DEVELOPING A RESEARCH AGENDA FOR
CARBON DIOXIDE REMOVAL AND RELIABLE
SEQUESTRATION

Blue Carbon Workshop
July 26, 2017
Woods Hole, MA
The National Academies

- Advisors to the Nation on science, engineering, and medicine.
- The National Academies is the umbrella term for NAS, NAE, NAM, and NRC.
- NAS created in 1863 under Lincoln Administration.

Strengths of our work:
- Stature of Academies’ memberships
- Ability to get the very best to serve
- “Pro bono” nature of committee service
- Special relationship to the government
- Quality control procedures
- Independence, scientific objectivity, balance
Study Motivation

• Origins
  – 2015 National Academies report recommends R&D investment to improve methods of CDR and sequestration at scales that matter, in particular to:
    • minimize energy and materials consumption
    • identify and quantify risks
    • lower costs
    • develop reliable sequestration and monitoring

• Rationale
  – Paris Agreement, December 2015
  – Many CDR technologies are not yet viable in terms of cost and scalability
  – Any potential risks that deployment of these techniques would entail are not fully understood
  – Need for detailed research and development agenda to assess benefits, risks, and sustainable scale potential; and increase commercial viability

• Sponsors
  – DOE, NOAA, EPA, USGS, V. Kann Rasmussen Foundation, Incite Labs, NAS
Statement of Task

- Identify the most urgent unanswered scientific and technical questions needed to:
  - assess the benefits, risks, and sustainable scale potential for carbon dioxide removal and sequestration approaches; and
  - increase the commercial viability of carbon dioxide removal and sequestration
- Define the essential components of a research and development program and specific tasks required to answer these questions
- Assess the costs and potential impacts of such a research and development program to the extent possible in the timeframe of the study
- Recommend ways to implement such a research and development program
Committee Members

- Stephen Pacala (NAS), Chair, Princeton University
- Mahdi Al-Kaisi, Iowa State University
- Mark Barteau (NAE), University of Michigan
- Erica Belmont, University of Wyoming
- Sally Benson, Stanford University
- Richard Birdsey, Woods Hole Research Center
- Dane Boysen, Cyclotron Road
- Riley Duren, Jet Propulsion Laboratory
- Charles Hopkinson, University of Georgia
- Christopher Jones, Georgia Institute of Technology
- Peter Kelemen (NAS), Columbia University
- Annie Levasseur, International Reference Centre for the Life Cycle of Products, Processes, and Services (CIRAIG)
- Keith Paustian, Colorado State University
- Jianwu (Jim) Tang, Marine Biological Laboratory
- Tiffany Troxler, Florida International University
- Michael Wara, Stanford Law School
- Jennifer Wilcox, Colorado School of Mines
Information gathering is an important step in the study process

- Helps ensure the committee is informed on relevant aspects of topic
- Allows for engagement with broader scientific community and other stakeholders
- Today’s meeting is one of multiple information gathering sessions planned for coming months

Note: Comments of any given committee member may not necessarily reflect the position he or she may actually hold on the subject under discussion. Any inference about an individual’s position regarding findings or recommendations in the final report is therefore premature.
Goals for today’s meeting

• Gather information needed to develop a research and development agenda for blue carbon.
  – What is known about the potential for coastal wetlands to remove and sequester carbon?
  – What advances in basic science and technology are needed to better understand blue carbon benefits and bring them to large scales?

• Consider societal benefits, costs, and barriers to implementing the blue carbon approach.
Thank you for your participation!

For more information and to subscribe for updates:

http://nas-sites.org/dels/studies/cdr/