APPENDIX C: FEEDBACK AND RECOMMENDATIONS

These notes summarize the comments received from various participants at the May 23-26, 2005 Review:

Section 1: Comments received from Peer Reviewers during feedback sessions held immediately after each subprogram track was completed. The comments received were generally focused on the basic review process; however, where relevant, notes specific to a particular subprogram session are included.

Section 2: Inputs from interviews/meetings with DOE Technology Development Managers and Research Managers during the week following the Review.

Section 3: Scores and summarized answers to questions from the Review Questionnaire, filled out by approximately 110 of the participants.

Section 1 – Peer Reviewer Comments

Review Structure

- The Review could benefit from being divided up into smaller gatherings instead of a huge gathering.
- Utilize a panel of presenters and allow dialogue among them— similar to a Q&A; address key questions across the program.

Peer Review Process

- It would be helpful not to have to review two presentations in a row—could finish up notes during following presentation.
- Electronic form— the updated version froze when saved; or would not save. Did not like the impact of the macros.
- Liked the advanced web access to PowerPoint presentations—allowed Reviewers to bring a binder with particular presentations to review and review forms.
- Computers for Reviewers are not attractive right in front of screen, and you cannot take the computer with you afterward to finish comments. Maybe have more computers in the Peer Reviewer Room and be able to check them out. Or be able to check out and use anywhere in the session room. Have the Peer Reviewer Room open more hours.
- The Reviewer presentation load --10 presentations (5 were posters) -- was okay and scattered among groups/subprogram was not a bad thing.
- Some Reviewers did not receive pre-Review coordination e-mails from H2review@sentech.org because of spam filters.
- It was very helpful to have PDF versions of presentations available before the AMR. Much better than being given huge binders of hardcopies.
- It was great to have power strips available for laptop users.
- Electronic Evaluation forms – idea is good, but:
  - Forms were cumbersome and should be without the macros. Electronic evaluation forms should be in Excel.

    - They lost everything when you tried to save without a project number entered.
    - Should have a spell-check function.
    - The questions do not fit/apply to all types of projects. Some reviewers did not realize they could enter N/A.
    - Need a finer scale than whole numbers from 1 to 4.
- Should have detailed written descriptions of each project available to Reviewers.
- Difficult to get everything done – especially the posters. A lot of work for reviewers to do.
- Posters take a lot of time to review. First you need to spend an appropriate amount of time at the posters and with the PIs and then, later on, you need to spend time putting your evaluations down on hardcopy or softcopy.
- It was unclear why some reviewers were assigned to some areas.

Presentation Content

- Some PIs recycled the exact same slides from 2004. This makes it difficult to evaluate progress that has been made.
- PI Presenters – Not always clear what they do exactly and how it relates to the goals & aspects being presented.
- Acknowledgements should be at the back of the presentation, not at the front. PIs spend too much time on this fluff at the beginning, causing them to run out of time.
- PIs need to practice/rehearse their presentations beforehand so they do not run out of time leading to a low evaluation score. Presenters from companies do a much better job of being prepared/rehearsed than academic presenters.
- All so well done that it is difficult to give constructive criticism. PIs did a good job adhering to the template.
- Sometimes the tie of the project to program goals was unclear.

Poster Presentations

- PIs were not always with their posters; one reviewer went to a particular poster twice and PI was not there either time.
- Posters better this year, enjoyed experience more—there was more physical space between posters.
- Posters were put up slightly before and after the oral presentations; wish posters were up longer.
- Should be more time for reviewers to talk to PIs presenting posters. Posters should be available for a longer period of time. Difficult having them during the oral sessions.
- Some were disappointing in terms of what they were doing and accomplishments. These were primarily the Congressional/earmark posters.

Production/Delivery

- Context of Production projects should be on volume [i.e. capacity, kg per day] of hydrogen generated. How much hydrogen can we really expect from the particular projects? Would like results/impacts quantified. PIs should relate their project to the DOE/HFCIT goals. What do they want/expect this project to contribute to? Focus on the real goal—not just produce at a particular price but at a particular volume and price. Everyone in the project should be focused on the overall goal.

