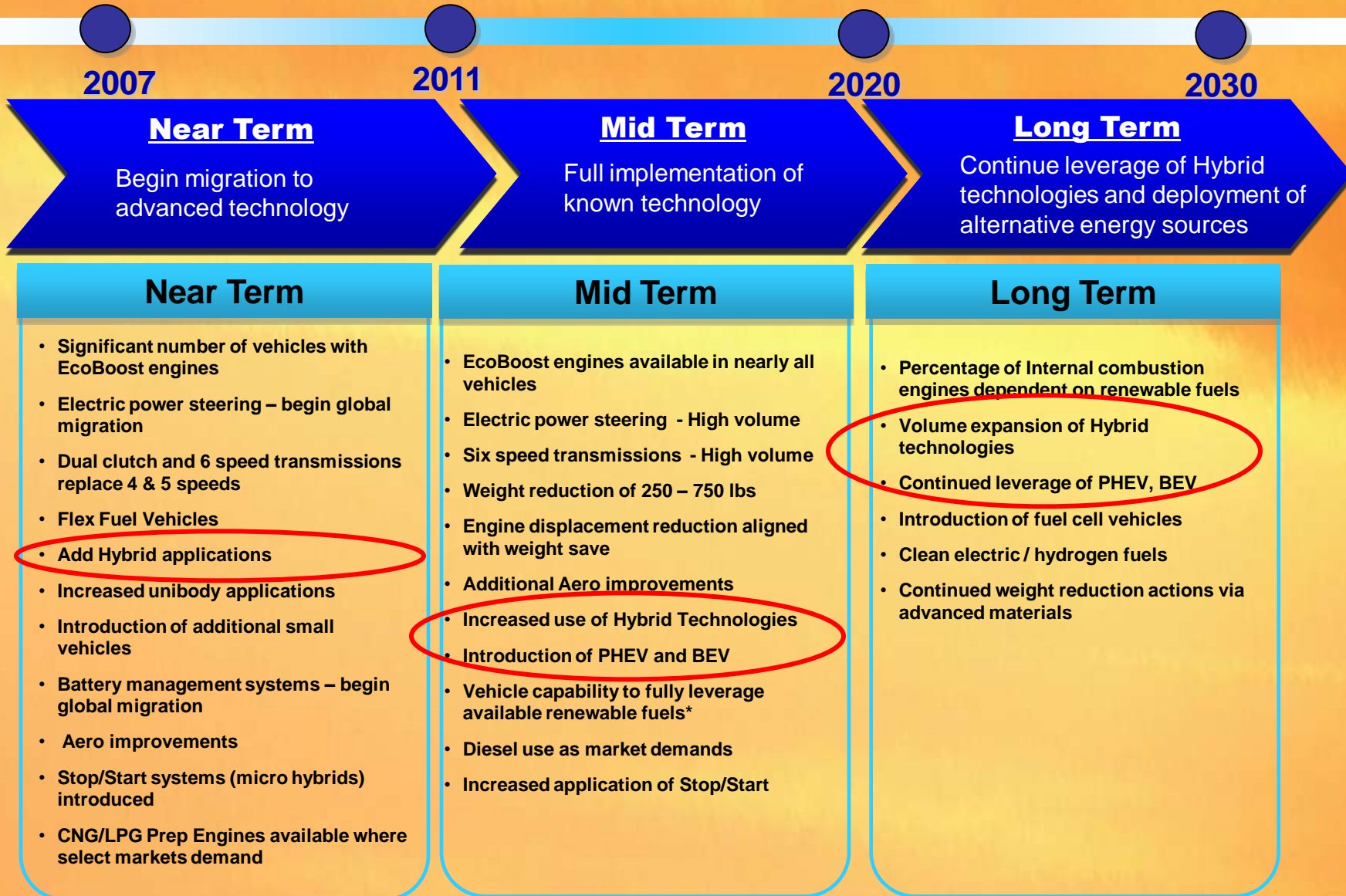




Transit Connect Electric

Sustainability Strategy – Technology Migration



**Comprehensive Strategy
to Address Climate Change and Energy Security**



Ford North America – Announced Electrification Projects

2004 CY

2010 CY

2012 CY

2018+ CY



BEV

Battery Electric Vehicles

Transit Connect

Focus Electric
(Global C-Platform)



PHEV

Plug-in Hybrid Electric Vehicles

New PHEV



HEV

Hybrid Electric Vehicles

Escape

Next Generation HEV

Fusion / MKZ

Next Generation HEV



Ford BEVs and PHEVs



Why Transit Connect?

