



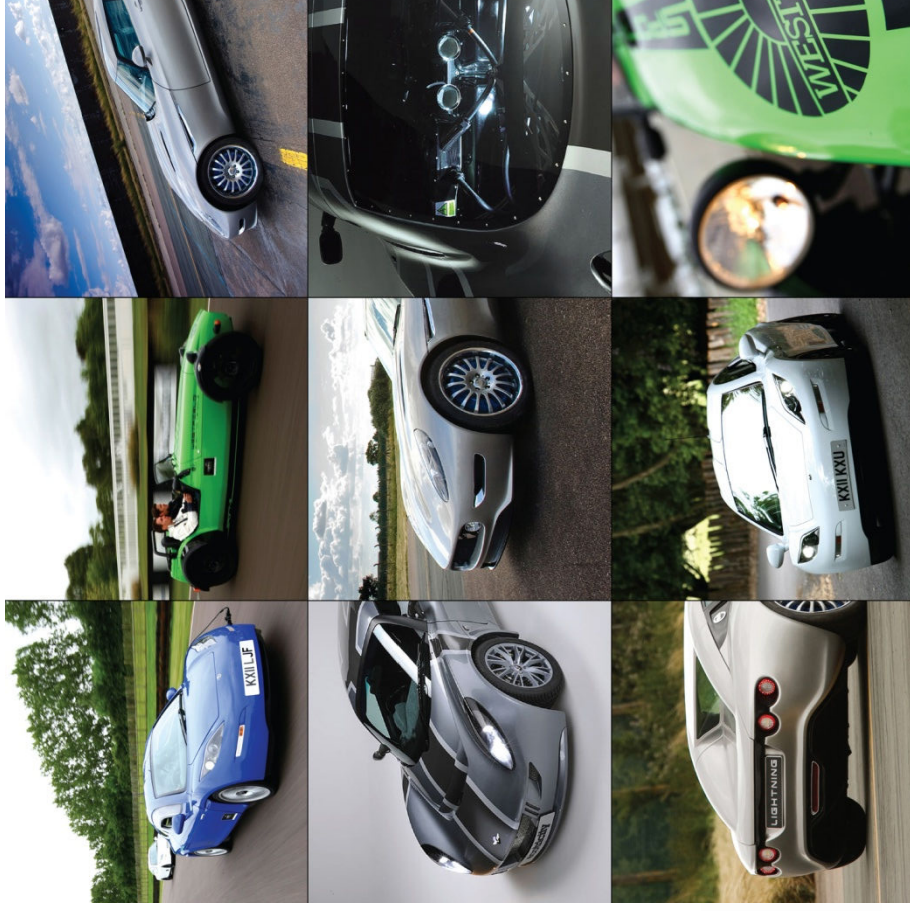
www.eemsaccelerate.co.uk

EEMS Accelerate – The Lightning Experience

Tim Martin

8th September 2011

Technology Strategy Board
Driving Innovation



delta
motorsport

ecotricity



Lightning



AEA



About EEMS Accelerate

Technology Strategy Board
Driving Innovation



delta motorsport

ecotricity



EEMS Accelerate is a consortium of organisations selected for part-funding by the Technology Strategy Board under their Ultra Low Carbon Vehicle Demonstrator Competition.

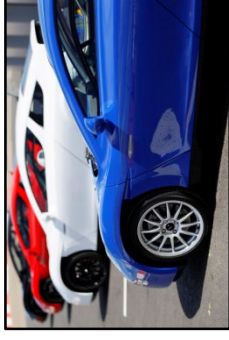
Our aims;

- Showcase high performance electric vehicles using cutting edge British design & engineering;
- Motivate British industry to pursue further R&D in electric vehicles
- Challenge the preconceptions of electric vehicles



Working with the Technology Strategy Board

The Technology Strategy Board works with business to speed up the development of low carbon vehicles



These are tomorrow's cars today.

