ELECTRIFICATION AND THE AFTERMARKET

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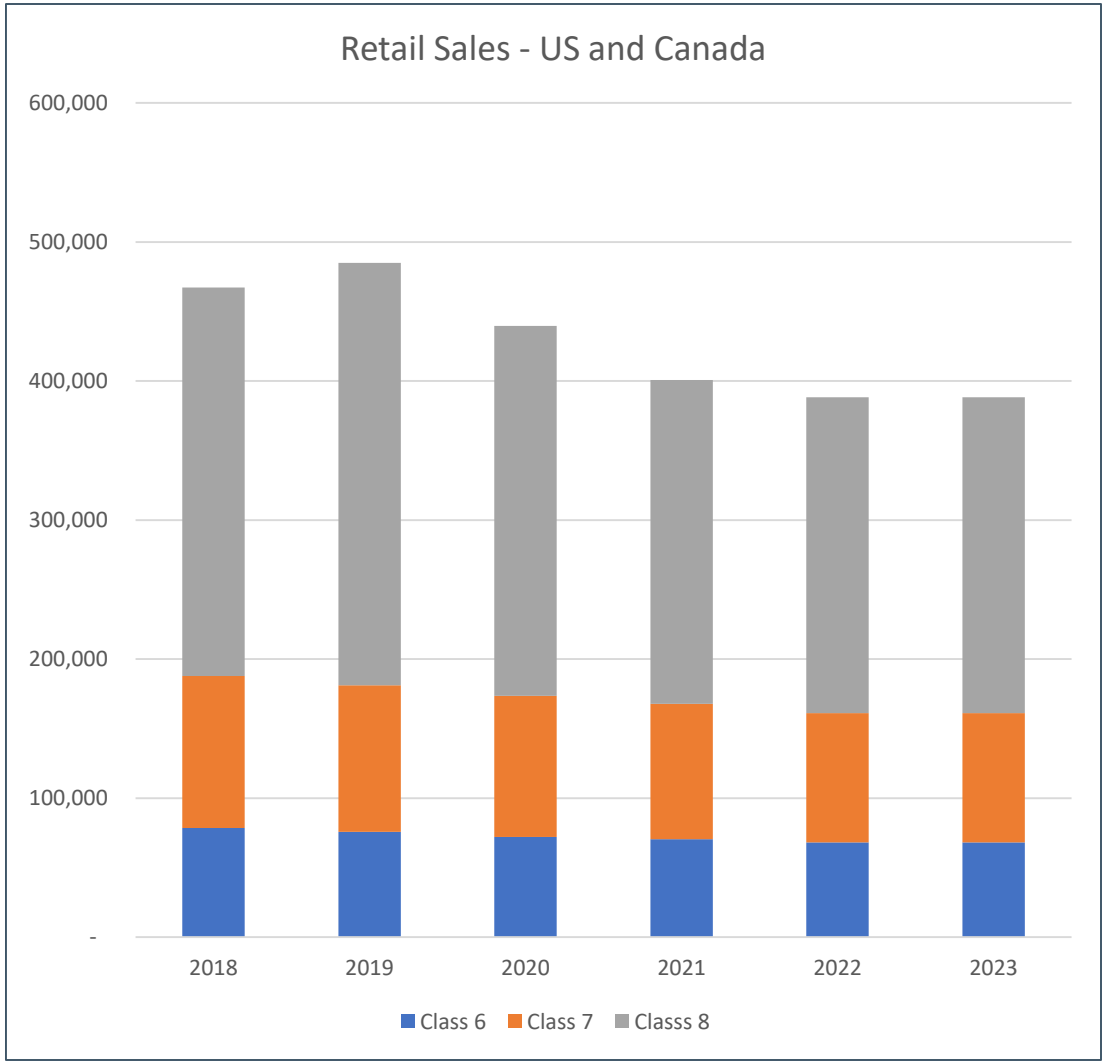
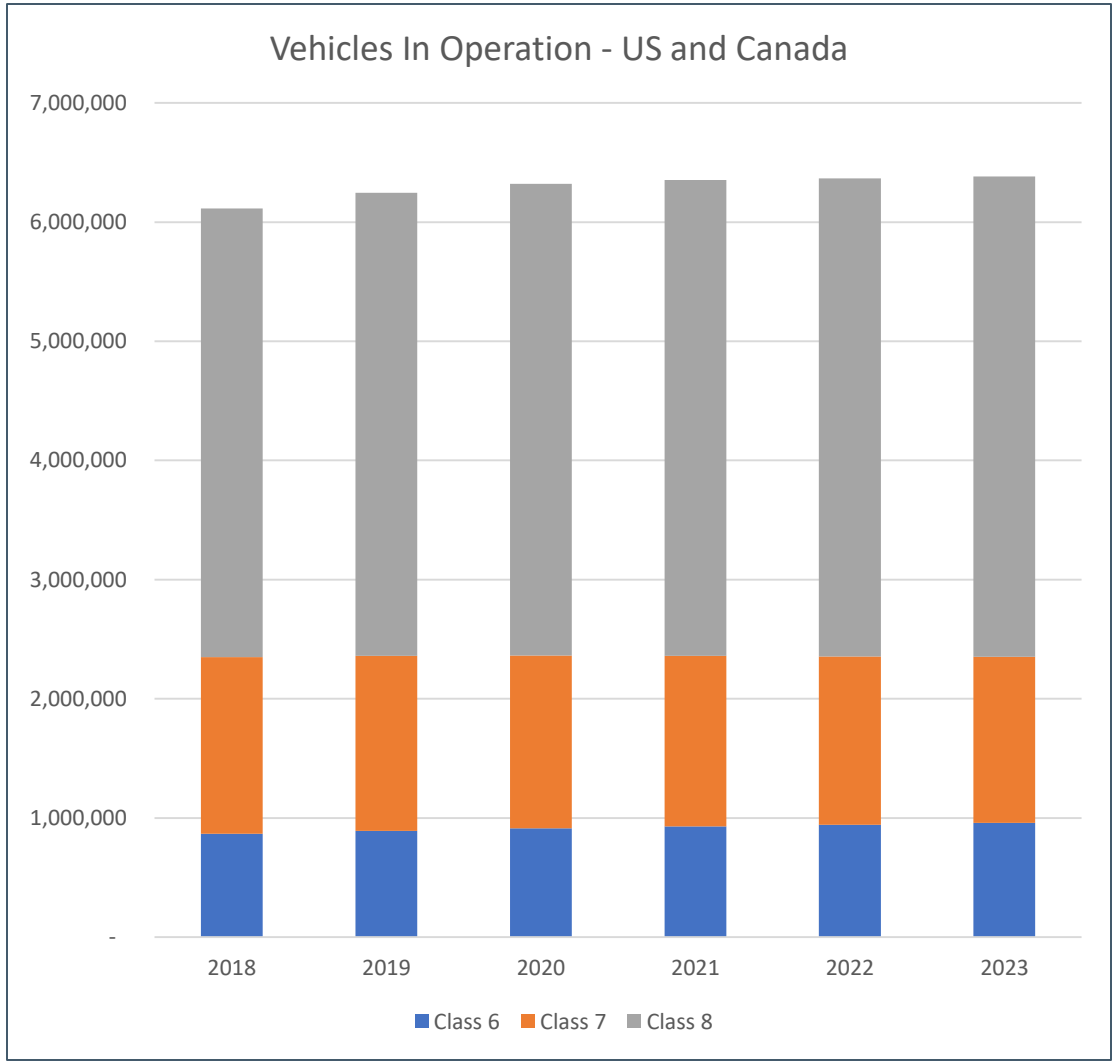
April 12, 2019

