

COMMERCIAL VEHICLE PRODUCTIVITY AND EFFICIENCY: INSIGHTS AND OPPORTUNITIES



Dick Cupka

Sustainability and Qualified Vehicle Modifier Manager

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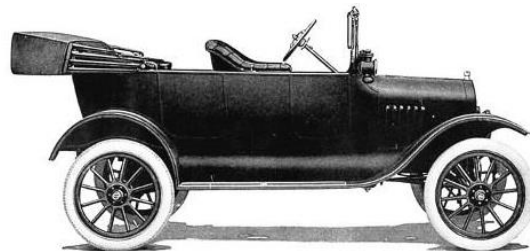


Go Further

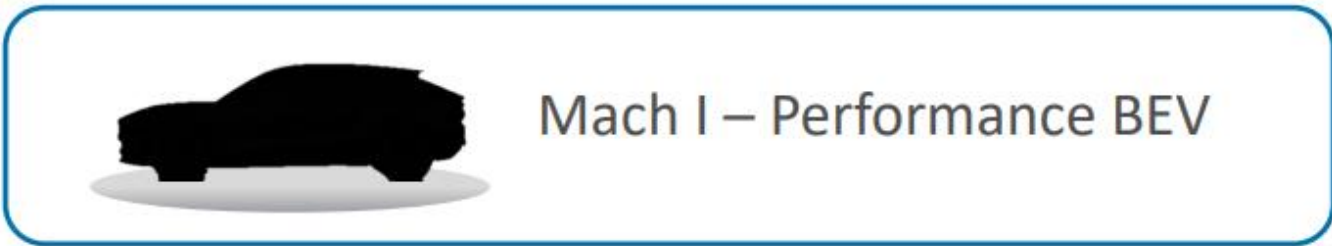
Ford Motor Company was built on the belief that freedom of movement drives human progress.

It's a belief that has always fueled our passion to create great cars and trucks.

And today, it drives our commitment to become the world's most trusted mobility company, designing smart vehicles for a smart world that help people move more safely, confidently and freely



EV strategy plays to our strengths, builds on our brands, leverages scale and innovates across the value chain



