LowCVP Strategies and Opportunities to invest in Low Carbon Automotive

Plaisterers' Hall, London

March 23rd 2010

Case Study:

Controlled Power Technologies

Guy Morris - Engineering Director

Delivering CO_2 Reduction Technologies

Agenda

- Our Background
- Our challenge
- Our technologies
- Our advantage
- Our partners
- Our markets
- Our customers
- Our investors
- Our future
- Summary
- Questions?

Our background - Automotive

Delivering Technology for Low Carbon Powertrains

Delivering CO_2 Reduction Technologies

LowC VP
low carbon vehicle partnership

CPT POWER
CONTROLLED POWER TECHNOLOGIES

Controlled Power Technologies

Delivering Technology for Low Carbon Powertrains

- CPT Created March 2007
  - Products, Technology and Facilities acquired from Visteon Corporation, December 2007
  - Exclusive Global Licence for Switched Reluctance Motors from Emerson Corporation, December 2007
- Organisation
  - Experienced management team, including key members of technical team responsible for Products from Inception
  - ~30 employees including 25 engineers in 2 locations: Basildon and Coventry
- Approach
  - Focused on target niche market with the agility to adapt to the uncertain needs of the industry during transition to Hybrid Powertrain
  - Technical Competences
    - Powertrain
    - Power Electronics
    - Control Electronics and Software
    - Automotive Industry Design and Validation
  - Working in Technology and Manufacturing Partnerships

Our challenge - legislated

Environmental legislation is driving the need for lower vehicle carbon emissions:

- EU: limit of 130g/km CO_2 for new cars by 2012, requiring a reduction of 16% from current levels in 2 years. Tougher restrictions also being introduced for off-highway vehicles
- US: first nation-wide emission target of 250g/mile (155g/km) for 2012, with permission for individual states to impose tighter limits.

The automotive industry needs technical solutions

At a price that the consumer is prepared to pay

CPT products focus on delivering cost effective reductions in fuel consumption and CO_2 emissions without major change to vehicle or engine design

Our technologies - affordable

CPT products all have at their core patented, low cost, Switched Reluctance machine technology

Our technologies - affordable

VTES Electric Supercharger

Variable Torque Enhancement System

CO2/FUEL ECONOMY BENEFITS

- 6 – 20% by:
  - Down-Speeding of Engine (Current Engines)
  - Down-Sizing of Engine (Future Engines)
  - Micro-Mild Hybrid (Future Vehicle Electrical Architectures)

DRIVER BENEFITS

- Excellent low engine speed torque and dynamic response of vehicle
- Green and Fun to Drive

Our technologies - affordable

TIGERS - Turbogenerator

Turbogenerator Integrated Gas Energy Recovery System

CO2/FUEL ECONOMY BENEFITS

- 6% by:
  - Recovering a significant part of the 30%+ fuel energy lost in exhaust gas
- Complements mature and cost effective energy storage technology
  - Under development by many OEMs and Tier 1s

