



**HTAC**  
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**Comments on**  
**DOE Hydrogen Posture Plan**

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## Hydrogen Posture Plan

### What it is:

“An Integrated Research, Development, and Demonstration Plan

### What it needs to be:

“A comprehensive roadmap charting the energy plan for our nation including objectives, research, development, demonstration, and policy.”

# Hydrogen Posture Plan



## Elements done well:

- **Technology objectives tied to market value.**
- **Research program well organized, aligned with technology gaps, and linked to industry partners.**
- **Aligned with both of the nation's overriding objectives to reduce dependency on foreign oil & its impact on the environment.**
- **Recognizes the need for government to support the full "development" timeline ranging from basic research to field demonstrations.**
- **Continues to support critical work on codes & standards and communication.**

# Realities



- Significant reduction in CO<sub>2</sub> emissions and dependency on foreign oil will require huge technology shifts in both the transportation and electrical production industries.
- A significant shift in transportation technology will be driven by the end consumers who will make their choices based on total cost of ownership (vehicle, fuel, maintenance, insurance, taxation, resale, etc...).
- Industry/financial markets are driven by return on capital. Switching costs will require massive capital expenditure.
  - Ability to visualize future state with confidence in enablers.
  - Ability to minimize risk of significant change in strategic direction.

# Recommendations



## Develop Comprehensive Scenario Plans

- **Must start with top down roadmap for reduction in CO<sub>2</sub> and oil consumption.**
- **Develop scenarios which achieve objectives.**
  - **Focus on areas with greatest impact; Transportation/electrical production.**
  - **Think beyond hydrogen especially in early stages**
    - ✓ **Alternative fuels made from grain/biomass**
    - ✓ **Nuclear power**
- **Define alternative implementation plans that maximize the potential to achieve roadmap objectives.**
  - **Reasonable return on capital for industry/financial sector.**
  - **Plan to manage external variables which could impact probability of return.**
  - **Total cost of ownership makes the new technologies the obvious choice.**
    - ✓ **Policy**
    - ✓ **Communication of intangible benefits (society, foreign policy, etc.).**
  - **Plans must have a “Who does what and when?” level of detail.**
- **DOE should take the lead to define scenarios which are developed, supported, and co-championed by all effected agencies: DOT, DOC, EPA, NHTSA, DOD.**



We win or lose together as a team!  
Lets show the world we can work like one!