F-150 Hybrid



Transit Plug-In Hybrid



Mustang Hybrid

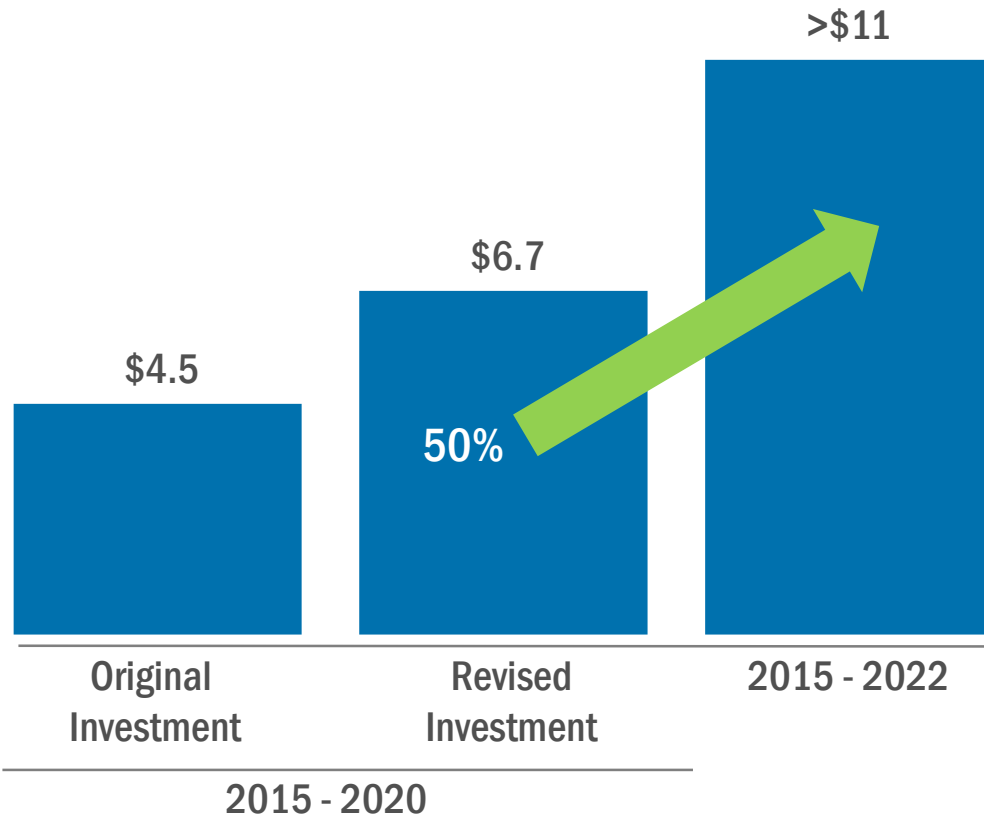


IONITY
Fast Charging
Infrastructure

We will spend over \$11 billion on EVs by 2022



EV Investment (Bils)



U.S.

- Positioned for EV leadership
- HEV offered on all mainstream models

Europe

- Strong BEV portfolio
- Mild hybrids

China

- BEVs and hybrids with JVs

16
Full
Battery
Electric
Vehicles

40
Electrified
Vehicles

There is No Silver Bullet

- Considerations
 - Total Cost of Ownership
 - Range Requirements
 - Power/Payload requirement
 - Fuel Availability & Pricing
 - Infrastructure Support
- “Power of Choice”
 - Gas, Diesel, CNG, LPG
 - BEV, PHEV, HEV, Fuel Cell

Clean efficient ICE engines remain viable in many applications



Electrification is gaining momentum- - let's be clear about Ford's approach

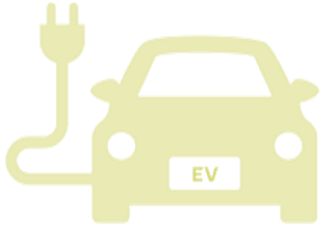
Ford IS

- Market driven
- Focusing on Human-Centric Design where we are strong
- Targeting use-cases which can benefit from electrification
- Prioritizing the elimination of barriers to create a compelling customer proposition

Ford IS NOT

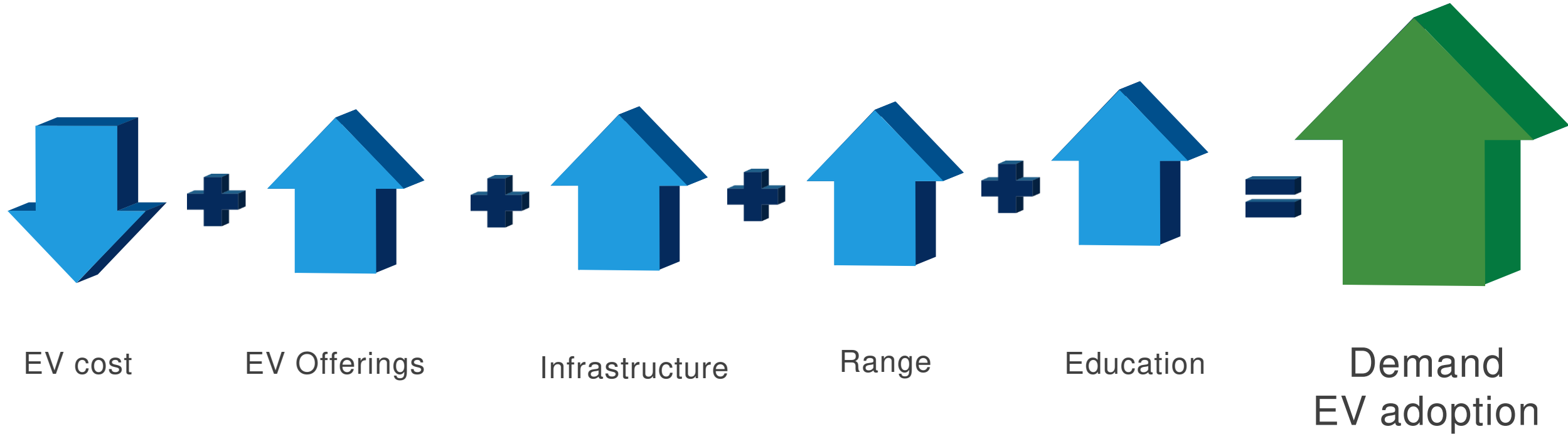
- Regulatory driven
- Abandoning conventional powertrains
- Looking for a one-size-fits-all solution
- Flooding the market with EVs as a reaction to competitive announcements