Technology Strategy Board

Driving Innovation



EEMS Partners



- AEA is Lead consortium partner for EEMS Accelerate carrying out project management, data analysis and dissemination activities.
- One of the world's leaders in energy and environmental consultancy and information management
- Operating in the UK, Europe, US and China advising UK government, the EU and major private sector organisations in energy and climate change, air and water quality, sustainable transport, risk management, carbon management, resources and waste and knowledge transfer

www.aeat.co.uk



EEMS Partners

delta motorsport

- Delivering the E4 Coupe to the EEMS Accelerate trials – a compact, lightweight, low drag, 4-seat passenger car with a super-efficient drive train
- Delta Motorsport has a background in high performance engineering
- Best known for designing and building the cars that competed in the Grand Prix Masters series
- built as a showcase for Delta Motorsport's engineering prowess

www.delta-motorsport.com

ecotricity

- Delivering the Nemesis to the EEMS Accelerate trials- designed and built by a team with F1 experience
- Ecotricity is Britain's first green energy company dedicated to changing the way Britain's energy is made
- Ecotricity's founder Dale Vince OBE set out to prove that electric cars need not be boring but can be fast, exciting and safe
- The Nemesis is charged using green electricity that has been generated by Ecotricity's own wind turbines

www.ecotricity.co.uk



- Westfield's pure EV road car is participating in the EEMS Accelerate trials
- Westfield is engineering driven, focusing on lightweight, innovative sports cars which lead the niche and component build markets
- Working since 2006 on low carbon, high performance vehicles to meet the needs of the future
- One of the few remaining, British owned family run, premier brands in the niche and kit car market, looking to expand further in the EV, hybrid and Race markets.

www.westfield-sportscars.co.uk



- Provides full operational support to vehicles being tested within the EEMS Accelerate consortium
- Green Motion is the world's first fully environmentally friendly car and van rental company
- Offers customers the choice to rent vehicles featuring the latest CO₂ and low carbon emission technology

www.greenmotion.co.uk



Lightning Car Company Ltd



www.lightningcarcompany.co.uk



Lightning before TSB funding

We started in 2007 with private funding

-electric supercar potential researched ~ Lightning GT design concept emerged

-key partnerships approached

-operational showcar built

-international exhibitions

-market demand established

-test bed for powertrain & battery systems ~ crucial technology lessons learned



But we needed a concept validation prototype.....

Key tasks

Mature the design specification

- battery tech confirmed
- advanced chassis
- new powertrain
- in-house IPR



Develop the industrialisation plan

- all key partners now signed up
- validation & production plans established
- fully operational prototype built & running



Premium desirability & exclusivity

- desirably different designs implying drama, excitement*
- highly personalised, hand crafted, emotive, like haute couture*
- competitors include fabulous jewellery, a yacht in Monaco*

High end purchase decisions focus

- designs which embody the elegance of classic British style*
- performance potential that is breathtaking- truly electrifying*
- luxury to the core that delights with tactility & craftsmanship quality*

Our role as car creators

- architects focusing our creative talents on premium products*
- leverage our partners' investments in production capability*
- constantly scan new technologies but only adopt when proven*
- focus our own IPR on integration, applications & higher volume potential*

Why Lithium Titanate?