Agenda

- Current heavy-duty truck market landscape
- Future trends: electrification in our market space
- Diesel vs. electric: the new value of powertrain and moving parts
- Comparing different electric powertrain systems
- Electric Vehicle impact to the aftermarket

Class 6-8 Production & Vehicles in Operation



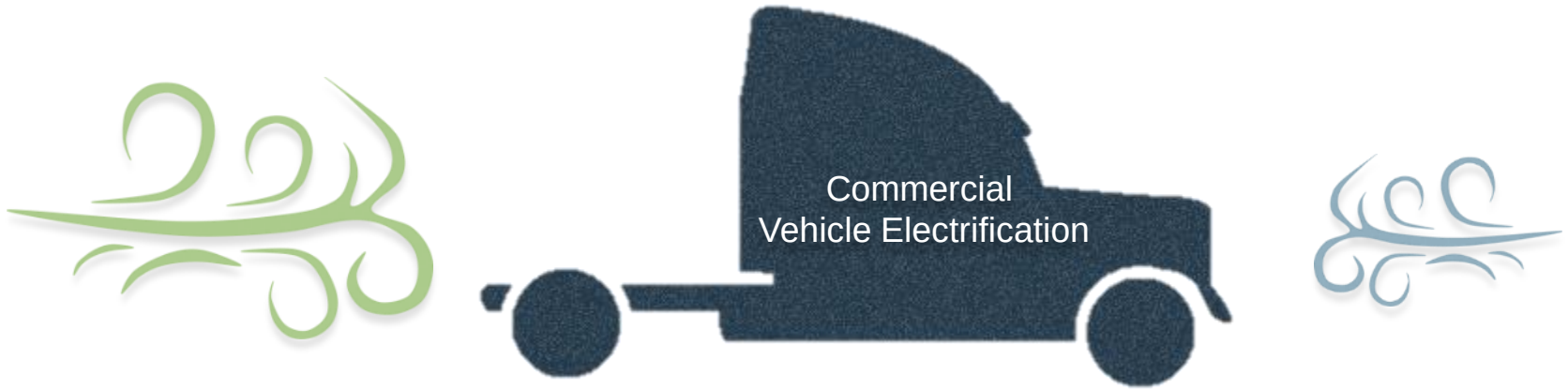


Data thanks to : MacKay & Company

AXLETECH

Market Headwinds Are Becoming Tailwinds

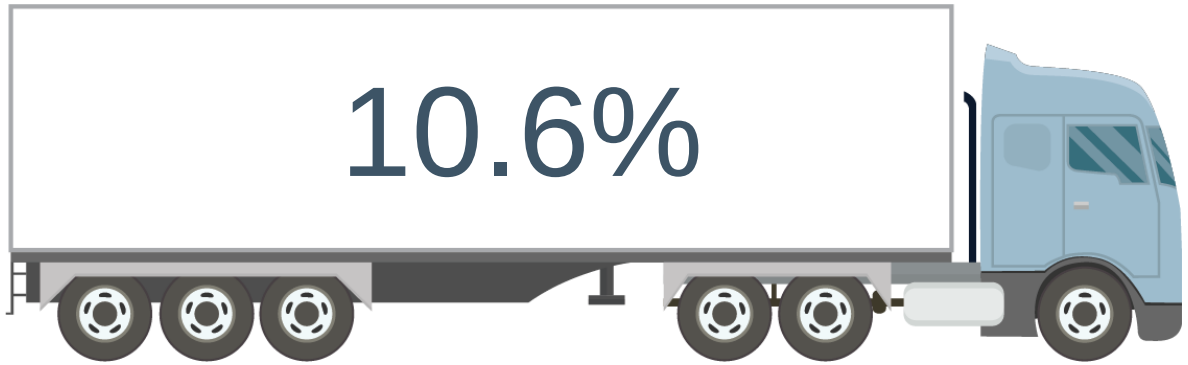
Tailwind	Factors	Headwind
Prices are rapidly dropping	Battery prices	Technology standardization
Major OEM's are developing EVs	Adoption rate	Current fuel cost
Progressive fleets are starting to fund EV	Customer acceptance	Traditional fleets slow to move
Utilities are looking for new revenue	Infrastructure development	Charging installation is expensive
Funding opportunities are growing	Funding/subsidies	Not available in all states



