

REFERENCE	
Title:	Accelerated development of Fusion Power
Date:	February 2005
Author:	UKAEA
Funded by:	EPSRC and EURATOM
Hard copy reference:	
URL:	http://www.fusion.org.uk/techdocs/ukaea-fus-521.pdf
Date accessed:	May 2006
Web Format:	pdf
IEA topics covered	IV.2 Nuclear Fusion
Geographical focus:	World
Brief Abstract:	Following recent progress in fusion research, and in the light of the forthcoming construction of a power-station scale device, ITER, this document revisits the development path to fusion as a power source. The main technical elements, risks and benefits are described, and a possible time schedule given for establishing fusion as a new energy option. Similar roadmaps from other countries are briefly described and referenced.

OUTPUTS	
Short Report?	Yes
Major report?	No
Visualisations?	Yes
Information held on dedicated software?	No
- which package?	

ARCHITECTURE	
Timescales used:	Defined by device generation: <ul style="list-style-type: none"> • Present devices • ITER (operation from 2015) • DEMO (operation from 2030)
Trends and drivers?	Yes
- list	<ul style="list-style-type: none"> • Recent rapid technical progress • Sound acceptability • Climate change • Energy security • World economic development
Enablers?	Yes
- list	Internationally organised major devices for plasma and materials science development
Performance measures/targets?	Yes
- list areas	<ul style="list-style-type: none"> • High, sustained fusion power • Long lifetime materials • Efficient electricity generation • Acceptable cost per W • High machine availability
Mapping of RD&D activities?	Yes
Critical assessment of capabilities?	No (It is implicit that the UK can only pursue this as part of a international RD&D activity)

PROCESS	
Methods used:	
- Desk study?	Yes
- Consultation	Yes
- Interviews?	
- Facilitated workshop(s)	Yes
- Working groups/task force	Yes
- Integrated Process	
Stakeholders engaged:	
University based researchers	Yes
Other public sector researchers	Yes
Business – technology	Yes
Business – other	
Government - energy	Yes
Government – SET	
Government - other	
NGOs	
No of people engaged:	Approximately 100
Budget (if known):	
Commitment to re-visit?	Yes, following international dissemination

ACTIONS IDENTIFIED	
List of actions?	Yes
Actions listed according to timescale?	Yes
Actions prioritised?	Yes
Sequencing/dependencies identified?	Yes
Responsibility for actions identified?	
Types of actions identified:	
- Basic research?	Yes
- list areas	<ul style="list-style-type: none"> • Plasma physics • Materials physics
- Applied research?	Yes
- list areas	<ul style="list-style-type: none"> • Power handling • Fusion blankets • Control systems
- Development & demonstration	Yes
- list areas?	<ul style="list-style-type: none"> • Integrate developments into prototype power plant • Improve reliability
- Other types of action?	
- list other types	