

# Acquisitions of Vantage Power and AxleTech Electric Vehicle Systems

April 2019



# Transactions Summary

## Allison acquired Vantage Power (VP)

- Transaction Price: approximately £7 million (\$9 million)
  - Potential to pay up to an additional approximately £6 million (\$8 million) over the next three years based on specific conditions being met
  - Cash consideration for 100% stock sale
- Closed transaction on April 12, 2019



## Allison acquired AxleTech's Electric Vehicle Systems (EVS) division

- Transaction Price: \$123 million
  - Cash consideration for asset purchase
- Closed transaction on April 16, 2019



Pro forma net leverage of approximately 2.1x

# Business Overview

Vantage Power designs and manufactures vehicle electrification and connectivity technologies applicable to a broad range of commercial end markets. VP is recognized as a leader and pioneer in the United Kingdom electrification and connectivity ecosystem.

- West London based, award winning technology-focused start-up, dedicated to the electrification and connectivity of commercial vehicles
- Broad portfolio of innovations including energy storage systems, hybrid and electric control systems, and an Internet of Things big data telemetry system
- Technologies and solutions that span the entire value chain from design to integration and in-service support
- Spearheaded the hybrid and electric repower concept, designing a first-of-its-kind fully integrated hybrid repower system for buses
- Proprietary remote control, monitoring and diagnostics technology



# Technologies Portfolio

## Hybrid and Electric System Design and Integration



- Highly-developed integrated solutions for hybrid and electric propulsion systems
- Large and complex programs with OEM and tier one manufacturers
- Design, test and validation, rapid prototyping and battery pack pilot manufacturing capabilities

## Battery Systems



- Innovative battery systems for demanding, commercial applications
- Advanced battery management software (BMS) with market leading features such as geo-fenced cell balancing, machine learning failure prognostics and fully wireless BMS
- Unique cell cooling technologies and advanced cell welding methods

## Control Systems



- Powertrain control systems for both hybrid and full electric commercial vehicles
- Proprietary remote control, monitoring and diagnostics technology
- Advanced energy management algorithms

## Telemetry Data Systems



- Scalable cloud based platform and on-board hardware to connect vehicles with secure and encrypted authentication and two-way communication
- Platform access for OEMs to create new product specific functions such as predictive maintenance, performance analysis and location-based services
- Developed and tested for compatibility and scalability with other VP technologies

# Acquisition Benefits

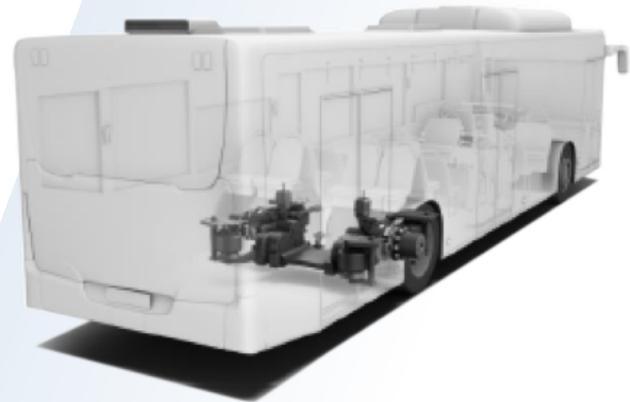
- History of innovation in components and sub-systems complement Allison's strengths in electrified propulsion
- Highly skilled, experienced and specialized engineers and operational staff
- Complements Allison's integration expertise with battery systems, vehicle control systems and vehicle telematics
- Aligns with Allison's electric vehicle (EV) strategy to be the global leader in electrified propulsion for commercial vehicles



