

# Implementing the HEI Strategic Plan 2015 – 2020 Year-One Progress and Year-Two Plans

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# HEI's Strategic Plan 2015-2020

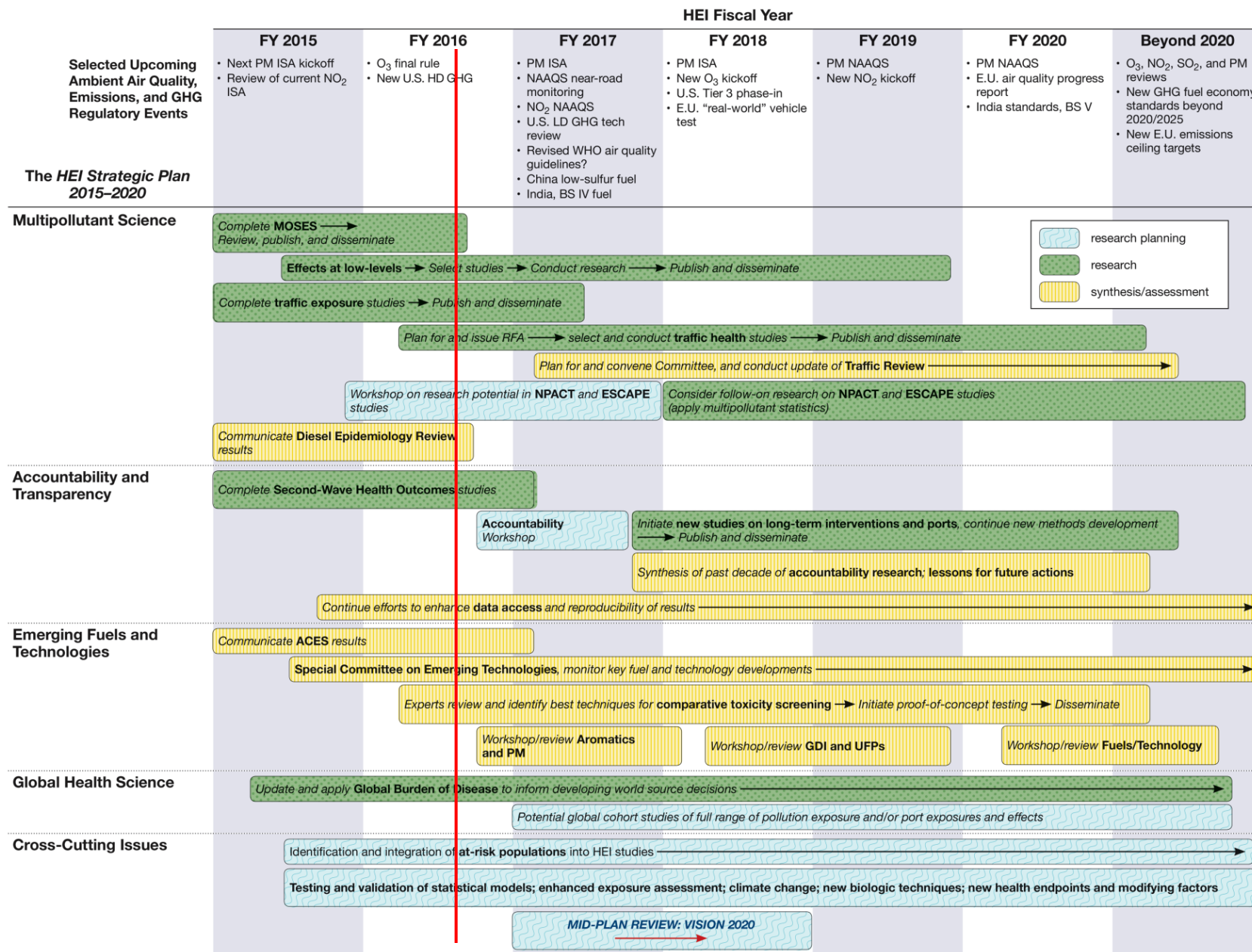
- The Plan guides HEI's research and review activities;
  - It responds to the needs of HEI industry & government sponsors, and other interested parties;
  - It anticipates future policy and technology events; and,
  - It evolves over time to adapt to changing knowledge and events
- 
- Thank you for your help in developing the latest plan



