

2013 Annual Merit Review Results Report

October 2013

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Introduction

The 2013 U.S. Department of Energy (DOE) Fuel Cell Technologies Office (FCTO) and Vehicle Technologies Office (VTO) Annual Merit Review and Peer Evaluation Meeting (AMR) was held May 13-17, 2013, in Crystal City, Virginia. The review encompassed all of the work done by the FCTO and the VTO: a total of 287 individual activities were reviewed for VTO, by a total of 187 reviewers. A total of 1,382 individual review responses were received for the VTO technical reviews.

The objective of the meeting was to review the accomplishments and plans for VTO over the previous 12 months, and provide an opportunity for industry, government, and academia to give inputs to DOE on the Office with a structured and formal methodology. The meeting also provided attendees with a forum for interaction and technology information transfer.

The peer review process followed the guidelines of the *Peer Review Guide* developed by the Office of Energy Efficiency and Renewable Energy (EERE). Each activity is reviewed every three years, at a minimum. However, the Office strives to have every activity reviewed every other year. The reviewers for the technical sessions were drawn from a wide variety of backgrounds, including current and former vehicle industry members, academia, government, and other expertise areas. Each reviewer was screened for conflicts of interest as prescribed by the *Peer Review Guide*. A complete list of the meeting participants is presented as Appendix A.

In the technical sessions, these reviewers were asked to respond to a series of specific questions regarding the breadth, depth, and appropriateness of the DOE VTO activities. The technical questions are listed below, along with appropriate scoring metrics. These questions were used for all formal VTO project reviews, including any American Recovery and Reinvestment Act (ARRA) reviews.

Question 1: Approach to performing the work – the degree to which technical barriers are addressed, the project is well-designed, feasible, and integrated with other efforts. (Scoring weight for overall average = 20%)

Scoring: 4=outstanding (sharply focused on technical barriers; difficult to improve approach significantly); 3=good (generally effective but could be improved; contributes to overcoming some barriers); 2=fair (has significant weaknesses; may have some impact on overcoming barriers); 1=poor (not responsive to project objectives; unlikely to contribute to overcoming the barriers).

Question 2: Technical accomplishments and progress toward overall project and DOE goals – the degree to which progress has been made, measured against performance indicators and demonstrated progress toward DOE goals. (Scoring weight for overall average = 40%)

Scoring: 4=outstanding [excellent progress toward objectives, suggests that barrier(s) will be overcome]; 3=good (significant progress toward objectives and overcoming one or more barriers); 2=fair (modest progress in overcoming barriers, rate of progress has been slow); 1=poor (little or no demonstrated progress towards objectives or any barriers).

Question 3: Collaboration and coordination with other institutions. (Scoring weight for overall average = 10%)

Scoring: 4=outstanding (close, appropriate collaboration with other institutions; partners are full participants and well-coordinated); 3=good (some collaboration exists; partners are fairly well coordinated); 2=fair (a little collaboration exists; coordination between partners could be improved); 1=poor (most work is done at the sponsoring organization with little outside collaboration; little or no apparent coordination between partners).

Question 4: Proposed future research – the degree to which the project has effectively planned its future work in a logical manner by incorporating appropriate decision points, considering barriers to the realization of the proposed technology, and, when sensible, mitigating risk by providing alternate development pathways. (Scoring weight for overall average = 10%)

Scoring: 4=outstanding (plans clearly build on past progress and are sharply focused on barriers); 3=good (plans build on past progress and generally address overcoming barriers); 2=fair (plans may lead to improvements, but need better focus on overcoming barriers); 1=poor (plans have little relevance toward eliminating barriers or advancing the program).

Question 5: Does this project support the overall DOE objectives of petroleum displacement? Why or why not? (Scoring weight, not included with overall average = 20%)

Responses: yes, no.

Question 6: Resources: How sufficient are the resources for the project to achieve the stated milestones in a timely fashion?

Responses: excessive, sufficient, insufficient.

Reviewers were asked to provide numeric scores (on a scale of 1-4, as indicated above) for Question 1 through Question 4 of each formally reviewed activity. For each reviewed project, the individual reviewer scores for Question 1 through Question 4 were averaged to provide information on the project’s question-by-question scoring. Scores for each of these four criteria were weighted using the formula below to create a weighted average for each project. This allows a project’s question-by-question and final overall scores to be meaningfully compared against another project:

$$\text{Weighted Average} = [\text{Question 1 Score} \times 0.20] + [\text{Question 2 Score} \times 0.40] + [\text{Question 3 Score} \times 0.10] + [\text{Question 4 Score} \times 0.10]$$

Each reviewed activity has a corresponding bar chart representing that project’s average scores for each of the four designated criteria. As demonstrated in Figure 1, a bullet and red error line are included within the green bars representing the corresponding average and standard deviation of criteria scores for all of the reviewed projects in the same subprogram.