Operational issues

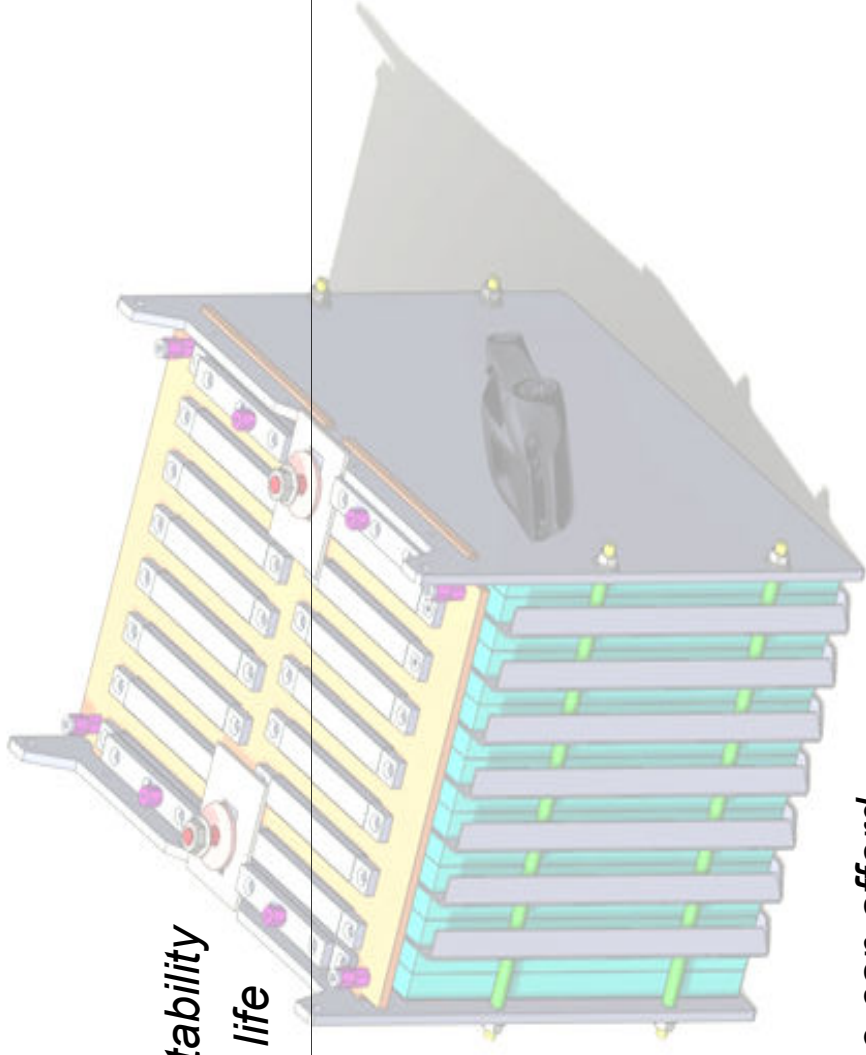
- safety & operating temperature stability*
- cost, weight, charge time & cycle life*
- proven performance*

