO 16 OF TOP 20 OEM BMS PROJECTS



NXP IS ON THE PATH TO LEADERSHIP IN BATTERY MANAGEMENT

STRONG MARKET GROWTH



- ✓ ZERO EMISSIONS
- ✓ BATTERY COST DOWN



OUTGROWING THE MARKET

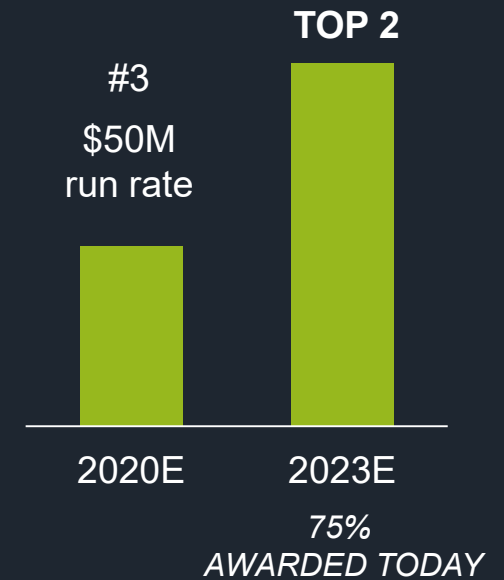
NXP GROWTH
ESTIMATED
2020-2023



- ✓ SYSTEM SOLUTION PARTNER
- ✓ FUNCTIONAL SAFETY
- ✓ SCALABLE SYSTEMS



TRUE LEADER



- ✓ DESIGNED IN TO 16 OF TOP 20 OEM BMS PROJECTS



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