Driving Clean Technology

Presentation by Nicholas Gill, Corporate Director of Aeristech Ltd

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- worlds most power dense electric motor
- accelerates to 150,000 RPM in 0.5 secs
- 1st application - zero lag electric turbo
- enhances engine downsizing
- by 2020 60mn cars pa fitted with turbos to save fuel
Aeristech’s achievements

- Devised a new way to control electric motors
- First patent granted. Other global patents pending
- $3.5mn of equity / grants already secured
- Projects with 10% of global car manufacturers (+10% more)
- These are paid projects which are providing early revenues
- Board has excellent corporate & commercialisation expertise

35kW motor compressor can accelerate to 150,000 RPM in 0.5 seconds

- 20 times more powerful
- Twice the top speed of competing compressors
Both a Control Technology Company & a Motor technology Company

Advanced Novel Control Technology Capability

Electrical switching frequency is lower than conventional motor drives delivering higher efficiency and torque density. This allows exceptionally accurate high-transient motor control.

Power Dense Motor Design and applications development Company
Instantaneous Air Boost Capability

Instantaneously compresses air into an engine to enhance combustion

Compressor & generator - full electric turbo to replace mechanical turbos

Summary Advantages

• Eliminates turbo-lag
• Greater engine downsizing (2L to 1L)
• Enhances fuel efficiency by 25%
• Reduces particulate emissions
• Legislation Drivers
  - Vehicle fleet carbon footprint
  - Particulates emissions
Why will Aeristech’s electric turbo-charger succeed?

Manufacturers recognise that existing turbo-charging solutions suffer from turbo-lag and limit engine downsizing (which is essential to meet legislation drivers).

A global top 5 manufacturer has acknowledged Aeristech's unique offering for (1) efficient control of high-speed machines, (2) very rapid response, and (3) high-power "FULL" electric turbo-charging.

Thus Aeristech’s competitors like Turbodyne are not really competitors.

Interest in electric boosting demonstrated by Valeo’s recent acquisition of a much less powerful electric supercharger technology for $47mn.

No challenges about integrating technology into a vehicle. Aeristech’s control technology can be readily integrated into the vehicles system.

With mass production, technology cost to OEM will be $350 per unit.
Aeristech’s Customers & Initial Markets

10% of global car manufacturers testing electric turbo prototypes - paid projects.
Further 10% discussing paid projects.

Off-highway vehicles – legislation driven customer testing prototype to reduce particulate emissions.
Electric Vehicle Customers for our motors & generators

Sports Car Projects
- Aeristech motor generator being considered for Formula 1 cars for the 2014 Season
- Aeristech generator in a high temperature application for a 2014 Le Mans vehicle

Main Drive Electric Motor
Project looking at main drive motor as a cheaper power option. Requires 20% fewer rare earths

Micro Gas Turbine Range Extender
Power generation for EVs using our compact low cost generator

Hydrogen fuel cell air compressor
Existing fuel cell air blowers have insufficient speed/power
Aeristech’s Board of Directors

Mike Woodroffe – NED, Chairman of Aeristech, experienced CEO and Chairman power sector.

Bryn Richards – Inventor, founder & CEO, a Mechatronics Engineer, former efficiency analyst and R&D manager with E.ON

Nicholas Gill - Corporate Director - Merchant Banking & VC, Raises equity, grants & commercializes platform technologies

Andy Tempest – NED. Ex MD Prodrive, FD Lotus Engineering, CEO Wagon Automotive. Current CEO of Emerald Automotive llc


Tim Bullock – NED. CEO of New Wave Ventures LLP. Expertise financial sector & involvement in successful mergers acquisitions.

Duncan Kerr – Board Advisor. Director of Investor Midven, Expertise in business growth in high tech companies.
Aeristech enters into prototype demonstration projects with global car manufacturers to create customer demand pull.

**Business model** to license FE\textsuperscript{TT} to a Tier 1 with our prototype demonstrations providing the Tier 1 with ready customers. Indeed the manufacturers are already discussing integrating their Tier 1s/Tier 2s into our development programmes.

Tier 1s include Honeywell, BorgWarner, Cummins, Robert Bosch, etc
Commercialization & Investment Opportunity

- Turbo penetration to build to 60mn cars by 2020.
- 5% market share worth $1bn pa to Tier 1 by 2017.
- Other revenue streams.

Investment Opportunity
Aeristech rights issue of up to $1mn for working cap

Will be seeking up to $5mn later in 2012 (Series B)

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