Our technologies - affordable

CPT SpeedStart®

Integrated Starter Generator

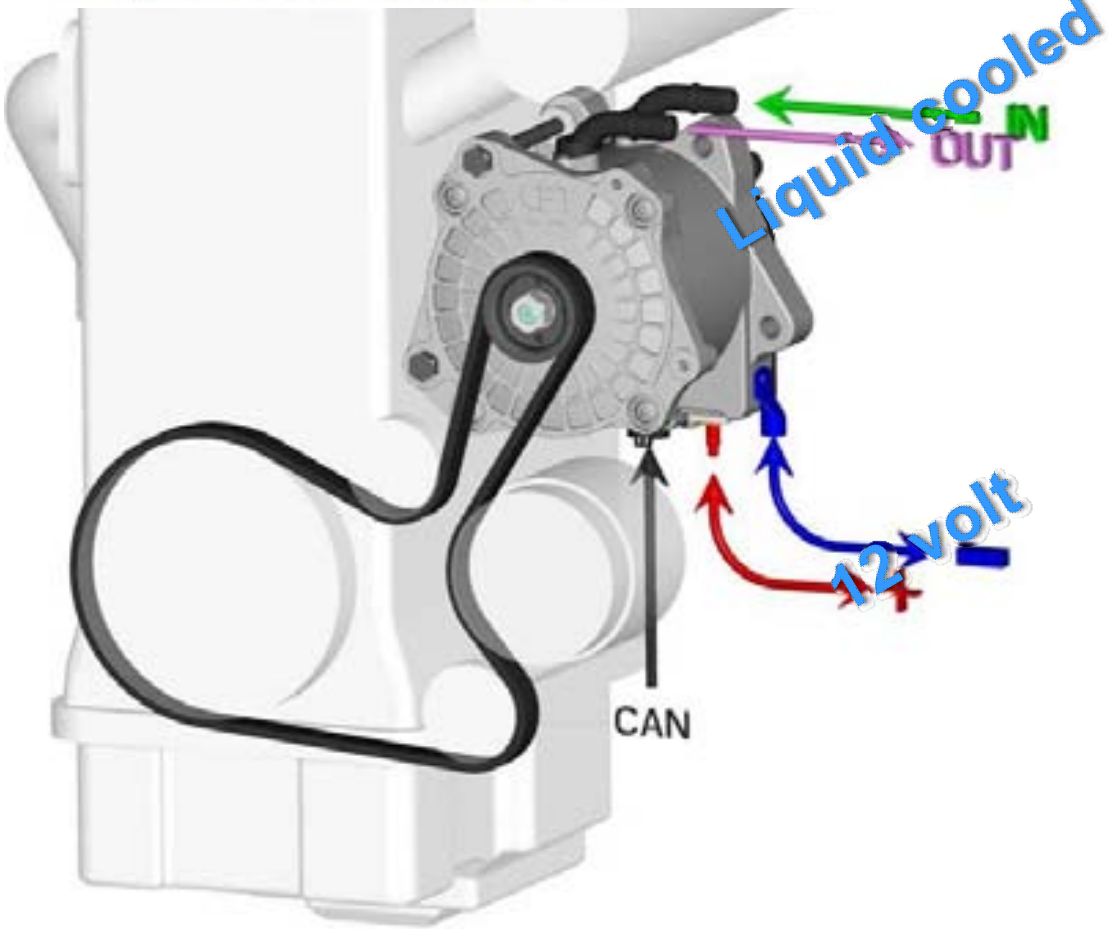
CO_2/FUEL ECONOMY BENEFITS

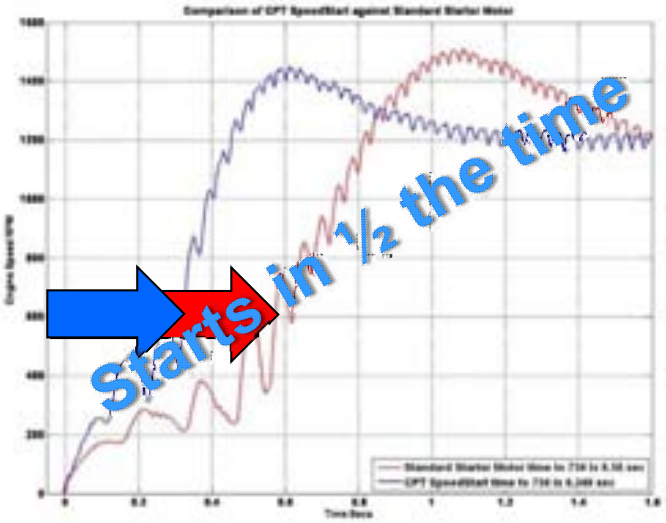
- 5 – 20% by:
  - Stop-Start + Efficient Generation
- 8 – 25%
  - Stop-Start + Regeneration
- **DRIVER BENEFITS**
- High Torque, Fast Response
- Desirable, 'Comfort' Stop-Start
- Efficient, High Current Generator
- Unique 'Driver Change of Mind' capability

