

*TEMPLATE FOR CHARACTERISING ENERGY TECHNOLOGY ROADMAPS*

**ENERGY TECHNOLOGY ROADMAPS:  
TEMPLATE FOR CHARACTERISATION**

<b>REFERENCE</b>	US Hydrogen Storage
<b>Title:</b>	Hydrogen Storage Technology Roadmap
<b>Date:</b>	November 2005
<b>Author:</b>	US Department of Energy (DoE)
<b>Funded by:</b>	US Department of Energy (DoE) Hydrogen Program
<b>Hard copy reference:</b>	
<b>URL:</b>	<a href="http://www.eere.energy.gov/vehiclesandfuels/pdfs/program/hydrogen_storage_roadmap.pdf">http://www.eere.energy.gov/vehiclesandfuels/pdfs/program/hydrogen_storage_roadmap.pdf</a>
<b>Date accessed:</b>	July 2006
<b>Web Format:</b>	pdf
<b>IEA topics covered</b>	V.1.2 Hydrogen storage
<b>Geographical focus:</b>	USA
<b>Brief Abstract:</b>	The purpose of the roadmap is to drive the development and demonstration of commercially viable hydrogen storage technologies that meet FreedomCAR and Fuel Partnership goals. The technical targets are for on-board hydrogen storage systems with a 300-mile vehicle range. The targets are subject to change as more is learned about system requirements and as progress in fuel cell technology is made.

<b>OUTPUTS</b>	
<b>Short Report?</b>	N
<b>Major report?</b>	Y
<b>Visualisations?</b>	Y
<b>Information held on dedicated software?</b>	N
<b>- which package?</b>	

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<b>ARCHITECTURE</b>	
<b>Timescales used:</b>	Short-term 2007 Medium-term 2010 Long-term 2015
<b>Trends and drivers?</b>	Not specified
- list	
<b>Enablers?</b>	Y
- list	US Department of Energy (DoE) Industries
<b>Performance measures/targets?</b>	Y
- list areas	<ul style="list-style-type: none"> <li>• System Weight and Volume</li> <li>• System Cost</li> <li>• Efficiency</li> <li>• Durability/Operability</li> <li>• Charging/Discharging Rates</li> </ul>
<b>Mapping of RD&amp;D activities?</b>	Y
<b>Critical assessment of capabilities?</b>	Y

<b>PROCESS</b>	
<b>Methods used:</b>	
- Desk study?	Not explicit
- Consultation	Y
- Interviews?	Not explicit
- Facilitated workshop(s)	Y
- Working groups/task force	Y
- Integrated Process	
<b>Stakeholders engaged:</b>	
- University based researchers	Y
- Other public sector researchers	Y
- Business – technology	Y
- Business – other	N
- Government - energy	Y
- Government – SET	Y
- Government - other	N
- NGOs	N
<b>No of people engaged:</b>	30 universities, 10 companies, 10 federal laboratories
<b>Budget (if known):</b>	Not known
<b>Commitment to re-visit?</b>	N

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<b>ACTIONS IDENTIFIED</b>	
List of actions?	Y
Actions listed according to timescale?	Y
Actions prioritised?	Y
Sequencing/dependencies identified?	
Responsibility for actions identified?	N
<b>Types of actions identified:</b>	
- Basic research?	Y
- list areas	<ul style="list-style-type: none"> <li>• Compressed, Cryo-compressed and Conformal Hydrogen Tanks</li> <li>• Advanced Metal Hydrides</li> <li>• Carbon-based Materials and other High Surface Area Sorbents</li> <li>• Chemical Hydrogen Storage</li> <li>• Developing materials for intermediates and high temperature SOFCs</li> <li>• New Materials and Concepts</li> <li>• Testing and Evaluation</li> <li>• Analysis</li> </ul>
- Applied research?	Y
- list areas	<ul style="list-style-type: none"> <li>• Compressed, Cryo-compressed and Conformal Hydrogen Tanks</li> <li>• Advanced Metal Hydrides</li> <li>• Chemical Hydrogen Storage</li> </ul>
- Development & demonstration	Y
- list areas?	<ul style="list-style-type: none"> <li>• Compressed, and Cryo-compressed Hydrogen Tanks</li> <li>• Advanced Metal Hydrides</li> <li>• Chemical Hydrogen Storage</li> </ul>
- Other types of action?	Y
- list other types	<ul style="list-style-type: none"> <li>• Vehicle refuelling/interface issues</li> <li>• Hydrogen dispensing technology</li> </ul>