Technology leadership

- energy density already 20% up*
- upgradeability fully protected*

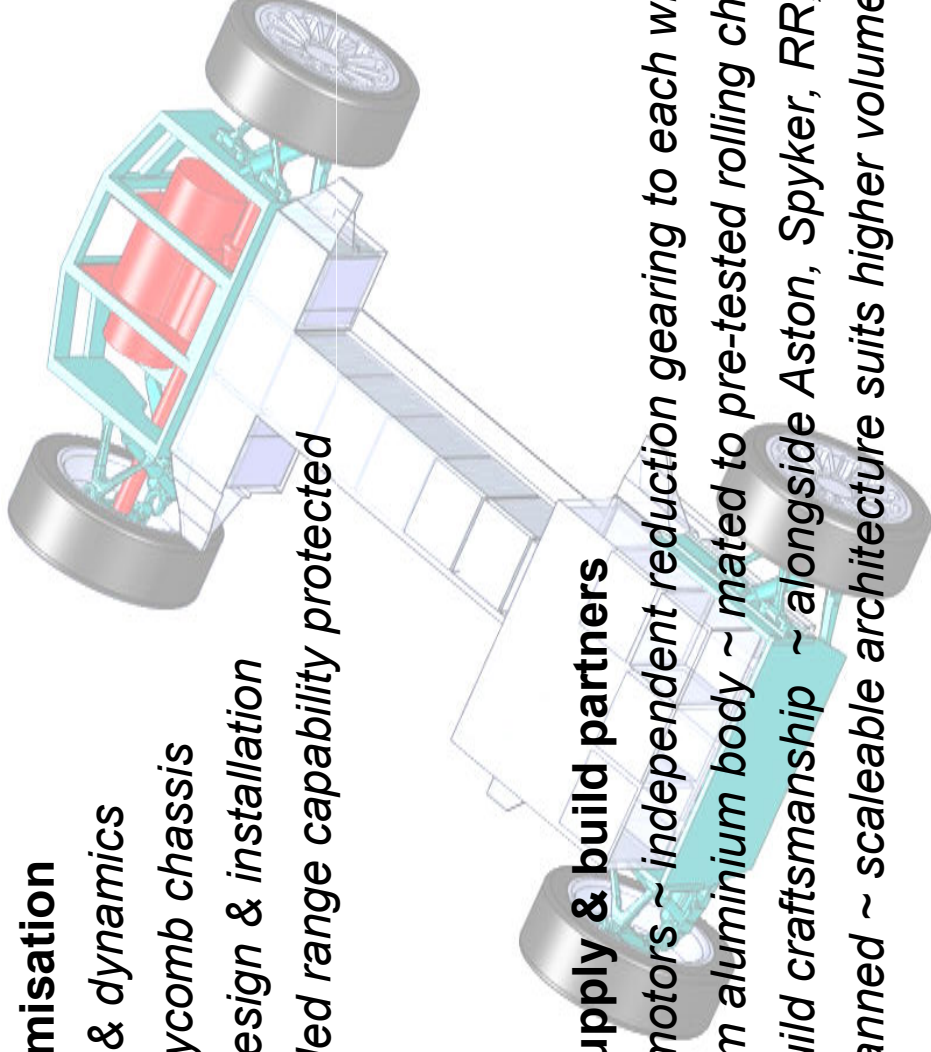
Premium markets think different

- exclusivity & residual values*
- superb solutions that not everyone can afford*
- expensive jewellery isn't hung on a piece of string*



Packaging optimisation

- mass location & dynamics*
- ultra stiff honeycomb chassis*
- battery pack design & installation*
- 4WD & extended range capability protected*



World class supply & build partners

- twin onboard motors ~ independent reduction gearing to each wheel*
- CPP Superform aluminium body ~ mated to pre-tested rolling chassis*
- superb final build craftsmanship ~ alongside Aston, Spyker, RR, Bentley*
- low volume planned ~ scaleable architecture suits higher volume derivatives*



Lightning validation to launch

EEMS car

- 12 month road trial underway*
- real world EV user experience is crucial*
- superb reliability is testament to concept*
- excellent foundation for validation program*



Production validation

- maturity through multi phase prototype plan*
- next investment triggers countdown to launch*

Brand development process

- brand secured across key markets already*
- European launch roll out 2013, US & 4WD after*

Consortium benefits

- internal cooperation*
- pointers about reliability*
- shared build & IVA issues*
- credibility with supply chain*
- coordinated PR opportunities*