What have we learned?



- Package and payload must never be compromised
- Range anxiety is real
- If charging occurs when the vehicle is naturally dwelling, it can save time and effort over present day fueling
- There are use-cases in which electrification can provide reduced operating/ownership costs one-size-does-not-fit-all →
- Electrification attributes can go beyond fuel savings - - simpler maintenance, quieter/unrestricted operation, Green Image ...

EV adoption independent of regulation will rise as barriers come down and will accelerate as range increases

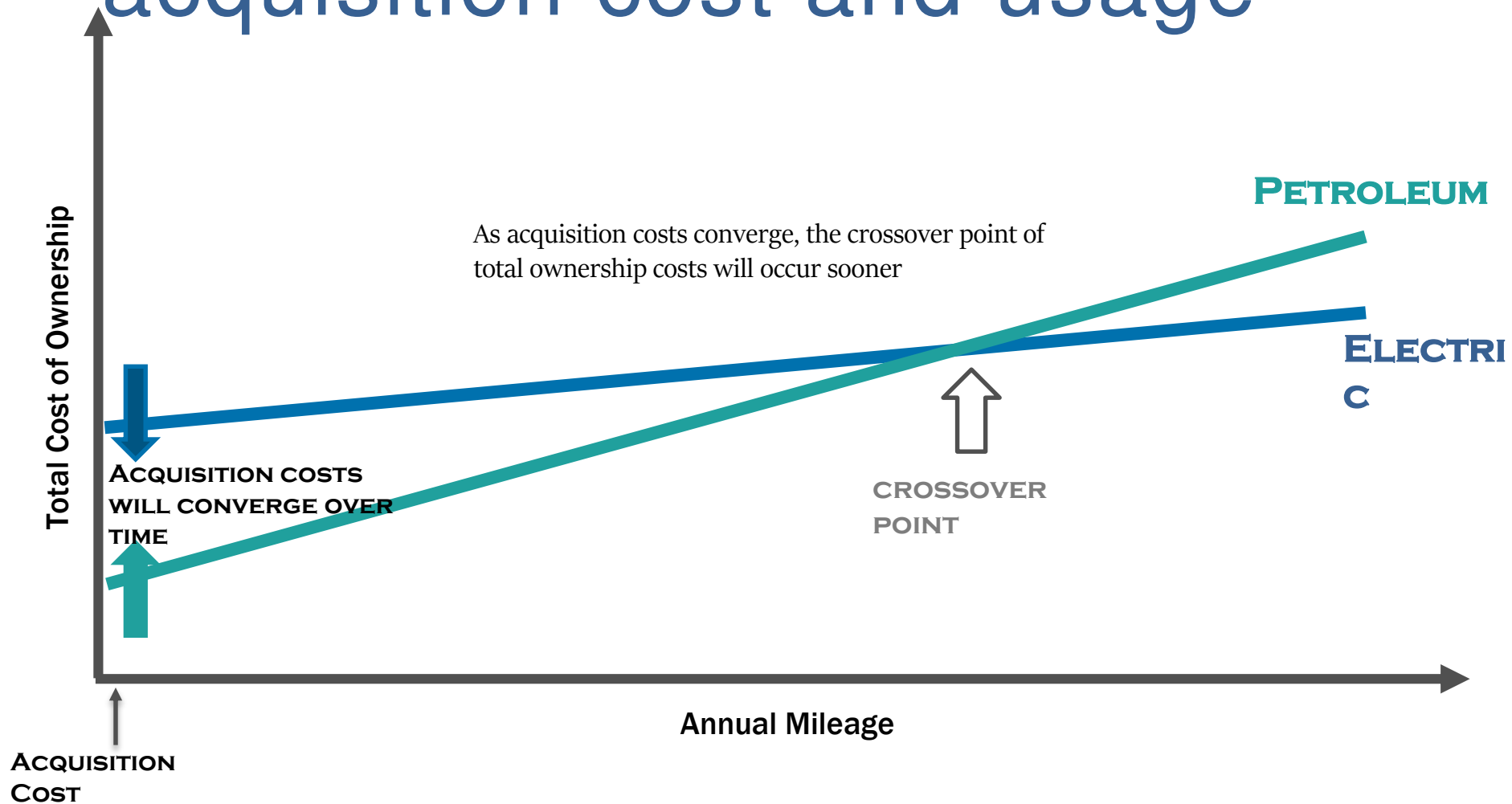


Projected BEV battery cell cost at scale

\$/kWh

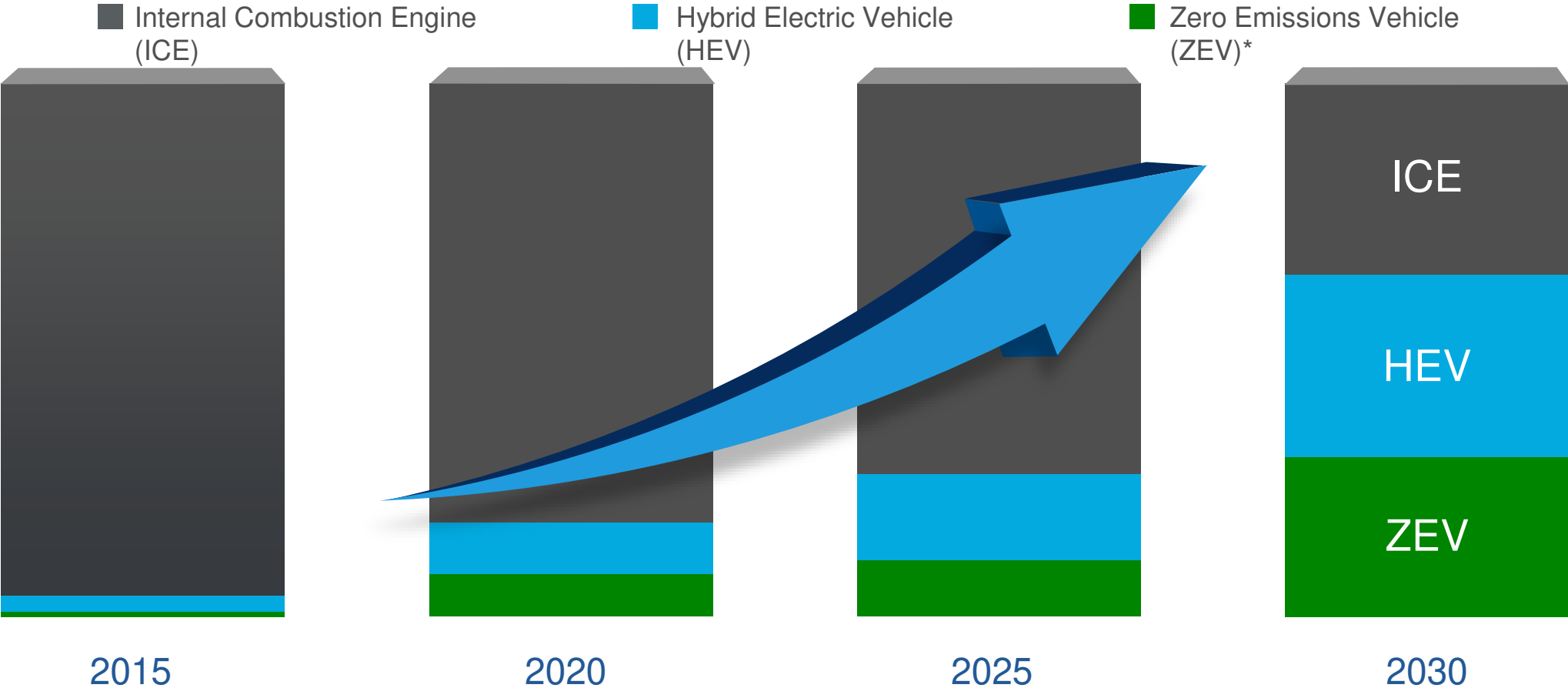


Total cost of ownership depends on acquisition cost and usage



Electrification will reach a tipping point

Anticipated Global Electrification Mix Rates



Choice of fuel is required due to :