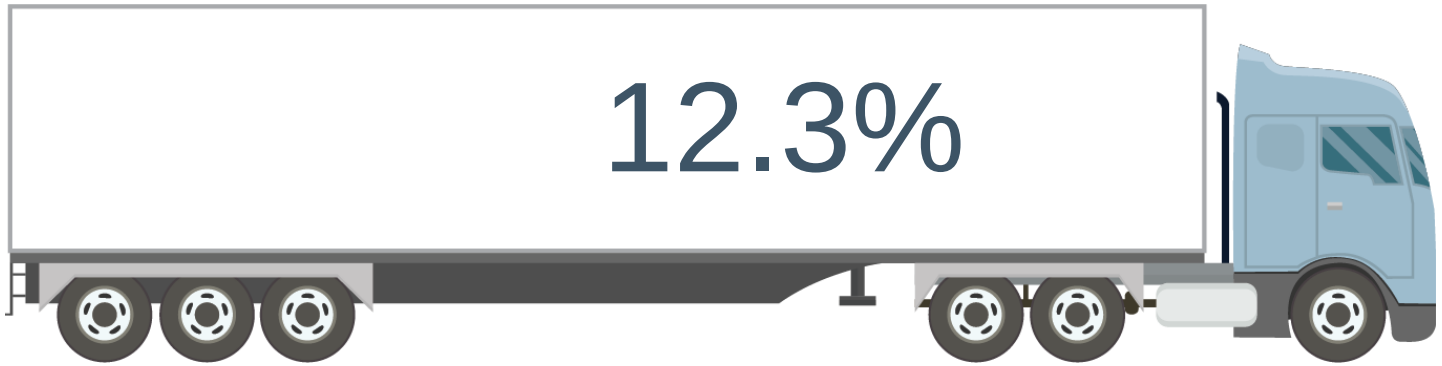
Infrastructure

Where is the Industry Going?