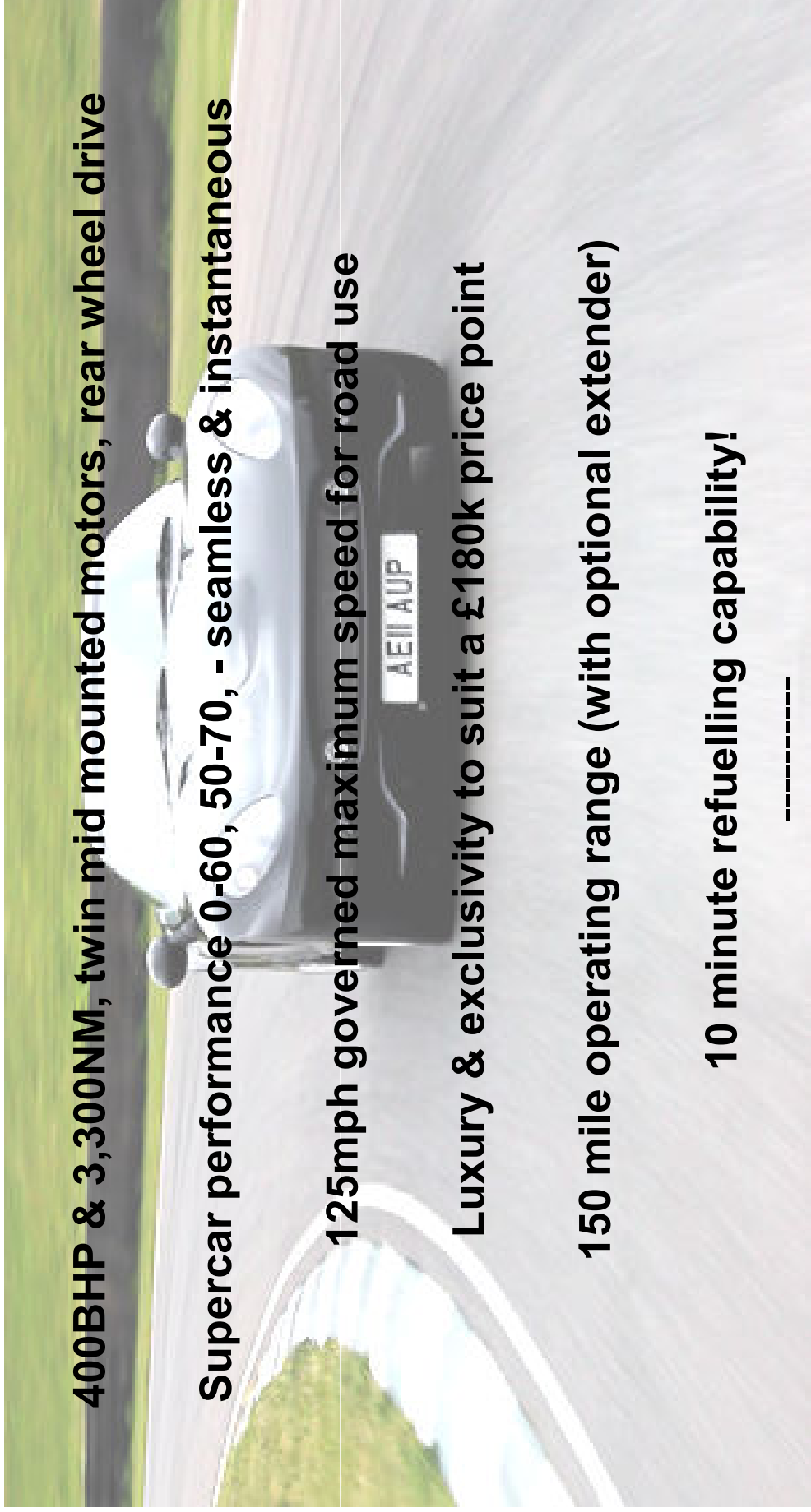
Understanding of market

- supercar with conscience*
- a thirst for really exciting EVs*
- range & recharge demands are not consistent*
- the competitive playing field is extremely dynamic*
- unique EV noise characteristics bring opportunities as well as problems*
- careful EV architecture can transform both the dynamics & the ownership experience*





Lightning GT launch specification



400BHP & 3,300NM, twin mid mounted motors, rear wheel drive

Supercar performance 0-60, 50-70, - seamless & instantaneous

125mph governed maximum speed for road use

Luxury & exclusivity to suit a £180k price point

150 mile operating range (with optional extender)

10 minute refuelling capability!

(Later 4WD derivative planned)

Tim has specialised in automotive product development in Europe, the USA and India. From early days at Ford Trucks on the Transit and Cargo programs through the groundbreaking Buick Reatta sportscar, as Chief Engineer at Leyland Daf for what became the Renault Master van and as project director of the seminal MGF and Chrysler's Plymouth Prowler sportscars for Mayflower, to a period as Director of new product development at Thyssen Krupp Chassis; Tim has had a guiding hand in the development and launch of some of the most influential automotive products on our roads today. Tim has a mechanical engineering degree from Brunel University and an MBA from Cranfield.

With broad experience of establishing and running automotive manufacturing businesses and projects in the energy sector, Tim was appointed CEO of the Lightning Car Company in mid 2010 and is now charged with bringing the iconic all electric Lightning GT supercar to production reality. Lightning is currently securing full investment funding through the global private equity markets in order to fund the 18 months program that will bring the GT to market from early 2013. The GT is to be followed by other exciting Lightning EV derivative products based on a common platform.



For further information please visit:
www.eemsaccelerate.co.uk