2010 North American Truck of the Year

Ideal platform - combination of car-like driving dynamics, cargo capacity, accessibility and low operation costs

Unique solution for greening commercial fleets



Why Azure Dynamics?

- Collaboration agreement – October 2009
- Past experience with Azure Dynamics as upfitters for Ford E 450-chassis as Balance Hybrid Electric
- Azure history of designing and developing electric drive systems for commercial vehicles



- Fast track program
 - Final product – "There's nothing like it"
 - Early customers – Commercial and UK Low Carbon project
 - Collaboration works
-

Transit Connect Electric

- Product Strategy – Defining the Product
- Collaboration and Vehicle Development
- Vehicle Characteristics Summary



Vehicle Range

USDOT Study* shows travel behavior characteristics for commercial service vehicles

- Daily mile range: 29 to 49 Miles
- Average daily miles: 41 Miles
- Average trip length: 14 miles

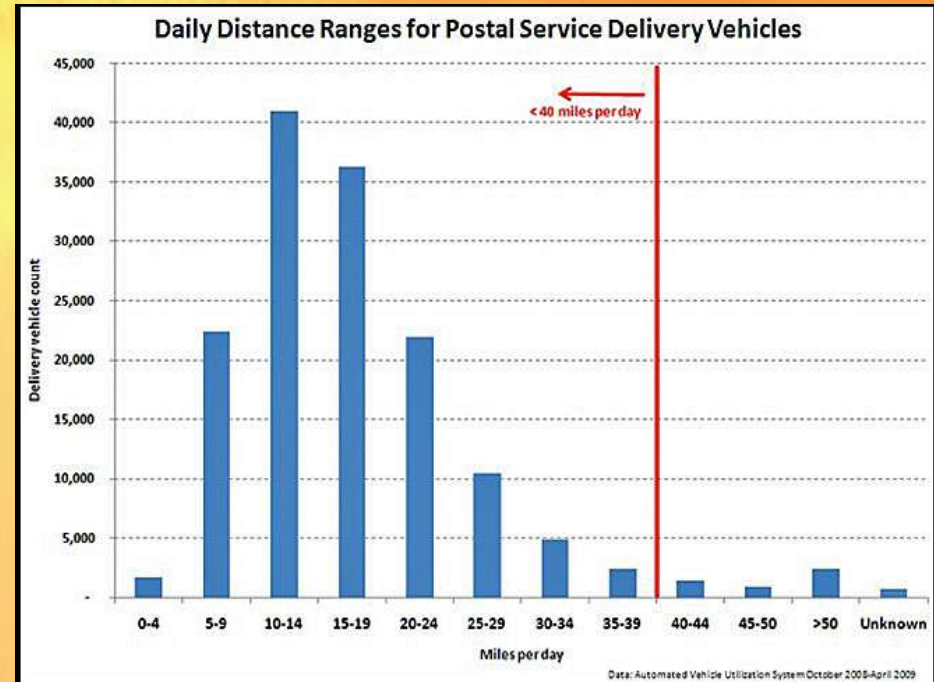
A Transit Connect Electric Range of 80 miles would meet the needs of daily commercial fleet usage

* October-2009 DOT Eight city average study - *Travel Behavior for All Commercial Service Vehicles – Aggregate Demand Method*

Vehicle Range

Vehicle Range Example:

- US Postal Service Daily Distance Range*
 - More than 96% of USPS delivery vehicles drive less than 40 miles per day.



A Transit Connect Electric Range of 80 miles would meet the needs of daily commercial fleet usage

* September-2009 Report of Daily Distance Ranges for Postal Service Delivery Vehicles

Expected Fleet Vehicle Life

Life

- US Department of Transportation RITA (Research and Innovative Tech Admin) reports a truck median age of 7.1 years (2007)

Daily Miles

- Usage of 41 miles per day and 300 days a year translates to 123,000 miles in 10 years

A Transit Connect Electric Expected Life of 10 years and 120,000 would meet daily commercial fleet customer usage

*October-2009 DOT Eight city average study - *Travel Behavior for All Commercial Service Vehicles – Aggregate Demand Method*,