- Range Requirements
- Power / Payload requirements
- Fuel Availability and Pricing
- Infrastructure Support

Clean efficient ICE engines remain viable in many applications

Ford EV solutions will continue be tailored by demand and infrastructure

- ❑ High Volume = OEM
- ❑ Small volume = QVM (Qualified Vehicle Modifier)
- ❑ Niche = Aftermarket



CV -- Vocations	BEV 'Use Case' Criteria				
	Daily Range < 100 miles	Charge / Depot > 8 hrs	Payload Req.: Low/Med	Accessories/Risk Averse	BEV Relevance
1 Bus Transportation	✓	✓	✓	✓	4
2 Government/Miscellaneous	✓	✓	✓	✓	4
3 Miscellaneous/Universities	✓	✓	✓	✓	4
4 Services	✓	✓	✓	✓	4
5 Wholesale/Retail	✓	✓	✓	✓	4
6 Landscaping/Horticulture	✓	✓	S	✓	3.5
7 Agriculture/Farm	✓	✓	S	✓	3.5
8 Lease/Finance	S	✓	✓	✓	3.5
9 Lease/Manufacturer Sponsored	S	✓	✓	✓	3.5
10 Dealer	S	✓	✓	✓	3.5
11 Rental	S	✓	✓	✓	3.5
21 Road/Highway Maintenance	S	✓	✓	✓	3.5
