Health Effects Institute

101 Federal Street
Suite 500
Boston MA 02110-1817 USA
+1-617-488-2300
FAX +1-617-488-2335
www.healtheffects.org

FOR RELEASE: 10:00 AM March 14, 2011
For More Info: Rashid Shaikh, Director of Science (617) 488 2301

EXPERTS FIND PROGRESS, IMPORTANT HEALTH QUESTIONS, IN FLOOD OF NEW TECHNOLOGIES AND FUELS

(Boston, March 14) The large number of new vehicle fuels and technologies being developed to meet market and legislative pressure for improved efficiency and reduced emissions offer major opportunities for progress, according to a report published today at www.healtheffects.org by the Special Committee on Emerging Technologies (SCET) of the Health Effects Institute (HEI)[1].

However the report – *The Future of Vehicle Fuels and Technologies: Anticipating Health Benefits and Challenges* – identifies a number of potential unintended health consequences that could arise from use of these fuels and technologies and need investigation, and HEI's Research Committee is taking action to address them.

Anticipating the Unanticipated

Vehicle fuels and technologies have made great strides over the past three decades but progress has often been accompanied by new, unintended emissions and potential health consequences that need to be addressed as well. HEI's Board of Directors appointed SCET to advise on what technologies and fuels are coming forward, how fast we expect them to be here, and any potential emissions or other unintended health consequences. SCET – co-chaired by Tina Vujovich (formerly of Cummins Engine, Inc.) and Alan Lloyd (President of the International Council on Clean Transportation and former Secretary of the California EPA) – includes leading national and international experts from government, industry, academia, and the non-profit sector to get the most up-to-date knowledge. (Member List Attached)

Major Progress, Some Challenges

The new SCET report reviews in detail a host of new technologies and fuels, from improved internal combustion engines, to hybrid and other electric drive technologies, to existing and new bio- and other types of fuels. The report contains a number of detailed findings, chief among them:

- *Internal combustion gasoline and diesel engines, improved for efficiency and emissions, are likely to continue to play a major role for at least the next 10 years in the transportation sector*. At the same time SCET finds that

[1] The Health Effects Institute is an independent, non-profit research institute funded jointly by government and industry to provide credible, high quality science on air pollution and health for air quality decisions. HEI sponsors do not participate in the selection, oversight or review of HEI science, and HEI's reports do not necessarily represent their views.

- New direct inject gasoline technology offers improvements in fuel economy, but may increase emissions of microscopic ultrafine particles that could cause health effects
- New selective catalytic reduction technology (SCR) reduces emissions of nitrogen oxides from fuel-efficient diesel engines; however, such exhaust has not been well characterized and there are questions about possible emissions of some potentially harmful nitrogen compounds.

- *Large volumes of ethanol and potentially other biofuels are and will be entering the market over the next decade in response to government mandates*
  - SCET identifies increased emissions of aldehydes and other compounds, with potential health effects, that could increase population exposure. SCET also notes that there is controversy about the broader environmental impacts from the use of such fuels.

- *There is increased development and use of a number of fuels from unconventional sources such as tar sands, oil shale, and coal.*
  - Fuels from such sources may have different fuel formulations and emissions characteristics; they also pose a number of broader environmental questions.

- *SCET describes major developments in hybrid, all-electric drive, and fuel cell technologies, likely to see substantial market penetration by the end of this decade.* These technologies promise zero or near zero emissions at the vehicle, but SCET identified three areas for potential attention:

  - Potential increased in-vehicle exposure to low-level electro-magnetic fields (EMF)
  - Potential increased exposure in the battery lifecycle – from extraction to production to use/accidents to disposal - to lithium, other metals, and battery chemical solutions.
  - Displaced emissions of conventional pollutants at electric power plants which, if not controlled, could increase population exposure.

HEI will re-convene SCET in about 18 months to update its assessments and its advice to HEI about the status of the various fuels and technologies and emerging issues and concerns.

HEI Taking Action

In response to these comprehensive findings, the HEI Research Committee – experts in emissions, exposure, and health who oversee the Institute's science programs – has issued the attached Action Plan for investigations underway or soon to begin. These include:

- An expert panel launched to sift through emissions, exposure, and health data on ***ultrafine particles*** and determine whether emissions from new technologies may pose a hazard.

- HEI's Advanced Collaborative Engine Study (or ACES) is applying ***comprehensive emissions characterization of modern heavy duty diesel engines*** equipped with the latest SCR technology to determine whether key nitrogen compounds and exposure are increased

- An expert workshop convened this fall of all current ***emissions tests of ethanol, biodiesel, and other biofuels*** to determine changes in emissions and population exposure

- HEI's scientists will also conduct searches and initial reviews of the science literature on:
  - ***EMF emissions and potential effects***
  - ***Toxicity of lithium and other battery components***

- The National Particle Component Toxicity Initiative (NPACT), HEI's comprehensive effort to understand the effects of power plant, traffic, and other emissions, will be completed this year, offering answers on the ***potential effects of displaced emissions***.

For more information on the SCET Report and HEI's Action Plan: Contact HEI's Director of Science Dr. Rashid Shaikh, who led the SCET effort, at 617 488 2301 or rshaikh@healtheffects.org .

Members of the Special Committee on Emerging Technology

Christine Vujovich (Co-Chair), formerly at Cummins

Alan Lloyd (Co-Chair), President International Council on Clean Transportation (ICCT)

Thomas Cackette, California Air Resources Board

Steve Cadle, formerly at General Motors

Wayne Eckerle, Cummins

Helmut Greim, Technical University of Munich

John Heywood, Massachusetts Institute of Technology

Albert Hochhauser, formerly at ExxonMobil

Roland Hwang, Natural Resources Defense Council

David Kittleson, University of Minnesota

C. Andy Miller, US Environmental Protection Agency

Norbert Pelz, formerly at Daimler

Kathryn Sargeant, US Environmental Protection Agency

Robert Sawyer, University of California at Berkeley

Dennis Schuetzle, Renewable Energy Institute International

Tom Stricker, Toyota

Michael Walsh, International Consultant

Michael Wang, Argonne National Laboratory