



**Course length:** One day  
**Prerequisites:** None  
**CPE credits:** 8

### A detailed look at how shale gas work, how it is changing the natural gas industry, and its prospects for the future

Shale gas has already dramatically changed the fundamentals of the natural gas, electricity, and natural gas liquids (NGLs) industries and has even changed global politics. But how will shale gas affect your company and your customers? And is the evolution secure enough to bet on natural gas far into the future? Shale Gas: Economics, Environmental Issues, and Market Impacts gives participants the technical, economic, environmental, and market details to help them identify and evaluate shale-related risks and opportunities.



### WHO WILL BENEFIT FROM THIS SEMINAR?

- Gas procurement and supply planning professionals working for utilities, electric generators, marketers, and large consumers who need to understand supply alternatives
- Gas marketers and gas utility account managers
- Finance, accounting, legal, sales, and regulatory professionals providing services to gas producers, gas pipelines, utilities, gas marketers, electric generators, large gas end users, and other organizations impacted by gas markets
- Regulatory staff and commissioners
- Professionals such as attorneys, regulatory affairs employees, and public relations specialists involved in the gas or electric business
- Gas or electric industry employees who need an understanding of shale gas to better understand future gas markets and gas infrastructure needs

### WHAT PARTICIPANTS WILL LEARN

- What shale gas is and how developing and producing the shale gas resource differs from traditional natural gas resources
- The supply chain and economics associated with shale gas
- Environmental issues associated with shale gas and how they can be addressed
- The potential shale gas resource size and how much is available at what cost
- Impacts on processing, pipeline, and storage infrastructure needs as shale gas is developed
- How shale gas development will continue to impact natural gas and electricity markets in North America and globally

### COURSE AGENDA

#### Introduction

- Why everyone is interested in shale gas

- Traditional gas supply vs. shale gas
  - Shale gas geology vs. conventional gas geology
  - Shale gas production vs. conventional gas production
  - How technological advancements allowed us to produce shale gas economically
  - Typical gas composition – shale gas vs. traditional
- The growth of shale gas production in the U.S. and Canada
- Shale gas basins in the U.S. and Canada
- Shale gas elsewhere in the world
- Natural Gas Liquids (NGLs) – what they are and how they relate to shale gas
- Why the NGLs market is important to natural gas markets and how NGLs markets impact the future development of shale gas

#### Shale Gas Production

- How a shale gas well is drilled and completed
  - Shale gas geology
  - Steps to drilling including horizontal drilling and fracking
  - Fracking and other materials used
  - Costs
- Production from a shale gas well
  - Typical products recovered including oil, natural gas, and NGLs
  - Operational factors
  - Operational costs
  - Gathering and processing
  - Well depletion
  - How this differs from a traditional well

#### The Shale Gas Value Chain

- Supply
  - Supply basins in North America and projected resources





- Potential resources elsewhere in the world
- Current and projected production
- Marginal costs associated with supply
- How much resource is available at what cost
- Processing plants
  - How they work
  - Current infrastructure
  - Projected new infrastructure
  - Costs associated with processing
- Pipelines
  - How they work
  - Current infrastructure from shale basins
  - Projected new infrastructure
  - Costs associated with pipeline transport
- Storage
  - How storage works
  - Current infrastructure in shale basins or accessible by pipeline from shale basins
  - Projected new infrastructure

### Environmental and Social Issues with Shale Gas

- Fracking
- Land use
- Water use and water emissions
- Air emissions
- Impacts of greenhouse gas concentrations
- The publicity backlash
- Environmental regulation
  - Federal
  - State and provincial
- Tools for addressing environmental and social concerns

### How Shale Gas Has Impacted Gas and Electric Markets

- Natural gas prices
- Natural gas supply and demand
- Ability to withstand severe weather shocks
- Regional gas market impacts and changes in basis
- Electricity supply and demand
- Electricity prices
- Changes in electric generating infrastructure
- Reductions in electric air emissions

### The Future of Shale Gas

- Factors affecting future growth rates
- Infrastructure needs
- Potential growth in North America
- Potential growth elsewhere in the world including Europe, Asia, and Mexico
- Scenarios for how future growth will impact natural gas and electricity markets
- Is natural gas a safe bet for the future?