- Volume of hydrogen produced is important. A lot of the presentations were geared at the price. Need a different emphasis.
- Concerning the quality of projects— it appeared to be the same for some, improved for others, but none have gone down though. Number of projects has gone up though.
- Seems like a significant number of projects that were presented orally had not even started. How can reviewers review the progress of projects that have not started yet? What kind of information are we looking for? Maybe differentiate between reviews of current projects and upcoming project -- either not review or have different questions.
- Graphs are often hard to follow with all the different variants—maybe show what it all means, rather than simply presenting results in graphs.
- One project was confusing because it got funding from outside the DOE program. But, it appears to support the program, which is okay. It is a project in progress and won 5 awards; so how do we review it?
- Why can't we strip hydrocarbons (carbon hydrogen bonds) off coal on the way to power plant? Heat it up and it gives off more hydrogen/methane.
- Felt like there were too many projects -- the difference between last year and this year was noticeable. There was more discussion after presentations because presenters were cut off during their presentations.

Systems Analysis

- Difficult to follow the format with analysis; the evaluation form and the project template does not lend itself to the subject.
- Need to be able to connect the analysis projects with validation activities.
- Concern of overlapping of analysis projects—need to compare, what overlaps, and the conclusions.

Technology Validation

- During the Fleet projects it may be difficult to get the feedback/data on why fuel cells/systems go down and what part of the plan was affected. This area needs more emphasis – little detail on this was provided in presentations.
- The vehicle demos are great – the data collection they are doing is very important. One project was disappointing because details were sparse.
- It was surprising how many stationary power park projects there are. People need to be more aware of these projects – the program is often viewed as being transportation heavy.
- NREL data center –
  - There is skepticism about getting data that is "spin-free."
  - Also a concern that universities not involved in the program may have the solution to a problem, but not realize it because they are not involved in the program/unaware of a vehicle fleet problem.
  - Further concern that other programs that could benefit from the information will not be able to because of the proprietary information protection concerns of the data center.

Safety/Codes & Standards

- SC&S Reviewers felt that most details, from the papers presented, the project contents, the quality of the research, and the pre-planning activities, were very well done.

- Reviewers cited a few problems with the electronic review forms and the built-in macros. Several reviewers identified other possible approaches that could be used to steer away from the use of the macros and the software compatibility problems that resulted.
- The SC&S Reviewers agreed with the effort to capture the comments electronically.

Education

- Many of the presentations were related and/or overlapping. This was confusing, and some of the presentations needed to do a better job relating to the hydrogen program.
- The presentation template and review forms seemed to be designed for R&D rather than education. Maybe have different forms. Format for presentations should be different for Education. (i.e. the safety slide does not fit the topic very well; maybe have a different slide instead).
- Would like to see a slide geared more toward a curriculum chart with dates/timeline.
- Maybe break up the Review (as a whole) so can have more slots for categories like Education.

Section 2 – Comments from DOE Personnel

General

- Some people [the attendees?] felt they lost perspective of the meeting. They liked the meeting but felt they were at a conference versus a peer review.
- Turn off the sleep function on the presenter's PC, especially when a speaker is not using the PC.
- One of my PIs was a little taken aback to get a random phone call about his presentation being available on the web (to Reviewers) before he even got to the Review. [Check security of website for presentations that are available to the reviewers prior to the meeting.]
- Make the agenda less confusing -- organize it by days and have overviews of each day.
- Cut down on the concurrent side bar meetings:
  - No corporate or association meetings.
  - Tech Team meetings must be after hours or a time to not interfere with the Review.

Peer Reviewers

- It is critical to "test-drive" the electronic version of the Reviewer form before sending out. Also, the e-form need not "look-like" the paper copy. Comments were cut off because there was not room in the boxes. This should not happen in a proper e-form.
- The Reviewers found the format of trying to evaluate and listen difficult. Some of the reviewers felt they did not give the projects a fair evaluation since they were trying to type and listen at the same time.
- There was also some complaining about the number of evaluations that some Reviewers were assigned.
- When scheduling Reviewers, try not to have the same person review back-to-back projects. It was difficult for some Reviewers to finish writing out their comments before the next PI stepped up to the plate.

