industrial helium users was formed with a diverse membership, including professional societies like the Materials Research Society (MRS), trade associations representing the semiconductor and MRI/health care industries, as well as manufacturing and large industrial users. The coalition members testified at congressional hearings, spoke at congressional briefings, and met with member offices to educate Congress on the importance of extending the life of the helium reserve to provide stability to the helium market in the short term.

Alex King, who served as director of Ames Laboratory and is a former MRS President, took part in the MRS congressional visits and spoke about the real impact the scientific community was already facing. "One case I talked about was a colleague who had to make a choice between hiring a post-doc or keeping a helium-dependent instrument running—with the rising price and uncertainty of the helium market he was not sure his funding would cover both the necessary helium and the post-doc to conduct the experiments." King, who is now director of the Critical Materials Institute at Ames Laboratory, had also told congressional staffers that due to helium supply uncertainty, helium delivery delays were already occurring with some laboratories receiving "30 to 50% less helium which translates to a significantly lower number of experiments being run."

Congress responded to the call to action on helium with the introduction of the Helium Stewardship Act of 2012. The bill was first introduced in the Senate during the 112th Congress by then-Chair of the Energy Committee Jeff Bingaman (D-N.M.) and Senator John Barrasso (R-Wyo.). Despite the bill's strong bi-partisan support, the 2012 Presidential and Congressional elections coupled with end-of-the-year must-address legislation spelled doom for the bill.

In the 113th US Congress, Energy and Natural Resources Chair Ron Wyden (D-Ore.) and Ranking Member Lisa Murkowski (R-Alaska) reintroduced the Helium Stewardship Act in the Senate. The House also introduced a version of the bill, the Responsible Helium Administration and Stewardship Act, championed by Committee on Natural Resources Chair Doc Hastings (R-Wash.) with bi-partisan support from Representatives (now Senator) Ed Markey (D-Mass.), Rush Holt (D-N.J.), and Bill Flores (R-Texas). With continued support from the helium industry and end users, the House passed its version of the bill in April and the Senate amended and passed the bill five months later, very close to when funding was due to end. The bill went through a final amendment process to resolve differences before it was passed again by both the House and Senate on September 26 and signed into law by President Obama on October 2, 2013.

The Helium Stewardship Act has established a new scheme to sell helium at market-driven prices and sets a three-phase schedule to transition away from a federal helium program by 2021. In the first phase the reserve will continue to operate under the current conditions until September 30, 2014. The second phase begins with the establishment of a helium auction starting in 2014 with 10 percentage points and adding an additional 15 percentage points every year thereafter. Federal users will continue to receive priority access and when the reserve is depleted to 3 billion cubic feet, the third phase of the transition starts with sales from the reserve restricted to federal users only. Helium sales from the reserve will generate revenue to be applied to other important federal programs and to reduce the federal debt.

"It's nice to see Congress respond to a cry for help from the science community," King said. And with the natural gas boom (helium is found with natural gas and can be captured and separated), King said, "This is a good time to transition toward a free market—hopefully the helium auctions and pricing increase mandated by the new law will attract more businesses to come into the production side."

As with most new laws, it is uncertain whether the new helium legislation will produce the desired outcomes, but most helium users can agree it has averted an immediate crisis and will provide some much-needed stability to the helium market.

**Jennifer A. Nekuda Malik**

## European Commission publishes report on coal and steel research

http://ec.europa.eu/research

The European Coal and Steel Community treaty expired in 2002 but its financial assets, built up over 50 years, were transferred to a fund, the Research Fund for Coal and Steel (RFCS), to finance research and innovation projects relevant to the two sectors. Independent experts from the coal and steel sectors considered projects funded by RFCS between 2003 and 2010, analyzing in depth 23 projects where quantifiable commercial benefits were assessed. The main benefits reported by the beneficiaries of the RFCS projects were cost reductions, increased productivity, energy saving, new applications, new solutions, and new market share. The cumulative quantified benefit they declared amounted to about €100 million/year for RFCS funding of about €30 million.

The experts also estimated what the overall commercial return of RFCS funding would be if the same impact achieved in the 23 projects were extended across the entire European coal and steel sectors. The result: an estimated overall commercial return close to €700 million per year compared with average annual RFCS funding of €55 million.