Electric medium- and heavy-duty truck sales by 2025 – **global**



Electric medium- and heavy-duty truck sales by 2025 – **North America**



2019 2020 2021 2022 2023 2024 2025

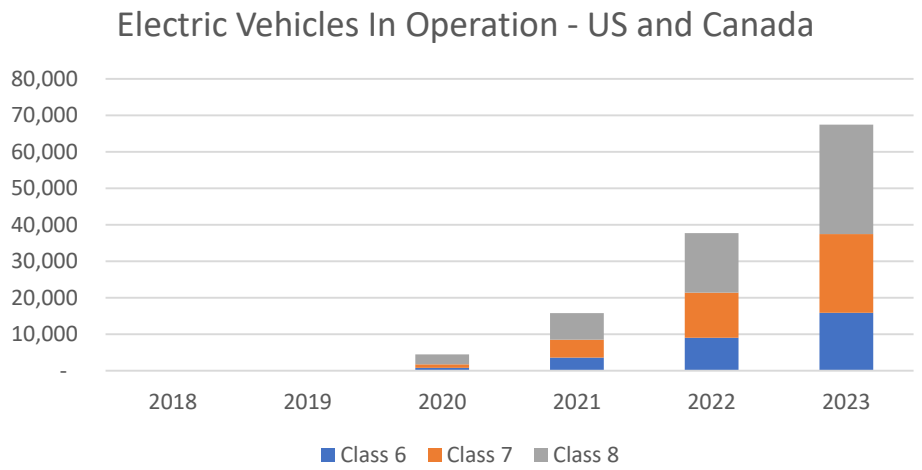
*Source: Frost&Sullivan Study

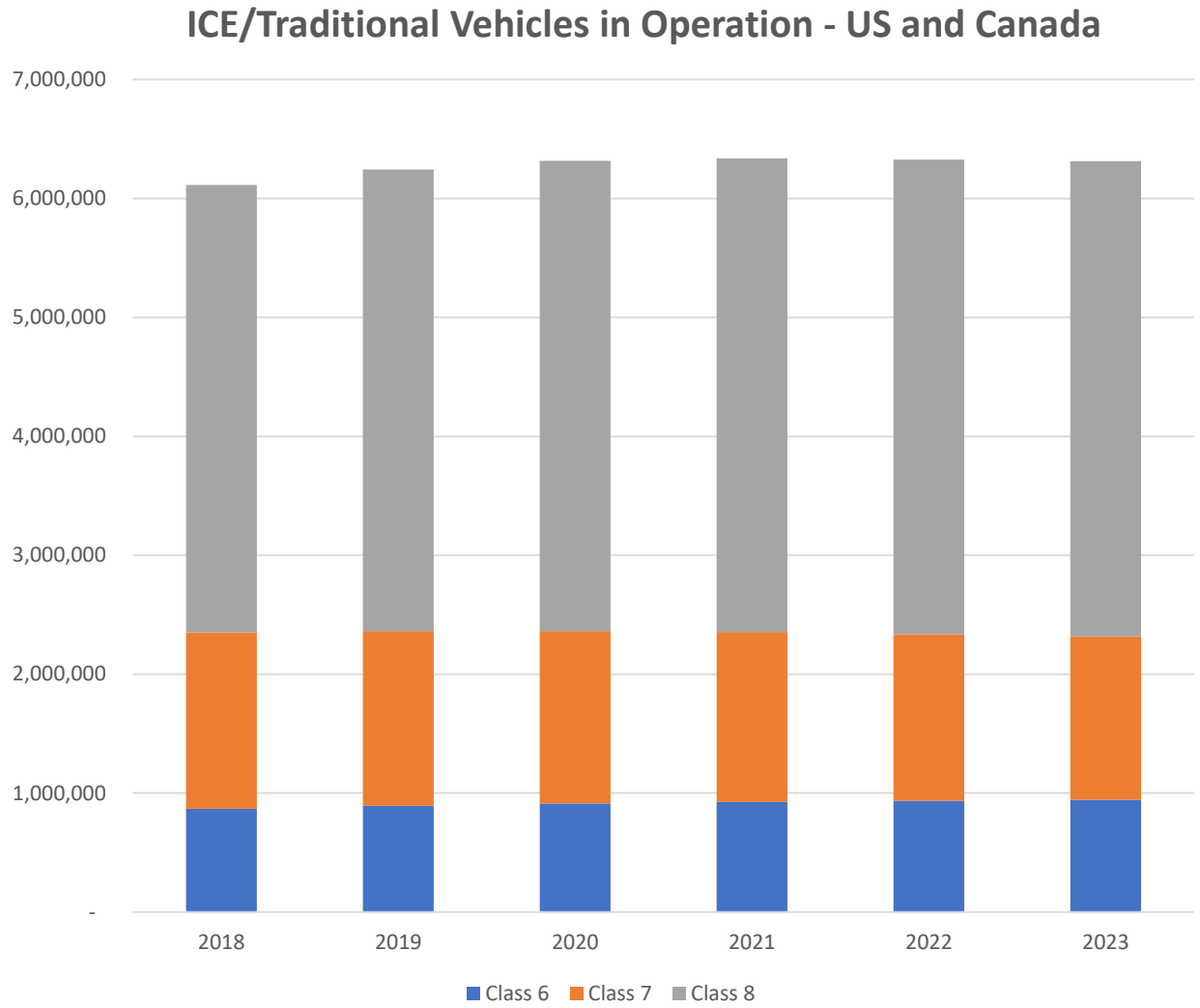
Future Market Landscape

Electric Vehicle Adoption Rate*

	Class 6	Class 7	Class 8
2018	0%	0%	0%
2019	0%	0%	0%
2020	1%	1%	1%
2021	4%	4%	2%
2022	8%	8%	4%
2023	10%	10%	6%

*Assumption averaging Frost&Sullivan and UBS Studies





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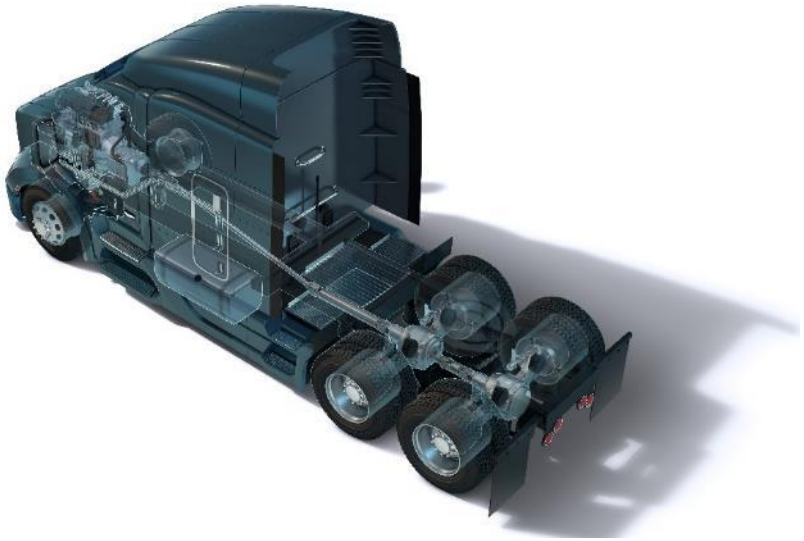
ICE vs. Electric: Components