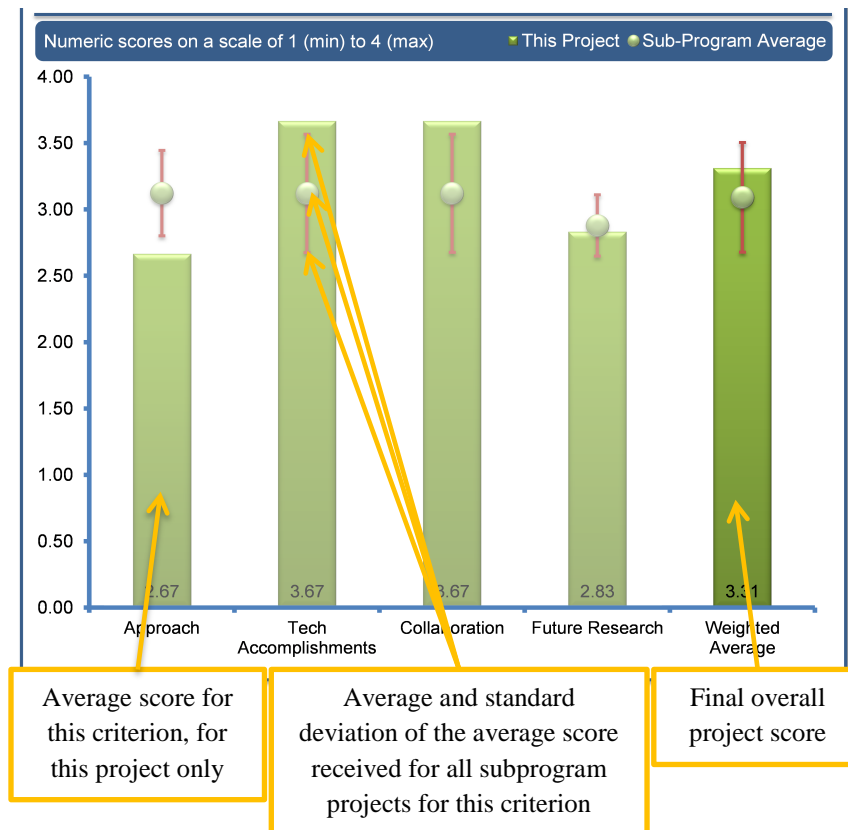


Figure 1. Question 1 through Question 4 score averages and standard deviations as well as overall Weighted Average for a given project

Reviewers were also asked to evaluate a given project’s relevance and funding through Question 5 and Question 6, which were each scored on a different scale than Question 1 through Question 4. Question 1 through Question 4 was rated on a 1 to 4 scale, whereas Question 5 was rated on a yes or no scale, and Question 6 was rated on an excessive, sufficient, or insufficient scale. Subsequently,

Question 5 and Question 6 results were excluded from the Weighted Average calculation because the scoring scales are incompatible. Alternately, as demonstrated in Figure 2, each reviewed activity has pie charts representing that project’s population distributions for each reviewer rating associated with Question 5 and Question 6:

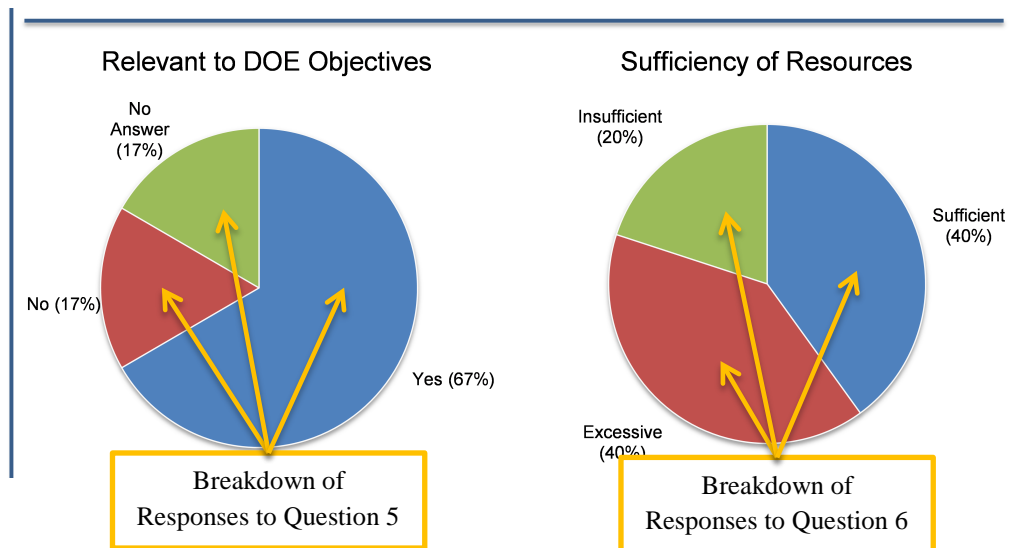


Figure 2. Question 5 and Question 6 population distributions

Text responses and numeric scores to the questions were submitted electronically through a web-based software application, PeerNet, operated by the Oak Ridge Institute for Science and Education (ORISE). Database outputs from this software application were analyzed and summarized to collate the multiple-choice, text comment, and numeric scoring responses and produce the summary report.

Responses to the questions are summarized in this report, with summaries of numeric scores for each technical session, as well as text and graphical summaries of the responses for each individual technical activity. For each project, the reviewer sample size is identified. Individual reviewer comments for each question are identified under the heading Reviewer 1, Reviewer 2, etc. Note that for each question the order of reviewer comments may be different; for example, for each specific project the reviewer identified as Reviewer 1 in the first question may not be Reviewer 1 in the second question, etc. Not all reviewers provided a response to each question for a given project.

The report is organized by technical subprogram area. Each technical area section includes a summary of that subprogram, voluntary reviewer feedback received specific to the subprogram overview presentation(s) given by DOE, a subprogram activities score summary table (and page numbers), and project-specific reviewer evaluation comments with corresponding bar and pie charts.