** Polk's vehicle population report data is updated annually on July 1, following an in-depth analysis of more than 230 million vehicles

Target Customer Usage

- Cargo carrying and delivery fleets operated by government and private entities
- Operation in normal urban, sub-urban traffic in Canada and the US
- Daily mileage consistent with commercial fleet applications and central charge location

A Transit Connect Electric utility van is a good match for daily commercial fleet customer usage

Azure Vehicle Development Plan

| Years | 2009 | | 2010 | | | | | | | | | | | | 2011 | | | | | |
|--------|------|---|------|---|---|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|
| Months | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J |



1
Engineering development, modeling, early builds



2
Verification builds and validation testing



3
Early production builds and verification



4
Production builds

Ford /Azure Development Collaboration

| Years | 2009 | | 2010 | | | | | | | | | | 2011 | | | | | | | |
|--------|------|---|------|---|---|---|---|---|---|---|---|---|------|---|---|---|---|---|---|---|
| Months | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J |

Ford Parts Sharing

Ford Technical Guidance and Test Methodology

Ford Gilder production development and supply

Gilder Warranty



Engineering development, modeling, early builds

Verification builds and validation testing

Early production builds and verification

Production builds



Azure Powertrain Design, Development and Validation

Powertrain Warranty



Azure Vehicle Certification and Homologation

Azure Manufacturer of Record



Vehicle Characteristics Summary

| Vehicle Characteristic | Transit Connect Electric | Base TC ICE |
|---|--------------------------|--------------------------|
| Range | 80 Miles | 340 Miles |
| Cargo Volume | 135 ft3 | 135 ft3 |
| Cargo Payload | 1000 lbs (454 kg) | 1600 lbs (726 kg) |
| Life | 10 Years / 120,000 Miles | 10 years / 150,000 Miles |
| Acceleration (0-60 Eng Test Weight) | 12s | 12.3s |
| Acceleration (0-60 Gross Vehicle Weight) | 15s | 16.7s |
| Top Speed | 75 MPH | 90 MPH |
| Gradeability 3% Grade @ 60 MPH and GVW (Cont) | 3% @ 60 MPH | 2.9% @ 60 MPH |
| Gradeability 27% Grade @ GVW for 820 feet (Peak) | 27% @ GVW | 24.4% @ GVW |

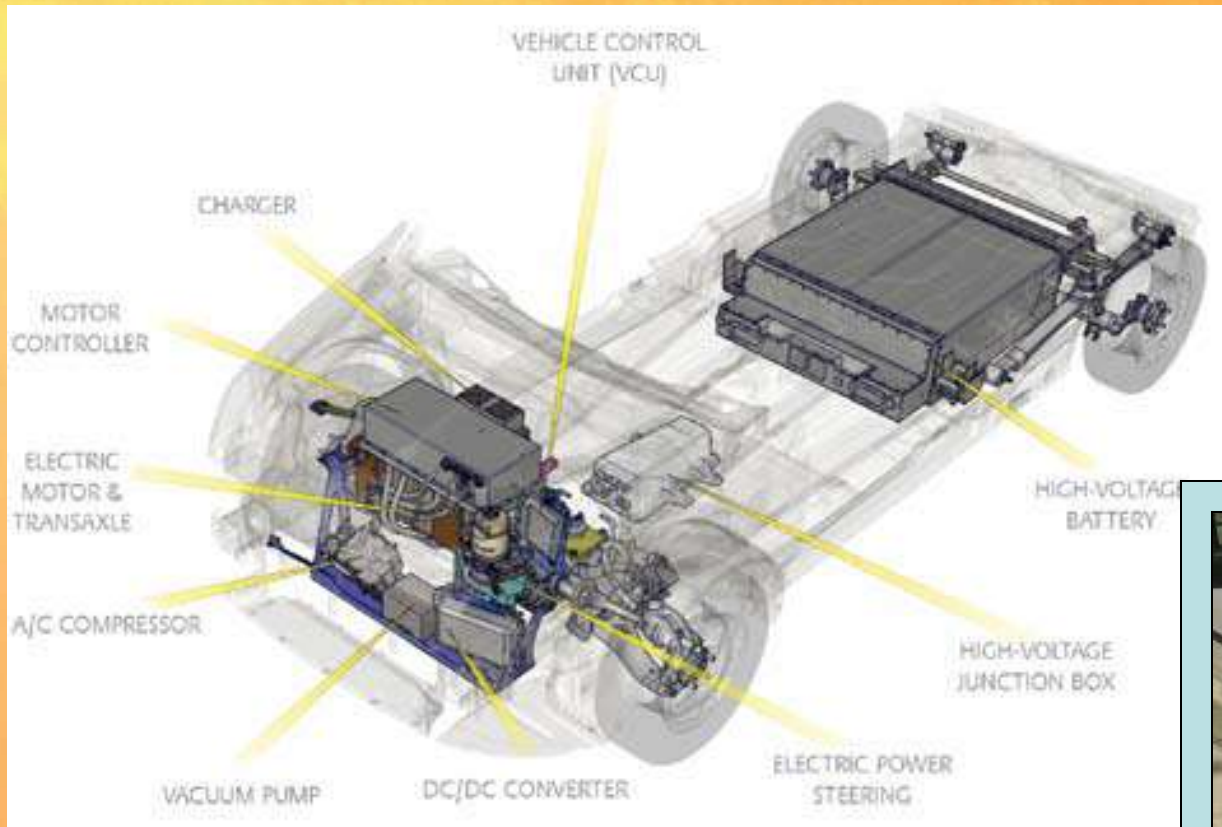
Acceleration and Gradeability are similar to base Transit Connect