- The process for assigning reviewers left much to be desired.
- Look at trying to include a couple other review criteria:
  - Cost – what it would cost to utilize the technology of the project?
  - Impact – how the project's result would impact the hydrogen infrastructure (i.e., if this biomass-to-hydrogen technology were developed, how many million tons of hydrogen could it produce per year?).
- The electronic evaluation form does not have to look like the hard copy – i.e., use a spreadsheet or something to make macros easier.

Presentations

- I got a lot of comments on the length of the presentations and not enough time to ask questions. Even though we stayed within the time allotments, we had to cut off some of the questions. Also, the Reviewers mentioned they did not have enough time for all their questions.
- It was suggested to have everyone present at one time and then have a panel discussion with written questions and verbal questions from the audience.
- Storage had the speakers come up afterwards for additional informal Q&A time with Reviewers [not always possible and cuts into the breaks].
- Consider tweaking the presentation template to better reflect the nature of non-R&D projects; also consider tailoring the review forms for non-R&D projects.
- The circular logic used in the project presentations is a problem. For example, "Fl loss causes membrane degradation. I found Fl loss; therefore the membrane must have degraded." It was more prevalent in the lab presentations. I think this circular logic is an artifact of the presentation format. We do not ask them to explain their experimental results.
- Industry does not even try to state conclusions.
- I find most presentations are truly lacking in stimulation. We were taught in our very first science lab classes that experimentation requires going past reporting results -- the "what happened" -- and taking a guess at answering the "why."

Posters

- Do not have the poster sessions at the same time as the oral presentations. I ended up missing both posters and orals that I wanted to see. In the past, the poster session has been held during the evening reception.
- People wanted to see the posters but could not because they were attending the session. Also, people would move in and out of the meeting to see the posters; this was disruptive to some of the speakers.
- I heard complaints about having the poster sessions at the same time as the oral sessions, since it required some of the Reviewers (of posters) to miss some of the oral presentations in the same technical areas.
- Have a separate room/ballroom, and not at same time as Orals, for that Program Element.

Logistics

- In the Systems Analysis and Storage sessions, there was no one to assist. It would be good to have either someone from the hotel, QSS, and/or another contractor to assist with microphones, questions, etc.

- The meetings/sessions were very organized from the standpoint of having all the presentations loaded and available, which helped to keep the meeting continuity.
- We need a better time-warning system for speakers; it will be helpful if it is more obvious to the speakers. It was in the middle of the room, while most of the time the speaker looks toward the direction of the screen.

Hotel/Food

- The reception, the continental breakfast, breaks and lunch were very good.
- The hotel was great -- very adequate for our needs; but, it may be too small as the meeting gets larger.
- The people I talked with said it was well run and they benefited by attending.
- I thought the facilities at the hotel were great and that everything ran smoothly.

Fees

- The one-day registration fee is a good idea. Could there be a student rate as well?
- Maybe we should have separate tickets/fees for receptions? That might help keep the overall registration cost down.

Section 3 – Review Feedback Questionnaire Responses

DEMOGRAPHIC QUESTIONS

1a. What was your role in the review?

28 Peer Reviewer (please answer questions in Sections A. and B.)
44 Presenter of a Project -- Oral or Poster (please answer questions in Sections A. and C.)
0 Presenter of Program Overview (please answer questions in Sections A. and C.)
30 Attendee, neither Reviewer nor Presenter (please answer questions in Section A. only)
12 Reviewer and Presenter

1b. What is your affiliation?

6 Government agency directly sponsoring the program under review
34 National/government lab, private-sector or university researcher whose project is under review
30 In an industry directly involved in the program under review
12 In an industry with interest in the work under review
3 Government agency with interest in the work
11 National/government lab, private-sector or university researcher not being reviewed, but who has an interest in the work
11 Other (please specify, e.g., consultant, retired employee, public, etc.):
(Answers: Oversight & Advisory, Retired National Lab, Consulting Firm, Consultant, Consultant, Foreign Institution, Contractor)

