

HEI's 21st Century Oil and Natural Gas Development Project

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HEI Annual Conference

Denver, CO

May 2, 2016



In 2014, HEI was asked to convene a Special Committee

- The Committee's charge:
 - Develop an impartial guide for research about potential adverse impacts of onshore unconventional oil and gas development
- The guide should recommend and prioritize research to better understand and to prevent or minimize potential impacts on:
 - Human health and well-being
 - Communities
 - Ecological health
 - Environment



HEI's Special Committee



George Hornberger, *Vanderbilt*
Alison Cullen, *UW*
Jeffrey Daniels, *Ohio State*
Alan Ducatman, *WVU*
John Jackson, *Stroud Water
Research Center*
William Kappel, *Retired, USGS*
Richard Krannich, *Utah State*

Vince Matthews, *Leadville Geology;
former State Geologist of CO*
Allen Robinson, *Carnegie Mellon*
Dale Sandler, *NIEHS*
Susan Stout, *Federal Liaison, USFS*
Deborah Swackhamer, *UMinn*
Junfeng Zhang, *Duke*

Special Advisors to the Committee: Bernard Goldstein, UPitt; Alan Krupnick, RFF; Michael Parker, Parker Environmental and Consulting

Our Progress

June
2014

First Committee Meeting and Public
Workshop



October
2015

Release of the Final Strategic
Research Agenda



Spring
2016

Planning for a new HEI research
program to begin in 2016



HEI

HEALTH
EFFECTS
INSTITUTE

October 2015

Strategic Research Agenda on the Potential Impacts of 21st Century Oil and Natural Gas Development in the Appalachian Region and Beyond

HEI Special Scientific Committee on Unconventional Oil and Gas Development in the Appalachian Basin

Funding provided by private foundations in Pennsylvania and West Virginia, including:

- Richard King Mellon Foundation
- Henry L. Hillman Foundation
- Claude Worthington Benedum Foundation
- Henry C. and Belle Doyle McEldowney Fund of The Pittsburgh Foundation

