



Vulcanaer Ltd

Cleaner air for cities...

**... *and* reduced fuel costs for
bus operators**

A Brunel University spin out

Dr Averil Horton





Cleaner air **and** reduced fuel costs



Chinese Trials



UK Trials

£4k installed cost gives a 6-10% fuel saving

Product



Vulcanaer harvests braking energy whenever a bus or truck slows down at a bus stop or in traffic, and captures this as compressed air.



Vulcanaer installed - the shiny parts



- 2.5m diesel buses and trucks on the roads
 - Addressable market of 7%, 190,000 vehicles
 - Conversion of 13,000 vehicles over 10 years
 - @ £4k per conversion
 - A real market of >£50m

OEM applications provide the long term sustainable market

Competition



Next-gen, ultra-low emission hybrid buses to be used by Go Ahead London

The new buses will continue Go Ahead London's efforts to reduce emissions, costs and noise pollution throughout the streets of London...



Electric delivery vehicles are getting even better with new advances by companies like Bosch and Tropos Motors

Michał Toł - Aug. 16th 2018 5:02 pm ET @michaltol



Very Expensive

20 year life of existing diesel fleet

Battery life, weight, charging times....



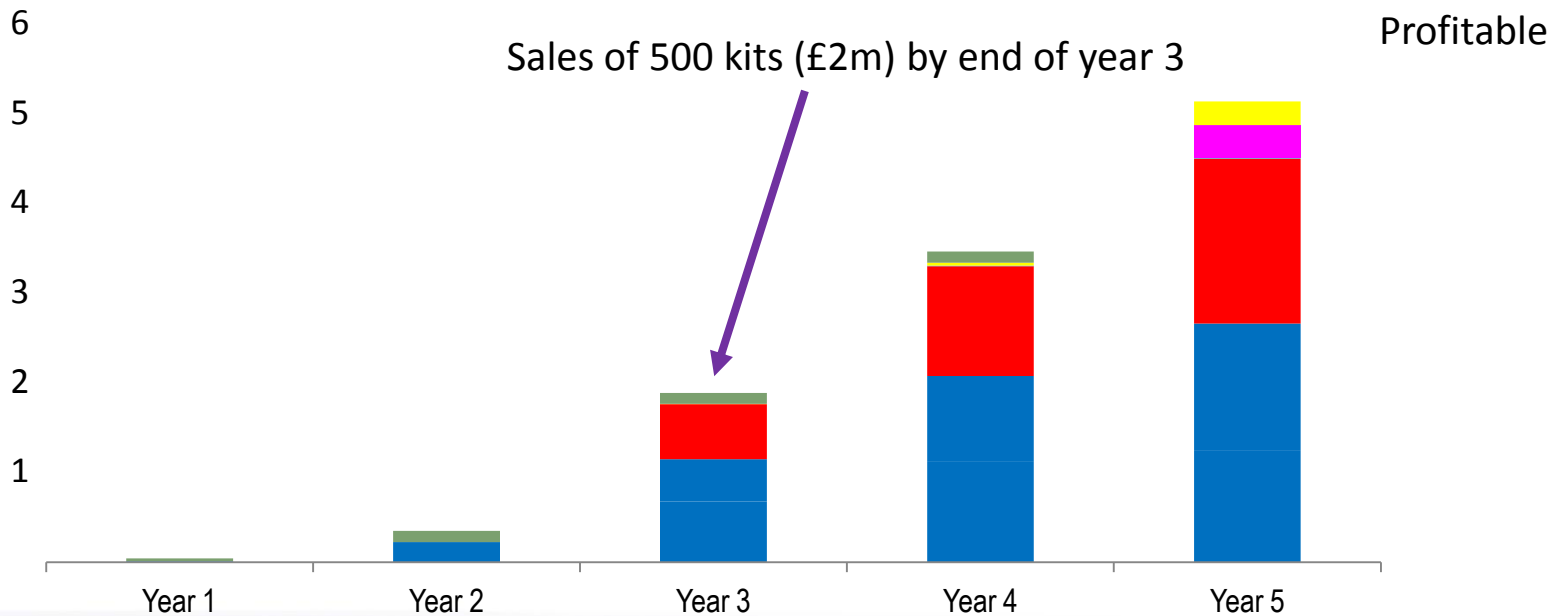
Vulcanaer will help *existing fleets* to meet emerging civic requirements for cleaner air - and provide *cost savings* for operators at the same time.

Financial



'000	Year 1	Year 2	Year 3	Year 4	Year 5
Profit	-1,198	-1,820	-810	3	447

Income, £m



Team



Chairman	Acting CEO	Commercial Director	Technical Director	Technical Advisor
		Sought	Sought	
Andrew Ives	Dr Averil Horton			Prof Hua Zhao
Brings expertise & contacts in the automotive industry	<i>Raised £2m of development funding</i> Managed the project from research through to application			Brings <i>technology expertise</i> and the pipeline of future products
I Mech E president 2005 Ex Lucas / Delphi and Saturn Electronics	MBA FRSC FCIM Head Brunel TTO			FREng FSAE FIMechE

Investment



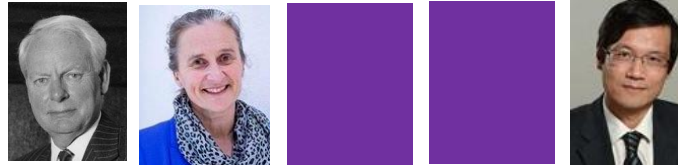
Total Investment Required: £4m over 3 years

~£1m year 1

~£2m year 2

~1m year 3

Build core team & secure partnerships



Create a demonstrator bus



Carry out independent track trials



Develop first customers

Secure next round funding



- Trade sale after year 5
- To existing custom installer or Tier 1 supplier
- To enable further manufacturing and sales expansion and OEM opportunities



Vulcanaer Ltd

Cleaner air for cities...

... *and* reduced fuel costs for
bus operators

averil.Horton@brunel.ac.uk +44 (0)7973 898 547

hua.zhao@brunel.ac.uk +44 1895 266698

www.Vulcanaer.co.uk