Transit Connect Electric

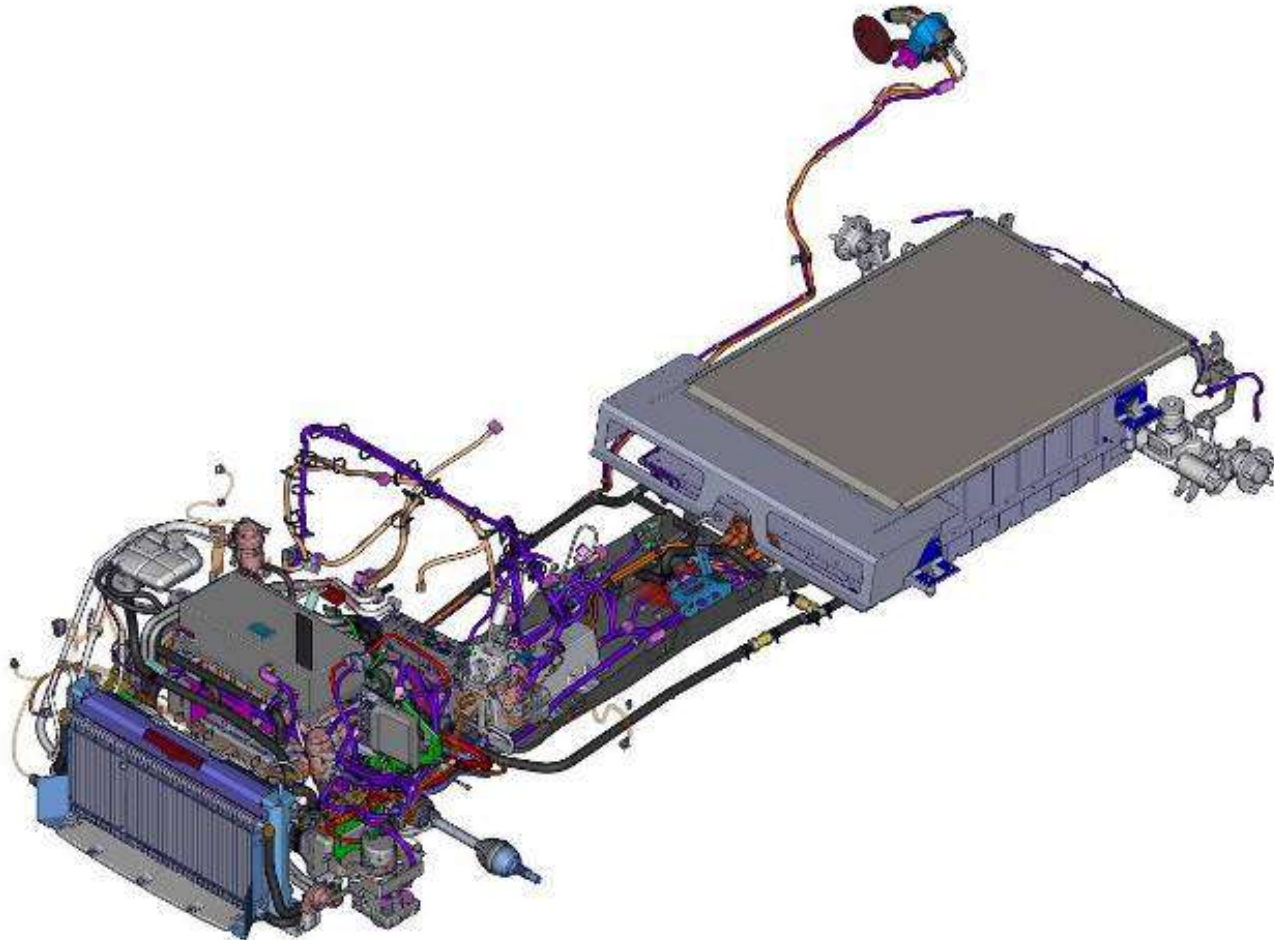
- Driveline Subsystem
- Ford Component Synergy
- Key Subsystem Components
- Vehicle Charge Interface
- Validation and Certification