# Business Overview

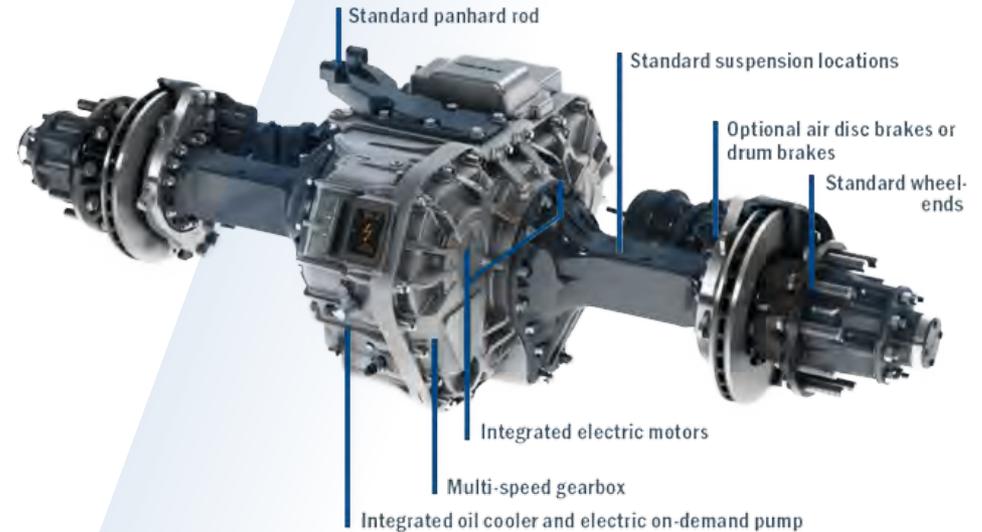
AxleTech's Electric Vehicle Systems division designs and manufactures fully integrated electrified-axle propulsion solutions for medium- and heavy-duty trucks and buses.

- Fully integrated electrified solutions designed to fit between the wheels, with adoption by broad customer base
- Systems engineering approach for completely integrated propulsion solutions, including electric motors, single or multi-speed gear boxes, propulsion controls and software
- Strategic relationships with OEMs to further develop fully integrated electrification solutions in the commercial truck and bus markets
- Collaboration with Allison led to the acquisition of the EVS division from AxleTech, to leverage Allison's position as a market leader in commercial vehicle propulsion solutions



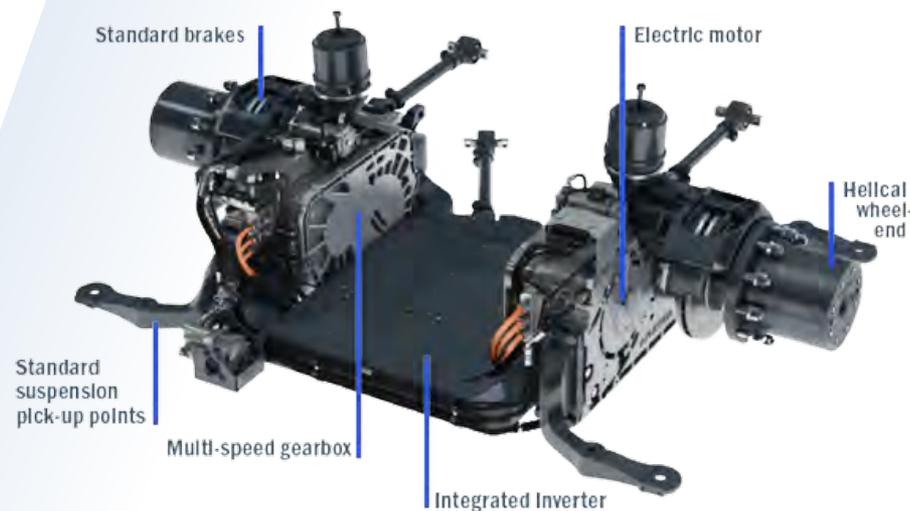
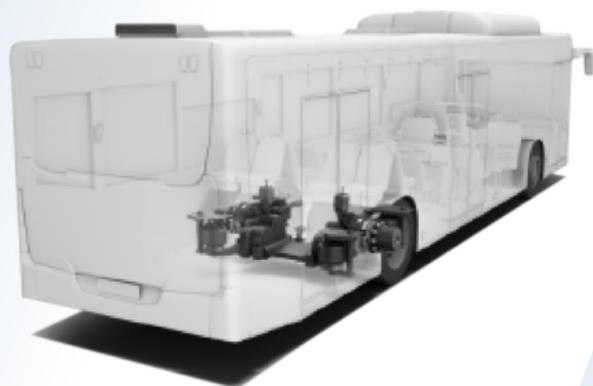
# Commercial Truck and Bus Solutions