Forty percent of world electricity generation derives from coal, which remains the main energy source for some EU countries.

According to the report, "Research Fund for Coal and Steel," the European Union (EU) is the second largest producer of steel in the world, accounting for 11% of global output. But Europe's producers are facing increasing global competition. Research is therefore essential for EU industry to remain competitive, according to the report. □


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# 2014 MRS SPRING MEETING & EXHIBIT

**April 21-25, San Francisco, CA**

**Preregistration Opens In Late January 2014**

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A Film-Silicon Science and Technology
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C Synthesis and Processing of Organic and Polymeric Materials for Semiconductor Applications
D Materials for Photoelectrochemical and Photocatalytic Solar-Energy Harvesting and Storage
E Earth-Abundant Inorganic Solar-Energy Conversion
F Controlling the Interaction between Light and Semiconductor Nanostructures for Energy Applications
G Photoactivated Chemical and Biochemical Processes on Semiconductor Surfaces
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M Fuel Cells, Electrolyzers and Other Electrochemical Energy Systems
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O Novel Energy-Storage Technologies beyond Li-ion Batteries—From Materials Design to System Integration
P Mechanics of Energy Storage and Conversion—Batteries, Thermoelectrics and Fuel Cells
Q Materials, Technologies and Sensor Concepts for Advanced Battery Management Systems
R Materials Challenges and Integration Strategies for Flexible Energy Devices and Systems
S Actinides—Basic Science, Applications and Technology
T Superconductor Materials—From Basic Science to Novel Technology

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U Soft Nanomaterials
V Micro- and Nanofluidic Systems for Materials Synthesis, Device Assembly and Bioanalysis
W Functional Biomaterials for Regenerative Engineering
Y Biomaterials for Biomolecule Delivery and Understanding Cell-Niche Interactions
Z Bioelectronics—Materials, Processes and Applications
AA Advanced Multifunctional Biomaterials for Neuroprosthetic Interfaces

## ELECTRONICS AND PHOTONICS

BB Materials for End-of-Roadmap Devices in Logic, Power and Memory
CC New Materials and Processes for Interconnects, Novel Memory and Advanced Display Technologies
DD Silicon Carbide—Materials, Processing and Devices
EE Advances in Inorganic Semiconductor Nanoparticles and Their Applications
FF The Grand Challenges in Organic Electronics
GG Few-Dopant Semiconductor Optoelectronics
HH Phase-Change Materials for Memory, Reconfigurable Electronics and Cognitive Applications
II Emerging Nanophotonic Materials and Devices
JJ Materials and Processes for Nonlinear Optics
KK Resonant Optics—Fundamentals and Applications
LL Transparent Electrodes

## NANOMATERIALS

MM Nanotubes and Related Nanostructures
NN 2D Materials and Devices beyond Graphene
OO *De Novo* Graphene
PP Nanodiamonds—Fundamentals and Applications
QQ Computationally Enabled Discoveries in Synthesis, Structure and Properties of Nanoscale Materials
RR Solution Synthesis of Inorganic Functional Materials
SS Nanocrystal Growth via Oriented Attachment and Mesocrystal Formation
TT Mesoscale Self-Assembly of Nanoparticles—Manufacturing, Functionalization, Assembly and Integration
UU Semiconductor Nanowires—Synthesis, Properties and Applications
VV Magnetic Nanomaterials and Nanostructures

## GENERAL—THEORY AND CHARACTERIZATION

WW Materials by Design—Merging Advanced *In-situ* Characterization with Predictive Simulation
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YY Meeting the Challenges of Understanding and Visualizing Mesoscale Phenomena
ZZ Advanced Characterization Techniques for Ion-Beam-Induced Effects in Materials
AAA Applications of *In-situ* Synchrotron Radiation Techniques in Nanomaterials Research
BBB Advances in Scanning Probe Microscopy for Material Properties
CCC *In-situ* Characterization of Material Synthesis and Properties at the Nanoscale with TEM
DDD Atomic-Resolution Analytical Electron Microscopy of Disruptive and Energy-Related Materials
EEE Materials Behavior under Extreme Irradiation, Stress or Temperature

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November 30-December 5, 2014

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April 6-10, 2015

Moscone West & San Francisco Marriott Marquis
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