Driveline Subsystem



Driveline Subsystem Components

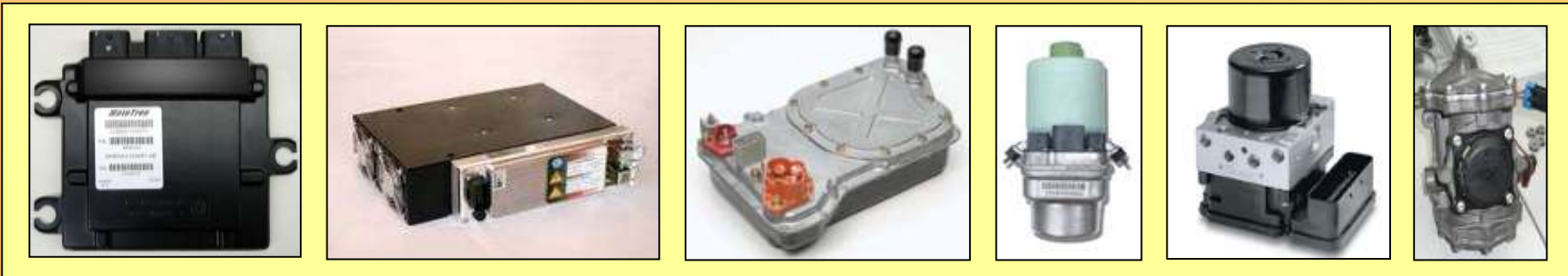


Key Subsystem Components

- Drive Motor
- Inverter
- Transmission
- High Voltage Battery



- Powertrain Controller
- High Voltage Charger
- Low Voltage DC/DC Charging System
- Electro-Hydraulic Steering Pump
- Braking System ABS/ESP/RSC Controller and Vacuum Pump



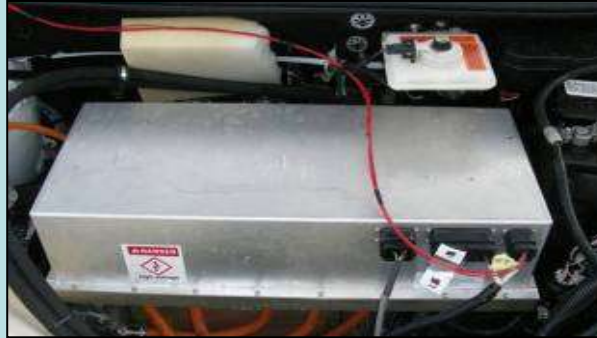
Re-use of existing components helped facilitate rapid design and development and minimized risk

Key Subsystem Components



Drive Motor

- **Siemens Model**
- **Manufactured:**
Germany
- **Production Status:**
 - In Production
- **Prior Applications:**
 - Ford Ranger EV



Inverter

- **Azure Gen II**
- **Manufactured:** Woburn, MA
- **Production Status:**
 - In Production
- **Prior Applications:**
 - Over 10 years of field experience, two programs



Transmission

- **Borg-Warner e-Drive**
- **Ratio:** 8.28:1
- **Manufactured:** Longview, Texas
- **Production Status:**
 - In Production

Re-use of existing components helped facilitate rapid design and development and minimized risk