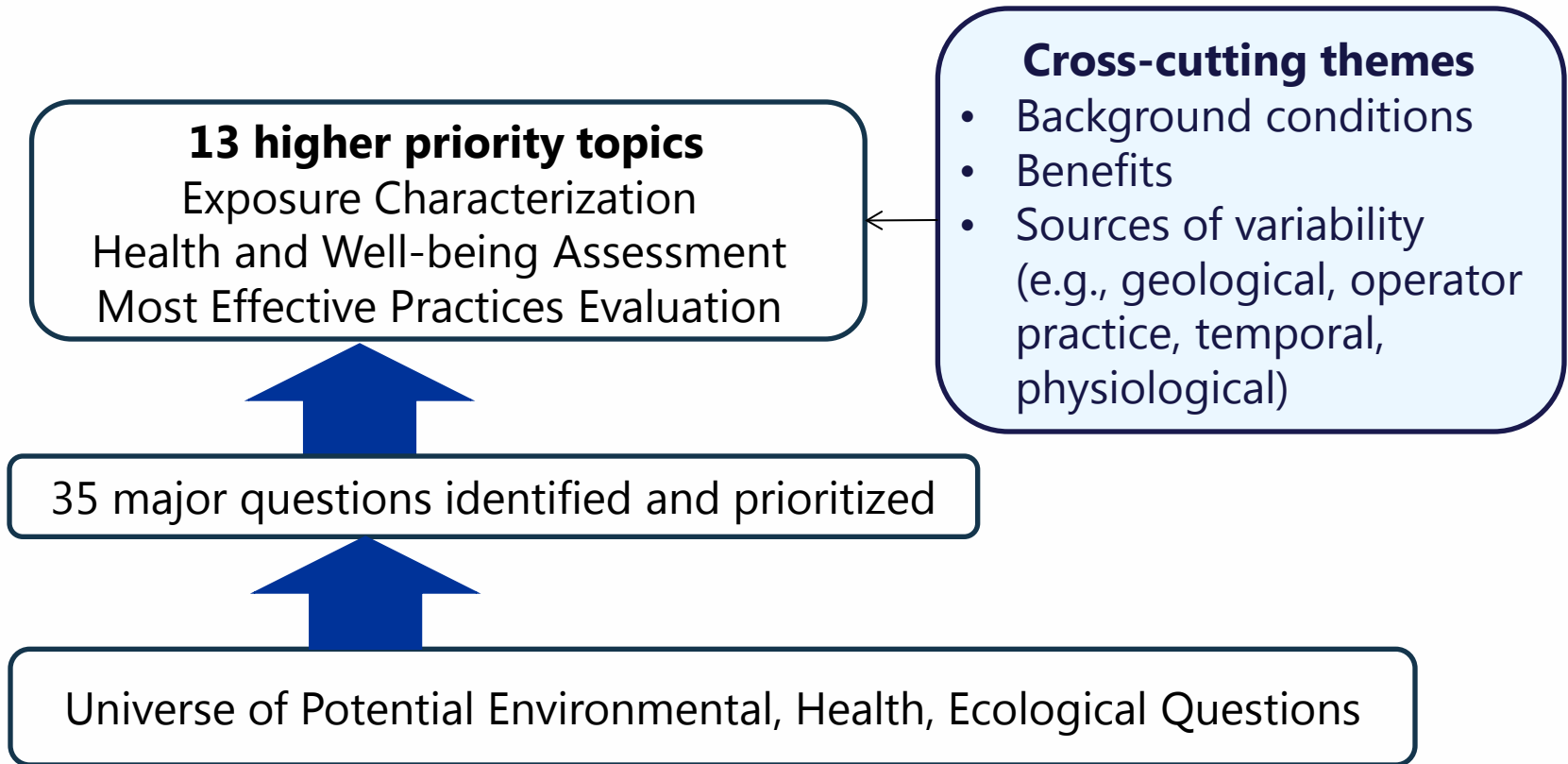
101 Federal Street, Suite 500
Boston, MA 02210, USA
+1-617-488-2300
www.healtheffects.org

Strategic Research Agenda

- Released in Fall 2015 after extensive stakeholder consultation and expert review
- Identifies key research questions as a foundation for moving forward