- Line of fully integrated electric axles designed to fit between the wheels of medium- and heavy-duty trucks and buses
- Allison's latest electrified bolt-in solution is compatible within the current vehicle frame, suspension, wheel-ends, and OEM vehicle assembly process
- Features fully integrated electric motors, a multi-speed gearbox, proprietary oil cooling and pump, providing one of the industry's top performing and most efficient solutions
- Ideal propulsion solution for battery electric, fuel cell electric and range extending electric hybrid vehicles



# Transit Bus Solutions

- Line of fully-integrated electric axles designed to fit a variety of transit configurations, including low and ultra-low floor, articulated, double-decker and conventional chassis
- Bolt-in solution, available in single- and multi-speed options, requiring no modifications to existing bus frame or suspension
- Features integrated electric motors, power electronics, multi-speed gearing, proprietary oil cooling and pump, providing continuous power and ability to run closer to peak power for longer durations
- Efficient and powerful solution for bus fleets today, capable of operating without restrictions at highway speeds and on all required grades



# Acquisition Benefits

- Portfolio of highly integrated electric axles for medium- and heavy-duty truck and bus applications
- Global customer relationships and active OEM programs
- Talented, cross-functional and experienced engineering team
- Collaborative efforts facilitated through knowledge of the technology
- Aligns with Allison's EV strategy
- Allison believes it is well positioned to commercialize
  - OEM and end-user relationships
  - Manufacturing capabilities
  - Service and distribution network



AXLETECH®  
ELECTRIC VEHICLE SYSTEMS

# Acquisitions Strategic Fit

- Extends Allison's position as a leader in propulsion for medium- and heavy-duty commercial vehicles
- Augments Allison's portfolio of products to provide a full range of propulsion solutions
  - From conventional powertrains and alternative fuels to electric hybrid and fully electric systems
- Leverages strategic alliances to identify and access complementary core propulsion technology competencies and capabilities
- Expands vocational expertise and over 15 years of electrification experience to the majority of global commercial vehicle electrification opportunities
- Accelerates the efficient, timely and differentiated provision of preferred electrification solutions to our end markets
  - Enhanced electric hybrid and fully electric systems capabilities and integration
  - Collaborative development and acquisition of emerging electric axle technology
  - Multi-speed central drive solutions currently in development
- Enhances broader Innovation Research & Development engineering team to accelerate the realization of Allison's electrification vision

# Leader in Commercial Propulsion

Allison's addressable market is a complex application space due to vocational fragmentation, requiring a range of propulsion solutions where we are a natural supplier

- Internal Combustion Engines
- Alternative Fuels with proven performance and a funded infrastructure
- Electric Hybrid Systems, including flexible hybrid, range extender and plug-in options
- Full Electric Solutions, including fuel cell and battery electric applications

Allison intends to remain a global leader in commercial vehicle propulsion and is positioning to meet the market's future demands with the right products, for the right customers, at the right time

- Ongoing initiatives for opportunities across all of our end markets (On-Highway, Off-Highway, Defense, Hybrid, EV)
- Multiple electrified solutions currently in development:
  - Multi-speed Centrally located EV drives
  - Extended Range Electric Hybrid Propulsion
  - Systems & Battery Management
  - Integrated e-Axles
  - Transmission Integrated Generators
  - Power distribution for electrification of accessories

# Safe Harbor Statement

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