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# Implementation of the Strategic Plan 2015 – 2020



# *Addressing the Challenges of Multi-pollutant Science*

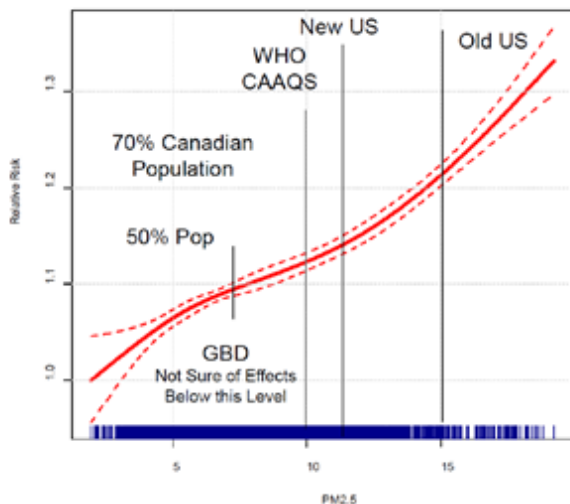
## Estimating the Effects of Exposure to Low Levels of Air Pollution

- Three new studies funded, with key features:
  - Populations with millions in the US, Canada and Europe; administrative and traditional cohorts
  - Satellite data and ground level exposure measurements; high quality exposure assessment models at high spatial resolutions

- Development of new statistical methods
- Investigator teams with prior experience of productive collaborations

- Detailed HEI Oversight
- For more information – next session and PM poster session

Figure 1 Shape of Canadian Concentration-Response Function  
(From Burnett 2013 drawn from Crouse 2012)



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# *Effect of Ozone on the Cardiovascular System: The MOSES Study*

- Main Features of the Study:
  - 87 healthy, older volunteers exposed to near ambient levels of ozone (0.07 and 0.12 ppm) and clean air
  - Highly standardized protocol and SOPs
  - Endpoints studied:
    - Cardiac function (including autonomic balance)
    - Vascular effects (inflammation, endothelial function, prothrombotic changes)
    - Lung function and inflammation
- Status:
  - Draft Report submitted in March 2016
  - Review Panel met in April
  - Presentation of preliminary results – Tuesday morning
  - Final report publication – Winter, 2016-17



# *Health Effects of Traffic-Relation Air Pollution*

- HEI literature review – published 2010
- Studies in progress:
  - Five targeted studies with the goal of enhanced exposure assessment: in Atlanta, Detroit, Hong Kong, North Carolina and Oakland
  - One study looking at tunnels in Hong Kong and Baltimore
  - One study looking at non-tail pipe emissions in Boston
- Status:
  - Studies in progress and various stages of completion
  - Poster session yesterday



HEI Fort McHenry Tunnel Study  
....of a tunnel studied before



# *The Next Phase of Traffic Studies*

- A high-priority area; strong emphasis during strategic planning
- Planning for a new RFA
  - Annual Conference session and small workshop to identify key research questions and methodological challenges, and appropriate research designs
  - RFA to be issued – late 2016
  - Studies selected for funding – fall 2017
  - Studies to begin – Early 2018
- New Review of the Traffic Literature
  - To begin in late 2017