Go Fast with Existing Ford Components

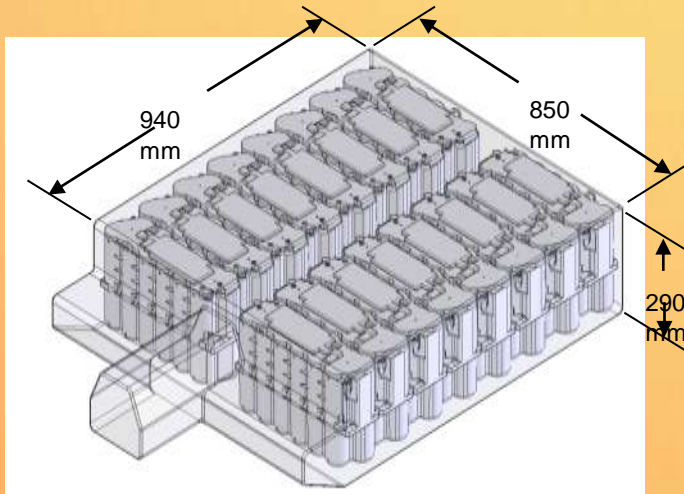
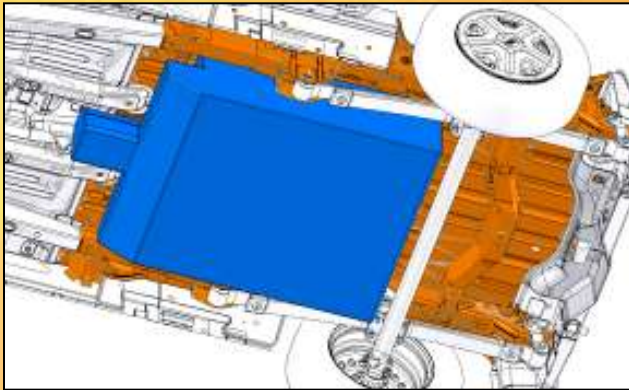
Production parts from other Ford production programs

- Hybrid Electric Vehicle Components
 - A/C compressor (Escape and Fusion)
 - DC/DC (Escape)
 - Vacuum Pump (Fusion)
 - Ford non-Hybrid Vehicle Components
 - Power Steering Pump (Ford European Galaxy Van)
-

High Voltage Battery

Supplier: Johnson Controls SAFT (JCS)

- Capacity: 28kWh
 - 16 modules
 - 192 cells
- Manufacture
 - Cells; JCS France/Holland
 - Module and Pack Assembly; Holland, MI
- Development
 - GEN II level, 12 cell module previously designed and developed.
 - Battery technology proven in over 350,000 real world miles.
 - Cells successfully completed USABC life and calendar life cycle testing.
 - Complete durability testing of Cells, Modules and Pack



The JC-S battery has proven performance in real world usage and validation testing

On-Board High Voltage Charger

Supplier: Brusa

- NLG5 - 3.3 KW
 - On board vehicle
 - Air cooled
- Manufacture: Sennwald, Switzerland
- Development Status:
 - In production since 2004
 - 4th generation
 - Compatible with Azure requirements



Use of components currently in production helped facilitate rapid design and development and minimized risk

Vehicle Charge Interface

120V HV Charger Cord – Level 1 Standard with vehicle



- 120V with GFCI
- SAE Standard Connector
- Charge Time:
 - Empty to Full Charge in 27 hours



240V HV Charger – Level 2



- 240V with GFCI
- SAE Standard Connector
- Charge Time
 - Empty to Full Charge in 6 – 8 hours

Utilizes SAE approved charge infrastructure

Vehicle Validation and Certification

- Azure certified to FMVSS, CMVSS, EPA, CARB
- Azure vehicle testing and evaluations completed
 - Crash tested to meet FMVSS/CMVSS
 - Range tested on Ford vehicle dynamometers
 - Durability testing at Ford Proving Grounds
 - Vehicle Dynamics evaluations at Ford Proving Grounds



Summary

- Unique partnership combines delivery van utility with electric drive technology
 - Uses existing components to facilitate rapid design and development
 - Vehicle performance similar to base Transit Connect
 - Will meet commercial fleet customer daily usage range
 - Azure certified to all safety and emissions regulations
-

Transit Connect Electric LEAD Customer Program

Business



Canada



Energy
Producer



Announced 12/07/10

A large state
utility company