

IADC Briefing Book

Energy-Water Nexus



The energy-water nexus refers to the relationship between the water used for energy production and the energy consumed to extract, purify, deliver, heat/cool, treat and dispose of water. In 2014, the U.S. Department of Energy (DOE) began a program that aims to examine the interaction between present-day energy and water systems with an understanding that there are dynamic interactions between the energy system, population, economy, infrastructure systems and natural resources. The DOE is working in partnership with representatives from a wide variety of industries to enable more effective research, development and deployment of key technologies, harmonization of policies where warranted, shared datasets, informed decision-making and robust public dialogue. [1] In relation to the oil and gas industry, water is used for hydraulic fracturing and horizontal drilling activities, enhanced oil recovery and other fossil fuel production processes.

Key Messages

- IADC members are committed to protecting the environments in which they work and live. Working together with U.S. government agencies to ensure that oil and gas drilling activities produce the energy necessary to power the economy, while respecting both the water supply and environment is a continuous goal.
- Horizontal drilling and hydraulic fracturing have opened up vast quantities of oil and gas deposits that have contributed to the U.S. energy renaissance. Hydraulic fracturing uses water to unlock oil and natural gas from tight shale formations. Energy in Depth found that in 2011 all shale gas well drilled and completed in the U.S. used approximately 135 billion gallons of water, equivalent to 0.3% of total U.S. freshwater consumption. [2] Further, the industry is working on water use alternatives for hydraulic fracturing fluids like water recycling and the use of seawater and wastewater. [3]

Resources

1. U.S. Department of Energy: <http://www.energy.gov/articles/ensuring-resiliency-our-future-water-and-energy-systems>
2. Energy in Depth: <http://energyindepth.org/national/infographic-the-facts-on-hydraulic-fracturing-and-water-use/>
3. EPA Hydraulic Fracturing Study Technical Workshop: Water Resources Management: https://www.epa.gov/sites/production/files/documents/09_Mantell_-_Reuse_508.pdf
4. EPA Greenhouse Gas Reporting Program: <https://www.epa.gov/ghgreporting/ghgrp-reported-data>
5. Energy in Depth: <https://energyindepth.org/national/new-epa-data-show-methane-emissions-continue-to-plummet/>