The Committee's research priorities**



** Complement (don't duplicate) past and ongoing research efforts that fit within the Research Agenda framework



Focus of a new HEI research program based on the Strategic Research Agenda

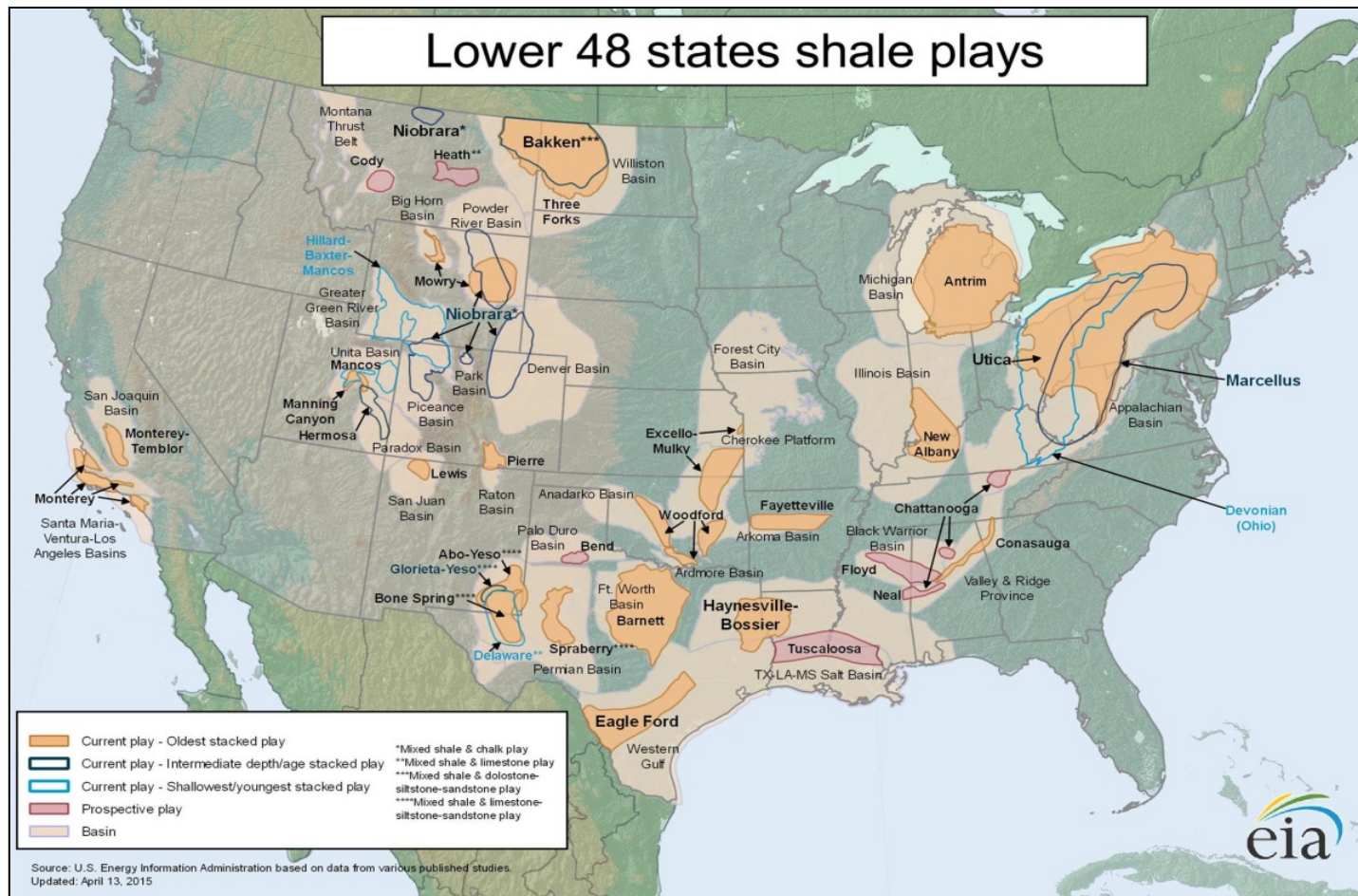
- Answer key questions that have arisen in recent years about potential human exposures and health effects
- Begin with exposure studies and proceed to health studies as warranted and feasible based on exposure data