A. QUESTIONS 2 THROUGH 21 FOR ALL ATTENDEES

2.	Purpose and scope of the Hydrogen Program Review were well defined.	*disagree* *1 2 3 4 5* *agree* ***4.5***
3.	The plenary presentations were helpful to understanding the direction of the Hydrogen Program.	*disagree* *1 2 3 4 5* *agree* ***4.2***
4.	Sub-program overviews were helpful to understanding the research objectives.	*disagree* *1 2 3 4 5* *agree* ***4.2***
5.	The quality, breadth, and depth of the following were sufficient to contribute to a well-considered review:	*disagree* *agree*
	a. Presentations	*1 2 3 4 5* ***3.9***
	b. Question & Answer periods	*1 2 3 4 5* ***3.3***
	c. Answers provided concerning programmatic questions	*1 2 3 4 5* ***3.5***
	d. Answers provided concerning technical questions	*1 2 3 4 5* ***3.6***
6.	Enough time was allocated for presentations.	*disagree* *1 2 3 4 5* *agree* ***3.8***
7.	Time allowed for the Question & Answer period following the presentations was adequate for a rigorous exchange.	*disagree* *1 2 3 4 5* *agree* ***3.0***
8.	The questions asked by reviewers were sufficiently rigorous and detailed.	*disagree* *1 2 3 4 5* *agree* ***3.0***
9.	There were no problems with:	*disagree* *agree*
	Groupings of projects by technical area	*1 2 3 4 5* ***4.3***
	Proprietary data (should not be any at this Review)	*1 2 3 4 5* ***4.4***
	Quantity/level of the information presented	*1 2 3 4 5* ***3.7***
10.	The review was conducted smoothly.	*disagree* *1 2 3 4 5* *agree* ***4.3***
11.	The frequency (once per year) of this formal review process for this Program is:	**102** - about right **9** - too frequent **0** - not often enough **2** - do not know

12.	Logistics and amenities were satisfactory.	*disagree* *1 2 3 4 5* *agree*	***4.3***
13.	The visual quality of the presentations was adequate. I was able to see all of the presentations I attended.	*disagree* *1 2 3 4 5* *agree*	***4.2***
14.	The audio quality of the presentations was adequate. I was able to hear all the presentations I attended.	*disagree* *1 2 3 4 5* *agree*	***4.1***
15.	The hotel accommodations were satisfactory.	*disagree* *1 2 3 4 5* *agree*	***4.3***
16.	The information about the Review and the hotel accommodations sent to me prior to the Review was adequate.	*disagree* *1 2 3 4 5* *agree*	***4.3***

17. What was the most useful part of the review process?

The following bullets summarize the numerous responses received for Question 17:

- **Interactions** – opportunity to meet and talk to members of the hydrogen community, DOE program managers, principal investigators, etc
- **Information Exchange** – the wealth of information that is exchanged across the community, from top-level plans down to the details of individual projects
- **Subprogram Structure**– arranging the agenda and tracks by subprogram, allowing the attendees to see the depth and breadth of technology focus areas in a structured way
- **Overviews** – having the Team Leads provide an overview/kickoff briefing at the start of each track, to put the entire subprogram into context
- **Formatted Presentations** – requiring the PIs to adhere to a fixed format for the oral and poster presentations made the review more productive and easier to follow
- **Questions & Answers** – ability to ask questions of the PIs during the oral presentations, and to interact one-on-one with them during poster sessions
- **Posters** – these give even the small and start-up projects a chance to present their status and plans
- **CD/Attendees/Information** – receiving softcopies of all the presentations, lists of attendees, and other information

18. What could have been done better?

The following bullets summarize the numerous responses received for Question 18:

- **Agenda** – was very confusing and not organized in a way to make it easy to understand what was ahead and how to locate it; abstracts of the projects would be helpful in determining attendance at orals/posters

- **Plenary** – did not add much to the overall review; if retained, it should be more focused on the peer and merit review purpose of the meeting

- **Advance Information** – although the CD provided at registration was good, having more information about the projects, logistics, etc. prior to the Review (e.g., through the website) is needed

- **Posters** – do not have them at the same time as that subprogram's oral session, not outside the doors of the orals rooms (noise/disturbance issues), and allow more time for review and discussion with the poster PIs