Diesel Class 8 Truck



1,000+ moving parts

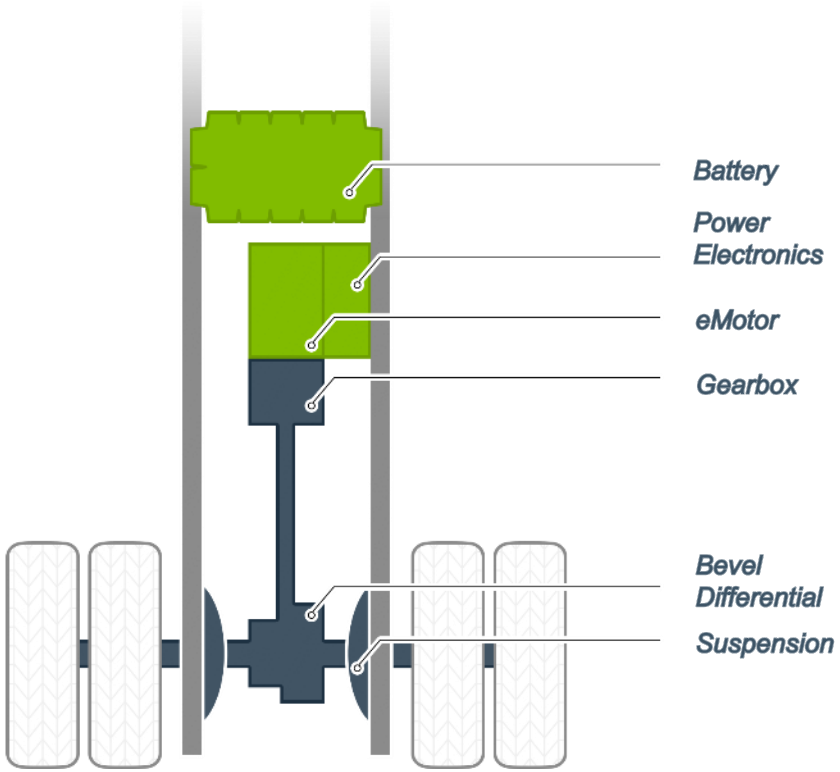
Source: Forbes

Battery Electric Class 8 Truck

<50 moving parts

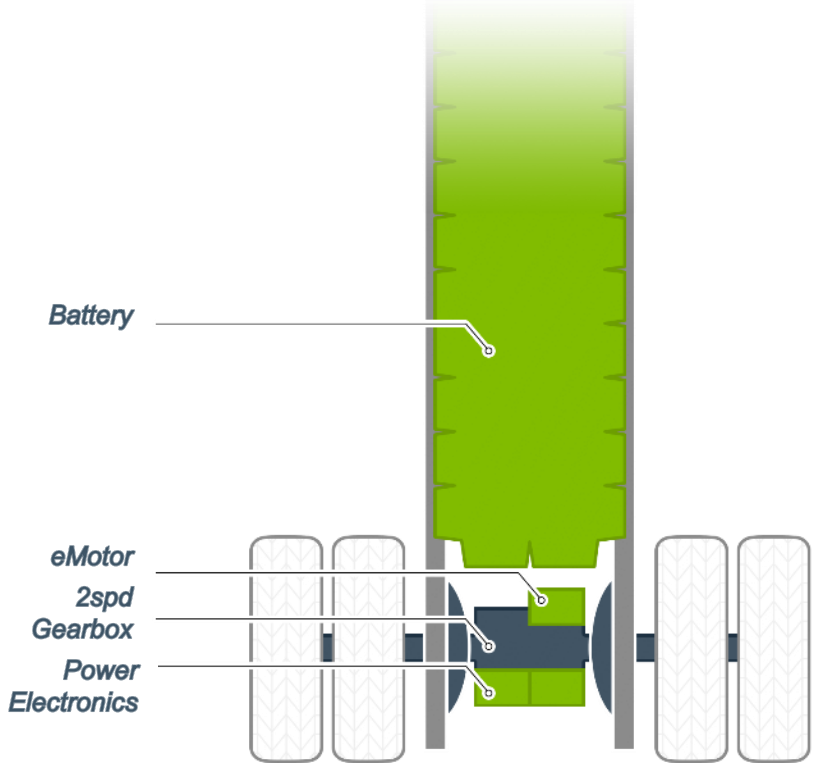
Electric Powertrain Evolutions

Conventional powertrain with remote mount “Direct Drive” architecture



~10% Efficiency Loss
Gearbox + Prop Shaft + Traditional Axle

Future e-axle integrated solutions



~6% Efficiency Loss
Single Gearbox

Powertrain Solutions – A few Samples

Meritor

14Xe

Dana

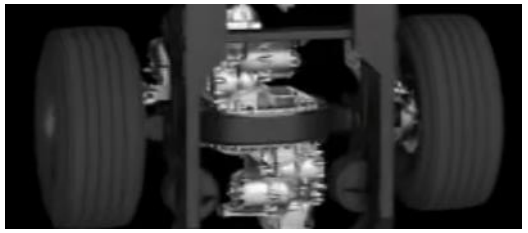
eS9000r

AxleTech

AFE Series

Tesla

Tesla



Wrightspeed

ZF

AVE130

AxleTech

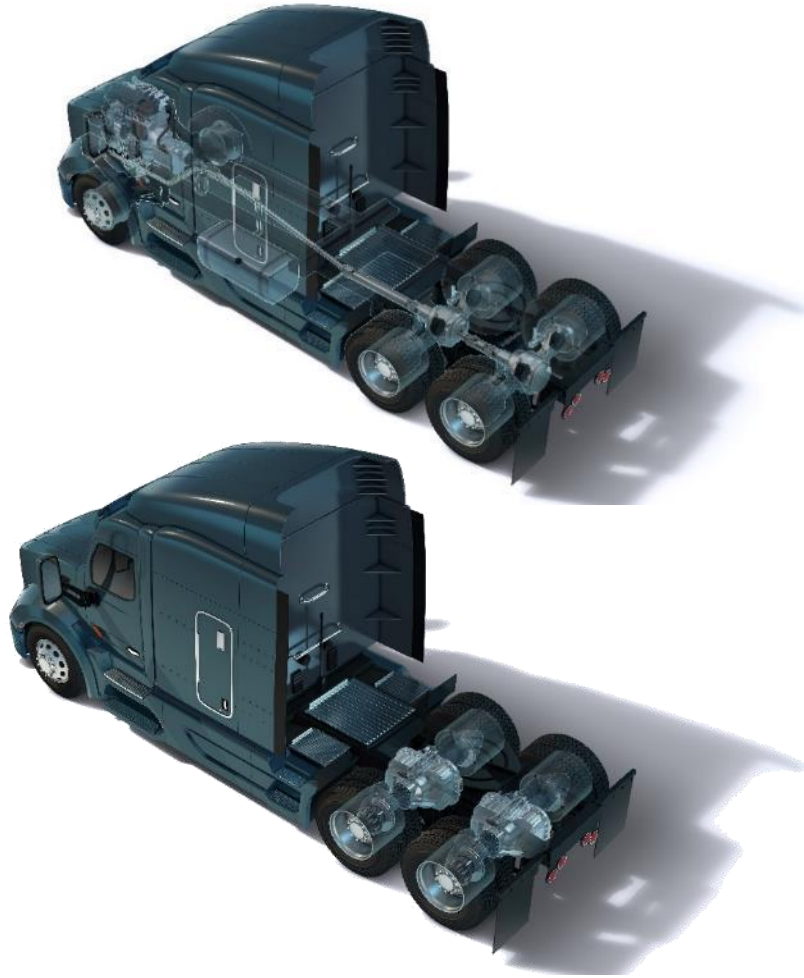
AXE Series

Nikola

Bosch e-Axle

Changes in the Aftermarket

Top 15 Subgroups	2018 Annual Aftermarket	Percent of Aftermarket*
Tires	$ 10,650,168,980	26%
Engn Cmpnnts:Extrnl	$ 4,312,907,794	11%
Air Brakes	$ 3,749,874,917	9%
Engn Cmpnnts:Emissions	$ 2,550,099,160	6%
Engn Cmpnnts:Rpr/Mnt	$ 2,304,481,600	6%
Othr Prts/Cmpnnts	$ 1,464,663,636	4%
Hood/Fndr/Radir	$ 1,297,860,137	3%
Pwr Strng/Frnt End Prt	$ 1,223,914,930	3%
Sspnsn: Sprngs/Shcks	$ 1,205,407,344	3%
Engn Cmpnnts:Intrnl	$ 1,193,519,872	3%
Air Conditioning	$ 1,166,720,799	3%
Axle Components	$ 974,474,251	2%
Lghts/Msc Elctrcl	$ 945,057,084	2%
Manual Trnsmssns	$ 874,070,239	2%
Auto Trnsmssns	$ 806,008,616	2%



Almost 40% of the spend will shift……. but only for the small percent of vehicles that are electric

* Does not include fuel or lubricants

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Opportunities in the Aftermarket

- More content in the “axle”
- Electric motors
- Inverters
- Cables / wires / harnesses
- Batteries

Thank you.

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