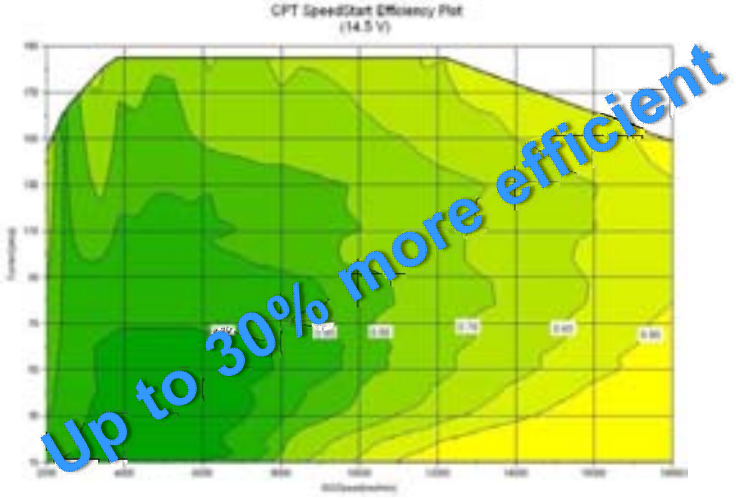
Our technologies – BiC 12V

CPT SpeedStart®

Integrated Starter Generator







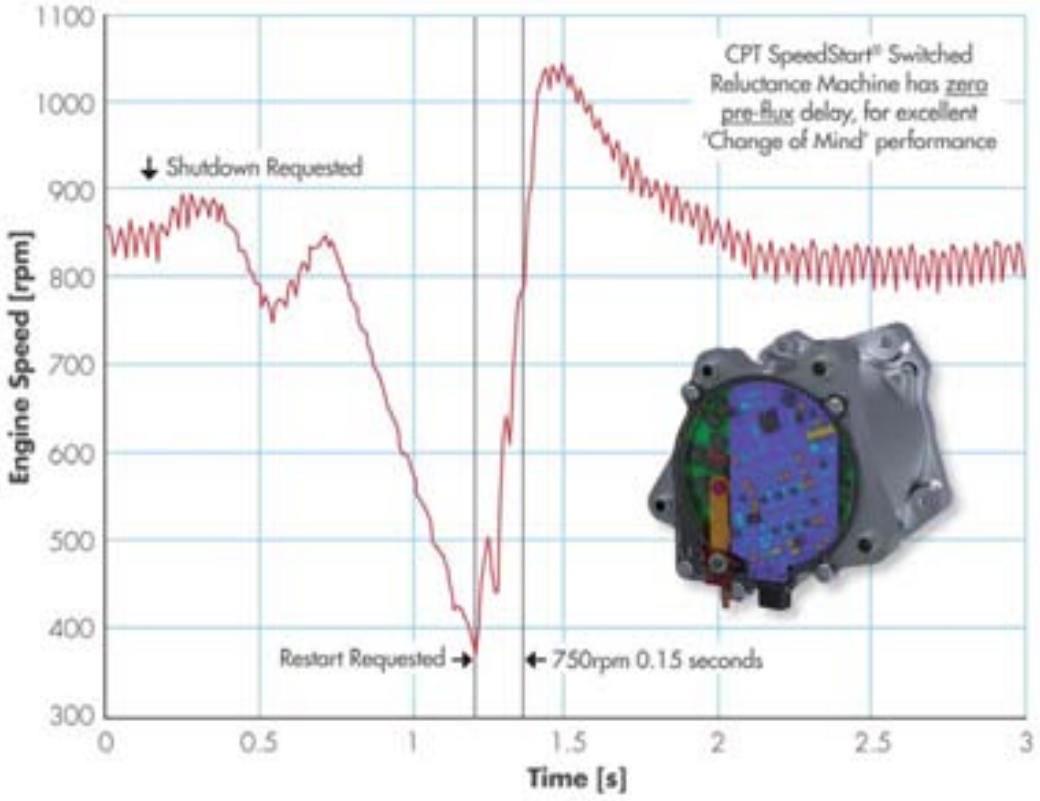
LowC VP
low carbon vehicle partnership

CPT POWER
CONTROLLED POWER TECHNOLOGIES

Our advantage - technical

CPT SpeedStart®

Integrated Starter Generator



- **Switched Reluctance Machines are the most responsive of Stop-Start technologies available**
- **Confidence inspiring dependability, combined with refined comfort to deliver class leading performance**
- **10 times faster than a starter motor**
- **3 times faster than a "magnet" ISG**

CPT SpeedStart - Saving the Planet One Stop at a Time™

LowC VP low carbon vehicle partnership

CPT POWER CONTROLLED POWER TECHNOLOGIES

Our partners - international

Building on its Automotive heritage CPT has a network of partnerships across the globe:

13 Tier 1
44 Tier 2/3
16 Consultants

Our partners - international

Our markets

- CPT products are suitable for most vehicle applications
- Wherever there is a heat engine running there is opportunity
- All combustion systems can benefit – including HCCI
- CO_2 reduction advantage is largely independent of fuel type
- Both in cylinder & exhaust emission reduction possible
- Even fuel cells can benefit from CPT technology
- CPT technology enables cost effective vehicle CO_2 reduction

Our markets - global

CO_2 reduction is a Global need

CPT is servicing customers both in Europe and Worldwide

Our customers - interested

Our customers - interested

CPT has a global customer base of OEMs and Tier1s

Our Investors - perspective

- £7m A-Round completed in 2008
- £6m B-Round now two thirds complete
- Customer contracts expected this year
- Exit via trade sale in ~2 years (already receiving approaches)
- Projected investor return circa 10x
- Strong existing shareholder base:

CONDUIT VENTURES LIMITED

Entrepreneurs Fund
GROW IN GOOD COMPANY

reformer

TURQUOISE Associates

National Technology Enterprises Company

مؤسسة البترول الكويتية
Kuwait Petroleum Corporation

Mowinckel Management

LowC VP
low carbon vehicle partnership

CPT POWER
CONTROLLED POWER TECHNOLOGIES

Our future - e.g. collaborations

HyBoost

Technology Strategy Board
Driving Innovation

CPT POWER · Ford · RICARDO · Valeo

RegEnBoost

CPT POWER

- Downsized, boosted petrol engine
- Ultra-capacitor energy store
- 18-27V bus
- CD segment vehicle
- <100g/km CO2
- Delivery September 2011

- Advanced lead-acid energy store
- 20-50V bus
- 20kW launch assist from VTES
- 3kW recuperation from SpeedStart
- Significant value, package & weight benefits over existing mild-hybrids

Using government support to accelerate adoption

Summary

- CO2 reduction and fuel economy are both a key focus for the global automotive industry
- Customer interest is high but a value focused offering is essential to achieve market acceptance
- CPT has a family of products that can deliver a cost effective transition towards low carbon vehicles...
- ...without major change to vehicle or engine design...
- ...at a price that the consumer is prepared to pay...
- ...and with enhanced driver enjoyment

Controlled Power Technologies
Delivering technology for low carbon Powertrains