An illustration of the need for better exposure information

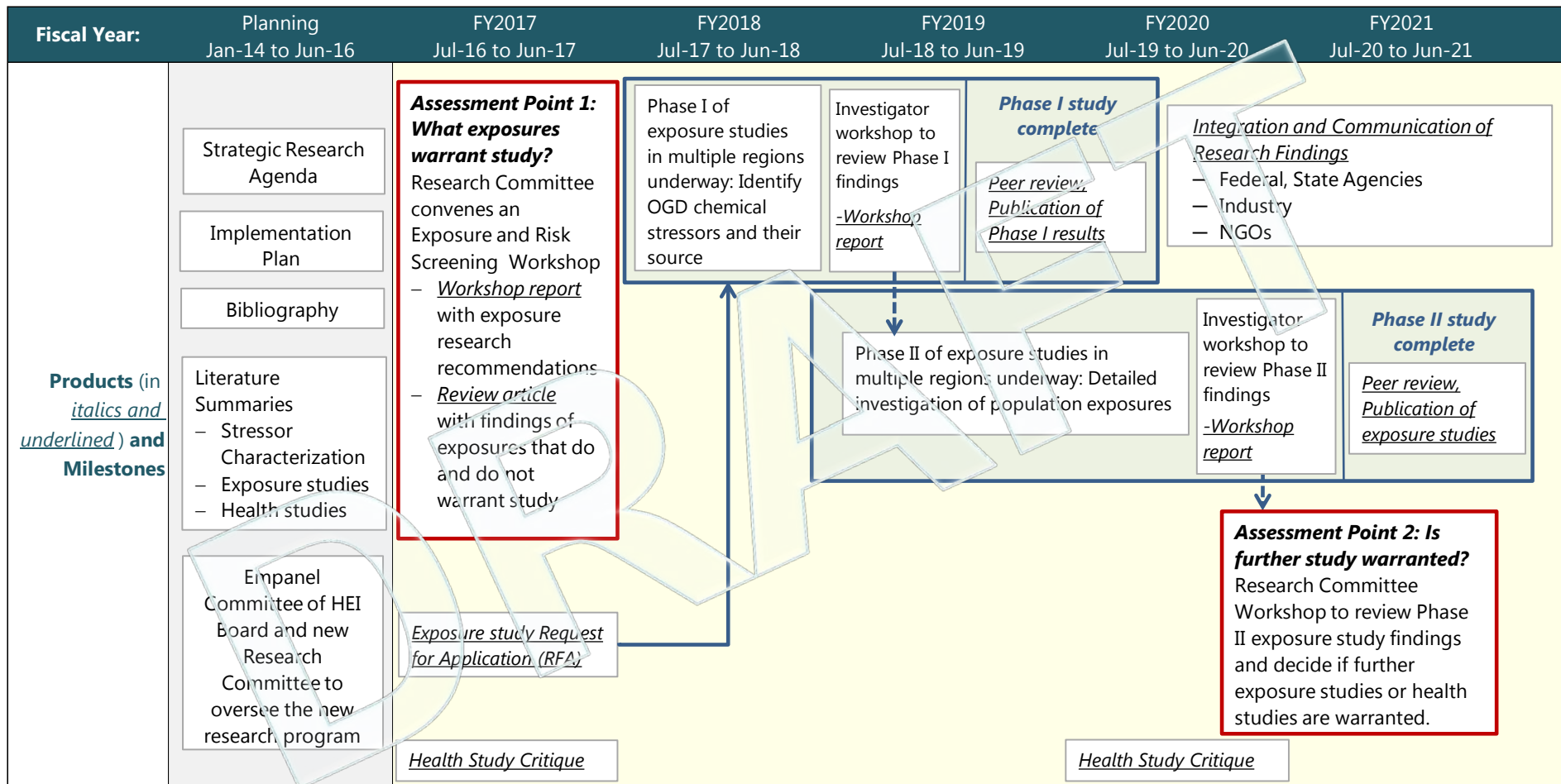
Health Studies in the Headlines	Exposure Metric
McKenzie et al. 2014. Birth outcomes and maternal residential proximity to natural gas development in rural Colorado. <i>Enviro Health Perspect</i>	Inverse distance weighted natural gas well counts within a 10-mile radius of maternal residence
Casey JA et al. 2015. Unconventional natural gas development and birth outcomes in Pennsylvania, USA. <i>Epidemiology</i>	Inverse-distance model incorporating distance to maternal residence; dates and durations of development activities and production volume during the pregnancy
Jemielita et al. 2015. Unconventional Gas and Oil Drilling Is Associated with Increased Hospital Utilization Rates. <i>PLoS One</i>	# of wells per zip code and, separately # of wells per km ²
Stacy SL et al. 2015. Perinatal Outcomes and Unconventional Natural Gas Operations in Southwest Pennsylvania. <i>PLoS One</i>	Inverse distance weighted count of unconventional wells within a 10-mile radius of maternal residence

A high research priority: Comparative studies of potential human exposure among key U.S. Regions



HEI's planning for a new research program

(DRAFT Pending Consultation with Sponsors and HEI Board of Directors)



Next Steps

- Continue with design of the research program
 - *Conduct research in important oil- and gas-producing regions throughout the United States*
 - *Focus on human exposure studies*
 - *Where warranted and feasible, initiate health studies*
- Employ the same HEI model used since the 1980s to provide impartial scientific information to inform policy decisions.
- Continue engagement with potential government and industry sponsors to achieve adequate, balanced funding to begin the research program in 2016