- **Questions & Answers** – there was not enough good, quality time for Q&A

- **Presentation Content** – force the Reviewers to stick to the topics they are supposed to address; do not allow "advertising" of their products or organizations; make every project show a chart that compares their plans coming into the year with their actual accomplishments

- **Time** – there is just not enough time to adequately cover a couple hundred projects; do not review every project every year – not necessary; individual projects need more time for good presentations and adequate Q&A

- **Schedule** – there needs to be enforcement of the schedule; in some sessions PIs ran over their time and no one tried to manage or correct the situation

- **Reviewers/Process** – the Review is too large to do an adequate peer review; need to re-think the size, content, and structure of the review process; the automated forms are a good idea, but the macros caused numerous problems

- **Slides/Graphics** – for the oral presentations, some standards and QA need to be enforced to ensure that slides are not too busy, can be read throughout the room, etc

- **Logistics** – session rooms need to be closer together; need better signs to lead attendees to various sessions/activities; should have a map/floorplan in the registration packet; audio could be improved; screens need to be raised to allow everyone to see the bottom portion

19. Overall, how satisfied are you with the review process?

very unsatisfied *1* *2* *3* *4* *5* *very satisfied*

4.0

20. Would you recommend this review process to others and should it be applied to other DOE programs?

Yes - ***86*** *No* - ***8***

21. Please provide comments and recommendations on the overall review process.

The following bullets summarize the numerous responses received for Question 21:

- **Overall** – the review has grown too large and needs to be reduced or divided into two; do not review/present small projects every year; have earmark projects only do posters, not orals
- **Time** – need more time for individual projects, both for the Reviewers and for the general audience
- **Presentation Content** – do not require the programmatic "boiler plate" as it is not critical to a good technical review; concentrate on accomplishments; eliminate the barriers-addressed slide; only list/discuss the important/key collaborations
- **Posters** – move away from the oral session rooms and/or hold at a different time (e.g., in the evenings); have better lighting and more physical space around the poster boards
- **Review Process** – use a panel of 8-10 Reviewers for each subprogram area; take more care in selecting quality Reviewers; do not have back-to-back reviews, so a Reviewer has time to write up his/her comments after one finishes; come up with a better way to review the posters; the review process is too "casual" since Reviewers do not get paid and must review too many projects
- **Agenda** – provide a clear, day-by-day agenda
- **Evaluation Form –** dry-run the automated form more thoroughly before the Review

B. QUESTIONS 22 THROUGH 32 FOR PEER REVIEWERS ONLY

22. Information about the program/project(s) under review was provided sufficiently prior to the review session.

disagree *1* *2* *3* *4* *5* *agree*

3.5

23. Review instructions were provided in a timely manner.

disagree *1* *2* *3* *4* *5* *agree*

4.0

24. The information provided in the presentations was adequate for a meaningful review of the projects.

disagree *1* *2* *3* *4* *5* *agree*

3.5

25.	The evaluation criteria upon which the review was organized were clear and used appropriately.	*disagree*					*agree*
	1. Relevance	*1*	*2*	*3*	*4*	*5*	
				3.8			
	2. Approach	*1*	*2*	*3*	*4*	*5*	
				4.1			
	3. Technical Accomplishments and Progress	*1*	*2*	*3*	*4*	*5*	
				4.2			
	4. Technology Transfer/Collaboration	*1*	*2*	*3*	*4*	*5*	
				3.7			
	5. Proposed Future Research	*1*	*2*	*3*	*4*	*5*	
				4.1			
26.	Explanation of the questions within the criteria was clear and sufficient.	*disagree*					*agree*
	1. Relevance	*1*	*2*	*3*	*4*	*5*	
				4.0			
	2. Approach	*1*	*2*	*3*	*4*	*5*	
				4.1			
	3. Technical Accomplishments and Progress	*1*	*2*	*3*	*4*	*5*	
				4.2			
	4. Technology Transfer/Collaboration	*1*	*2*	*3*	*4*	*5*	
				4.0			
	5. Proposed Future Research	*1*	*2*	*3*	*4*	*5*	
				4.1			
27.	The right criteria and weightings were used to evaluate the project(s)/program.	*disagree*					*agree*
	1. Relevance	*1*	*2*	*3*	*4*	*5*	
				3.9			
	2. Approach	*1*	*2*	*3*	*4*	*5*	
				4.1			
	3. Technical Accomplishments and Progress	*1*	*2*	*3*	*4*	*5*	
				4.1			
	4. Technology Transfer/Collaboration	*1*	*2*	*3*	*4*	*5*	
				3.9			
	5. Proposed Future Research	*1*	*2*	*3*	*4*	*5*	
				4.1			
28.	During the review, reviewers had adequate access to the Principal Investigators.	*disagree*					*agree*
		1	*2*	*3*	*4*	*5*	
				3.8			
29.	Information on the location and timing of the projects was adequate and easy to find.	*disagree*					*agree*
		1	*2*	*3*	*4*	*5*	
				4.0			
30.	The number of projects I was expected to review was	**6 --** Too many					
		2 -- Too few					
		29 -- About right					