13 Individual	S	✓	✓	✓	3.5
14 Fleet Leasing	S	✓	S	✓	3
15 Construction	S	✓	S	✓	3
16 Manufacturing	S	✓	S	✓	3
17 General Freight	S	S	S	✓	2.5
18 Unclassified	S	S	S	✓	2.5
19 Food Processing & Distribution	✓	✓	✓	A refrigeration	2.5
20 Beverage Processing & Dist.	✓	✓	x	✓	2
21 Moving And Storage	S	S	x	✓	1
22 Petroleum	S	S	x	✓	1
23 Mining/Quarring	S	S	x	✓	1
24 Forestry/Lumber Products	S	✓	x	A hydraulics	0
25 Sanitation/Refuse	S	✓	x	A hydraulics	0
26 Specialized/Heavy Hauling	x	S	x	✓	-0.5
27 Vehicle Transporter	x	S	x	✓	-0.5
28 Sanitation/Hazardous Material	S	S	S	R	-1.5
29 General Freight/Haz. Materials	S	S	S	R	-1.5
30 Hazardous Materials	S	S	S	R	-1.5
31 Petroleum/Hazardous Material	S	S	S	R	-1.5
32 Utility Services	S	S	S	R	-1.5
33 Emergency Vehicles	S	S	S	R	-1.5
34 Motorhome	x	S	x	A various	-2.5

Key

- ✓ Most Aligned +1
- S Some Aligned +0.5
- x Few Aligned -1
- A Accessory Loads -0.5
- R Risk Averse -3

