REFERENCE	
Title:	Air Travel – Greener by Design, Mitigating the Environmental Impact of Aviation: Opportunities and Priorities
Date:	July 2005
Author:	Greener by Design
Funded by:	
Hard copy reference:	
URL:	http://www.greenerbydesign.org.uk/_FILES/publications/GbD%20-%202005%20Science%20and%20Technology%20Report.pdf
Date accessed:	August 2007
Web Format:	pdf
IEA topics covered	Transport
Geographical focus:	UK
Brief Abstract:	This report is concerned with the environmental impact of civil aircraft operations from gate to gate. It reviews current understanding of the three main impacts – noise, air pollution around airports and emissions at altitude and their impact on climate – and assesses the potential for mitigating them by advances in technology and changes in design priorities and operating procedures. Finally, it considers possible future research, technology demonstration and design studies and suggests priorities.

OUTPUTS	
Short Report?	No
Major report?	Yes. (70 pages)
Visualisations?	No
Information held on dedicated software?	No
- which package?	NA

ARCHITECTURE	
Timescales used:	Up to 2015
Trends and drivers?	No
- list	
Enablers?	No
- list	

Performance measures/targets?	No
- list areas	
Mapping of RD&D activities?	Yes
Critical assessment of capabilities?	

PROCESS	
Methods used:	
- Desk study?	Yes
- Consultation	
- Interviews?	
- Facilitated workshop(s)	Yes
- Working groups/task force	Yes
- Integrated Process	
Stakeholders engaged:	
– **University based researchers**	Yes
– **Other public sector researchers**	
– **Business – technology**	Yes
– **Business – other**	
– **Government - energy**	Yes
– **Government – SET**	
– **Government - other**	
– **NGOs**	
No of people engaged:	30
Budget (if known):	
Commitment to re-visit?	

ACTIONS IDENTIFIED	
List of actions?	Yes
Actions listed according to timescale?	No
Actions prioritised?	Yes
Sequencing/dependencies identified?	No
Responsibility for actions identified?	No
Types of actions identified:	
- Basic research?	
- list areas	
- Applied research?	
- list areas	Research to strengthen the core capabilities of the industry must be maintained at a competitive level. Key fields are: • lightweight high-strength materials both for airframes and for engines, including high-temperature materials; • structural design capability and optimisation – particularly weight reduction; • aerodynamic design capability and optimisation – particularly drag reduction; • engine technology – particularly increasing propulsive efficiency while also reducing NOx emission at cruise; • ATM and operational improvements to reduce unnecessary fuel burn.

- Development & demonstration	
- list areas?	
- Other types of action?	
- list other types	