# *Accountability Research & Transparency*

- Under a 2011 RFA, HEI funded four studies on large-scale, multi-year regulatory programs
  - Gilliland: Evaluating changes in children's health in Southern California (to be published late 2016)
  - Ziegler: Statistical methods for causal inference (to be published May 2016)
  - Russell: Air quality regulations in Southeastern United States (to be completed later this year and enter review)
  - Meng: Goods movement regulations in California (phase 1 completed; phase 2 initiated)
- Future Plans: Possibly starting a new phase of studies in 2018 or 2019; planning activities in 2017
- Posters on Sunday





# *Emerging Fuels and Technologies: Workshop on Fuel Aromatics and PM*

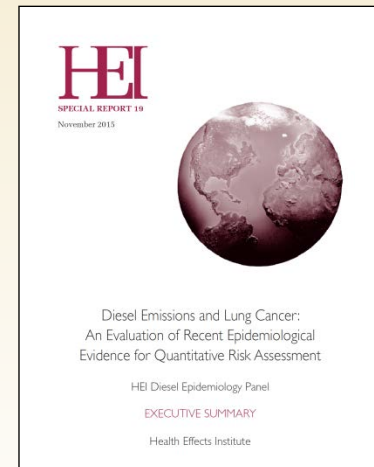
- Background:
  - Gasoline aromatics and other unsaturated hydrocarbons lead to proportional increase in PM
  - Effect of ethanol blends – complex impact on PM emissions
  - Emissions, incl. primary PM, and secondary PM formation
- Goals of HEI Workshop:
  - Present and summarize current knowledge
  - Identify approaches to answer unresolved questions
- Plans:
  - HEI Organizing Committee: Allen Robinson (Research Committee and Carnegie Mellon) and Rob Harley (UC Berkeley)
  - Consultations with sponsors and others
  - Expected date of workshop: fall 2016

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# *Emerging Fuels and Technologies: Traditional and Advanced Technology Engines*

- Executive Summary of the ACES Program:
  - emissions characterization of 2007 and 2010 engines and
  - health effects testing of a 2007 engine
  - conclusions and implications
- Diesel Emissions and Lung Cancer:  
An Evaluation of Recent Epidemiological  
Evidence for Quantitative Risk Assessment
  - Intensive review and analysis of the newest studies of mine and truck workers exposed to older diesel engine exhaust
  - conducted by an HEI Expert Panel
- Both reports widely communicated to audiences in the US, Europe, China and India
- Forthcoming presentation by Dan Greenbaum



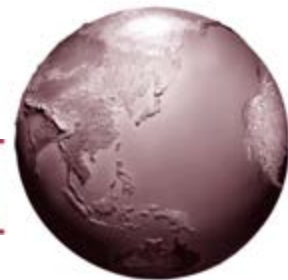
# *Global Health: GBD-MAPS*

## *Global Burden of Disease – Major Air pollution Sources*

- GBD is a systematic, scientific effort to quantify the magnitude of health loss from disease and injuries around the world
- HEI leads the air pollution team, producing GBD 2013
- About 3 million premature deaths from outdoor air pollution worldwide (2/3<sup>rd</sup> in Asia)
- Next step: HEI's GBD-MAPS Initiative
  - Identify source specific health impacts in China, India, Eastern Europe
  - E.g. Power, industry, agriculture, transportation, kilns, household, dusts
- Partners:
  - Tsinghua China, IIT Mumbai, USEPA (T Keating) WHO, IHME, others
  - Funding from Hewlett, Oak Foundations
- Results to be discussed during this afternoon's session and poster session
- Publication of China results in June 2016



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## *Communicating HEI's Results*

- New HEI Website – test drive the  $\beta$ -version
  - Annual Conference
  - Other ongoing: reports, newsletters, emails, conference participation, etc.
- How are we doing?
- What can we do better?



# *Moving Forward*

- HEI continues to be a success model for developing quality and impartial science  
The *HEI Strategic Plan* is moving at a brisk pace
  - With many projects coming to fruition this year
  - And a number of important new ones underway
- We look forward to hearing your ideas on where we can and should focus going forward!



THANK YOU

