Multi-society Publication Underscores MSE Role in Securing Energy Solutions

Lynne Robinson

The importance of materials science and engineering to meeting both short- and long-term energy challenges is the focus of “Advanced Materials for Our Energy Future,” a new publication released as a collaborative initiative of TMS, the American Ceramic Society (ACerS), the Association for Iron & Steel Technology (AIST), ASM International (ASM), and project leader, the Materials Research Society (MRS). Developed as a reference tool for policy makers, media professionals, and educators, the booklet provides a broad overview of materials research and development areas that have been identified as having the greatest potential for creating new energy sources or more effectively conserving current ones.

Iver Anderson, senior metallurgist at Ames Laboratory and chair of the TMS Materials and Society Committee, was a member of the joint society committee that researched and prepared the publication. “I believe there is a general misconception by the public that everything has been invented related to energy technologies and it’s just a matter of pulling something off the shelf,” he said. “A key message we tried to convey is that there are extremely important developments that need to be made in materials science to enable these technologies to go forward.”

Other TMS members who served on the “Advanced Materials” committee were Gregory J. Hildeman, formerly of Solar Power Industries, Inc., and Subodh K. Das, Phinix, LLC.

“The collaboration among the committee members from the various societies was excellent,” said Hildeman. The end product of the committee’s efforts, Hildeman continued, “is an

effective communication tool explaining the important role that materials have played in advancing current fossil and nuclear energy sources, as well as sustainable, renewable energy such as solar, wind, geothermal, biofuels, and hydrogen fuel cells.”

Anderson noted that the committee felt it was important to present the

realm of energy possibilities. “There is a wide variety of ways that we can succeed in securing our energy future. The best solution, however, is going to be a set of choices, not just one or two options,” he said. “There are very definite plans to accomplish this, but it will only happen with a sustained, long-term research effort.”

Participation in the development of “Advanced Materials for Our Energy Future” is one of a series of projects recently undertaken by TMS as part of its strategic commitment to facilitating materials solutions to energy challenges. In February, TMS convened an Energy Materials Blue Ribbon Panel as the first phase of a project commissioned by the Department of Energy (DOE) Industrial Technologies Program (ITP). The Panel’s Vision Report, due to be published in July, will identify areas where new materials and processing breakthroughs

can lead to transformational advances in energy efficiency, energy security, and carbon emission reductions. In the second phase of the project, four Technical Working Groups will be formed over the summer to develop roadmaps for each of the cross-cutting materials science and engineering areas identified in the Vision Report. A final report consolidating these roadmaps and addressing interdependencies will be published by the end of 2010.

In a related effort, TMS and ASM International have come together to form the Energy Materials Initiative, a program that utilizes energy education, energy events, and an on-line “Energy Materials Network” to support the exchange of information and ideas on energy materials issues and technologies.

Like the Energy Materials Initiative, “An important element of the ‘Advanced Materials’ project is the cooperation among the materials societies in such a vital area,” said Warren H. Hunt, Jr., TMS executive director. “TMS is committed to working with our sister societies to achieve synergistic benefits for the profession, leveraging our collective ‘energy’.”

“Advanced Materials for Our Energy Future” was provided to policy makers during Congressional visits in April, with plans for wider distribution in the works. On the potential impact of the publication, Anderson commented, “Hopefully, we have presented these various energy strategies in a way that will enable them to be broadly discussed and eventually will lead to real action in implementing them.”

The complete version of “Advanced Materials for Our Energy Future” can be downloaded at energy.tms.org/.

Lynne Robinson is a news and feature writer for TMS.