HEI Energy Research Program

Workshop Objectives and Charge Questions

Donna Vorhees
HEI Director of Energy Research
Workshop Objectives

• Convene a broad range of experts seeking input to ongoing planning or population-level research to understand potential exposures associated with onshore development of unconventional oil and natural gas resources (UOGD) in the United States

• Build on discussions from July workshop
  – Regulatory framework already in place to protect human health:
  – Data mining: How can existing data be leveraged to understand potential exposures from UOGD?
  – Refined breakout group discussions to further define research options and priorities
Schematic of Oil and Gas Operations

**Production & Processing**
1. Drilling and Well Completion
2. Producing Wells
3. Gathering Lines
4. Gathering and Boosting Stations
5. Gas Processing Plant

**Natural Gas Transmission & Storage**
6. Transmission Compressor Stations
7. Transmission Pipeline
8. Underground Storage

**Distribution**
9. Distribution Mains
10. Regulators and Meters for:
   a. City Gate
   b. Large Volume Customers
   c. Residential Customers
   d. Commercial Customer

Source: Adapted from American Gas Association and EPA Natural Gas STAR Program
Why Take Time for Workshops?

• **UOGD and its regulation are changing over time**
  - The information isn’t neatly packaged in the peer-reviewed literature or gray literature; need thoughtful exchange with knowledgeable people

• **Highlight relevant ongoing research**
  - Seek a pathway of communication to learn about and complement this work, learn from one another, and identify possible opportunities for collaboration

• **Seek input on the research most beneficial to policy decisions that many of you need to make**
  - For example, what research will best help regulators, local community leaders, industry, and others to protect the health of people near UOGD over the near-term and longer-term?
Workshop Charge Questions

• How can existing data be leveraged to understand potential exposures from UOGD?

• What potential UOGD exposures are not well understood with existing data and merit original research?
  – What exposure pathways and phases of UOGD should be the focus?
  – In conducting such research, what are your recommendations for considering regulatory, environmental, and industry practice variability over time and across regions?
  – What is the value of the research for decision-makers (e.g., regulators, industry, community members, and scientists conducting research)?
Conceptual Model of Exposure to Support Research Planning

- **Potential source of UOGD-related exposure**
- **Transport mechanisms and pathways for each agent**
- **Media of exposure (e.g., outdoor air and drinking water)**
- **Exposed populations (including sensitive subpopulations)**
- **Routes of exposure (inhalation, ingestion, and dermal)**
- **Health risk (function of exposure and toxicity information)**