31.	The reviewers in your session had the proper mix and depth of credentials for the purpose of the review.	*disagree agree* *1 2 3 4 5* ***4.3*** *Don't know their Credentials -* ***24***
32.	Altogether, the preparatory materials, presentations, and the Question & Answer period provided sufficient depth for a meaningful review.	*disagree agree* *1 2 3 4 5* ***3.6***

C. QUESTIONS 33 THROUGH 43 FOR PRESENTERS ONLY

33.	The request to provide a presentation for the review was provided sufficiently prior to the deadline for submission.	*disagree agree* *1 2 3 4 5* ***4.3***
34.	Instructions for preparing the presentation were sufficient.	*disagree agree* *1 2 3 4 5* ***4.5***
35.	The template for the presentation was helpful.	*disagree agree* *1 2 3 4 5* ***4.3***
36.	The PDF format provided adequate functionality for my presentation.	*disagree agree* *1 2 3 4 5* ***4.2***
37.	The time limit for my presentation was adequate to present the information needed by reviewers.	*disagree agree* *1 2 3 4 5* ***4.2***
38.	The audio and visual equipment worked properly and were adequate.	*disagree agree* *1 2 3 4 5* ***4.3***
39.	The evaluation criteria upon which the review was organized were clearly defined and used appropriately	*disagree agree*
	1. Relevance	*1 2 3 4 5* ***4.2***
	2. Approach	*1 2 3 4 5* ***4.2***
	3. Technical Accomplishments and Progress	*1 2 3 4 5* ***4.3***
	4. Technology Transfer/Collaboration	*1 2 3 4 5* ***3.9***
	5. *Proposed Future Research*	*1 2 3 4 5* ***4.2***

40.	Explanation of the questions within the criteria was clear and sufficient.	*disagree*					*agree*
	1. Relevance	*1*	*2*	*3*	*4*	*5*	
				4.2			
	2. Approach	*1*	*2*	*3*	*4*	*5*	
				4.2			
	3. Technical Accomplishments and Progress	*1*	*2*	*3*	*4*	*5*	
				4.3			
	4. Technology Transfer/Collaboration	*1*	*2*	*3*	*4*	*5*	
				4.1			
	5. *Proposed Future Research*	*1*	*2*	*3*	*4*	*5*	
				4.3			
41.	The right criteria and weightings were used to evaluate the project(s)/program.	*disagree*					*agree*
	1. Relevance	*1*	*2*	*3*	*4*	*5*	
				3.9			
	2. Approach	*1*	*2*	*3*	*4*	*5*	
				4.1			
	3. Technical Accomplishments and Progress	*1*	*2*	*3*	*4*	*5*	
				4.1			
	4. Technology Transfer/Collaboration	*1*	*2*	*3*	*4*	*5*	
				3.8			
	5. *Proposed Future Research*	*1*	*2*	*3*	*4*	*5*	
				4.0			
42.	During the review, reviewers had adequate access to the Principal Investigators.	*disagree*					*agree*
		1	*2*	*3*	*4*	*5*	
				3.9			
43.	Altogether, the preparatory materials, presentations, and the Question & Answer period provided sufficient depth of review	*disagree*					*agree*
		1	*2*	*3*	*4*	*5*	
				3.9			