



# **Hydrogen Technical Advisory Committee**

## **Table 3 – Science and Engineering Research Needs Report**

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# Observations



- **DOE Posture Plan describes 3 broad elements of the basic research work**
  1. **Supports work at universities, national and federal laboratories and at research institutions**
  2. **17% of the \$289m budge is targeted for research in FY2007**
  3. **Focus is on hydrogen production, storage, and fuel cells. Other DOE programs support work on carbon sequestration, biomass, wind, and solar.**
  
- **Technical Hurdles to be overcome:**
  - **HTAC and the hydrogen Program**
    - **Develop a broader vision and define the role of hydrogen as one element of that vision**
    - **Need to prioritize and define selection criteria for funding pathway technologies. Develop a method to feedback to basic research if a pathway is not cost competitive and requires a breakthrough.**
    - **Concern for over-promising what is possible to complete and for setting targets that might be too aggressive.**
    - **DOE annual review should use the opportunity for more education and feedback to the user community**
      - **Provide status of the technical areas including current progress, how the field has changed and areas of work needed**



# Recommendation



## – Technology

- Look for opportunities to combine technologies
- Seek revolutionary breakthroughs in technology (BES programs) to support pathway technology barriers
- New materials area has the greatest need for research and breakthroughs
- Identify work needed for support codes and standards. What is NIST role?

## – Research Funding

- Really innovative new ideas come from individual investigators. Implementation, where interdisciplinary approach is needed, often benefits from groups of researchers working together.
- Barriers to research funding
  - Current peer review process makes it almost impossible to get research funding for really innovative ideas
  - \$60-70K per year grants are too low to support a project. Minimum level needed is \$150K
  - Grant proposal return rate at 10% is too low. Minimum level 25% to be viable
- Future science and engineering workforce is educated through research support
- RFP process is an effective way to communicate and stimulate areas of need and assembling a range of expertise in a short time
- Reward system in the US does not support areas of work in need of long term sustained research funding
- How should program cuts in time of tight funding be determined? Less across the board vs. selective cuts