Higher Alignment to BEV Criteria

Lower Alignment to BEV Criteria

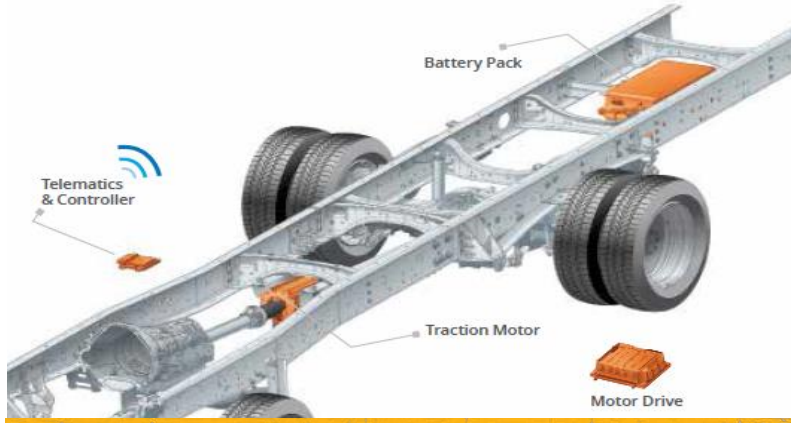
eQVM – EFFICIENT/CLEAN UP-FIT OPPORTUNITIES

XLhybrids

MOTIV

Lightning Systems

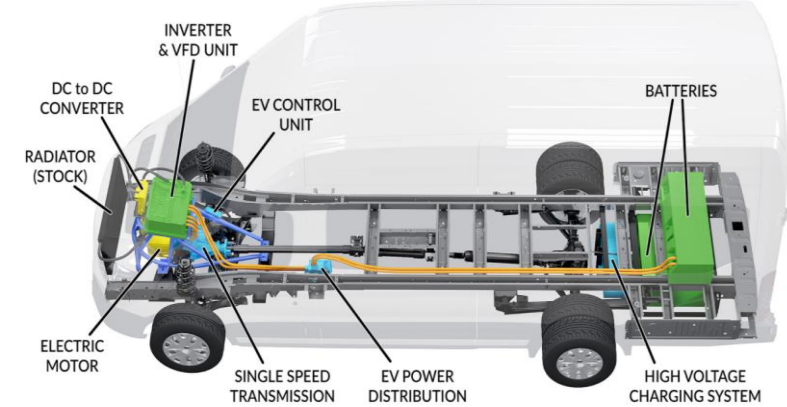
Hybrid Electric



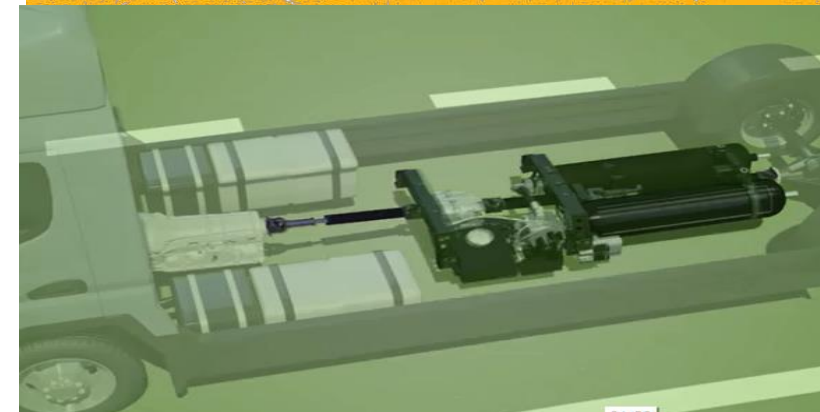
Battery Electric



Battery Electric



Hydraulic Hybrids



Our strategic approach focuses on building a foundation for long term success



Play To Our Strengths

Commercial, trucks, utilities, performance

Build Brand and Credibility

Building on our iconic nameplates;
Zero compromise battery electric vehicles

Leverage Scale and Technology

Design, volume, manufacturing and
purchasing power

Business Model Innovation

Ecosystem approach (charging, insurance and customer
experiences)

To be continued -



Dick Cupka
rcupka@ford.com