

**Event Summary: Are We Entering a Golden Age of Gas?**June 8<sup>th</sup>, 2011

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On June 8<sup>th</sup>, 2011 the CSIS Energy and National Security Program hosted the International Energy Agency (IEA) to present a special report which analyzes the rising importance of natural gas in the global energy market. David Pumphrey, Deputy Director and Senior Fellow, CSIS Energy Program, moderated the discussion which focused on the factors driving the rise of natural gas and its implications for other fuels and climate change.

Nobuo Tanaka, Executive Director of IEA, introduced the special report and noted that it came at a crucial time as the technology associated with the exploration of natural gas is rapidly transforming energy markets. He also explained the context in which the changes in natural gas markets are taking place. The combination of increased concern regarding energy security and climate change and disjointed global policies on each front has created uncertainty which is favoring the expansion of gas. Moreover, Tanaka asserted that the recently revived debates surrounding nuclear energy along with the evolution of the gas market due to the U.S. shale gas boom, increased LNG trade and concern about local pollution (especially in China) are coming to propel gas forward.

John Corben, Senior Technical Advisor, Office of the Chief Economist at IEA, began by emphasizing that the report was intended to assess how gas could, or would, be part of a solution to the dual issues of energy security and climate change. His presentation provided an overview of the *Golden Age of Gas (GAS) Scenario*, which builds on the *WEO-2010 New Policies Scenario* and evaluates a future where natural gas plays a prominent role in meeting global energy demand to 2035. Key policy and price assumptions that shape the GAS Scenario include:

- Widespread development and exploration of unconventional gas;
- Lower gas prices, \$1.5-2.5 per mbtu lower than in *WEO-2010 Scenario* in the US, Japan, and Europe;

- Gas targets in China's 12<sup>th</sup> 5 year plan, as China plans to increase from currently <4% to 8.3% of total energy demand by 2015;
- Reduced distribution of nuclear energy, nuclear emissions in *GAS Scenario* will be 10% lower than in the *WEO-2010 Scenario*; and,
- Increased production of natural gas vehicles.

According to the *GAS Scenario*, global energy demand projections rank gas as the second highest fuel by 2035, surpassing coal by 2030. Compared to the *WEO Scenario*, gas demand in 2035 will increase 13% and oil, coal, and nuclear demand will decrease. Most of the growth in natural gas consumption will be in non-OECD countries, and China will account for 30% of global growth and will use as much gas as the EU by 2035. In the *GAS Scenario*, the power generation sector has the highest demand for natural gas and generates nearly a quarter of total power generation by 2035 from gas. Liquid Natural Gas (LNG) trade is projected to reach over 1 tcm by 2035, enhancing energy supply security and market flexibility, and Australia is predicted to become a major supplier of LNG.

Recent studies have shown that the recoverable unconventional resource wealth is comparable to recoverable conventional resources. Global resources exceed 250 years of current production and the regional exploitation of these reserves could enhance energy security; however, their full utilization could produce harmful environmental effects.

Natural gas has the potential to reduce local pollution, and China's increasing interest in natural gas use stems from its need to reduce urban pollution. However, in the *GAS Scenario* carbon dioxide emissions (CO<sup>2</sup>) are only slightly lower in 2035 compared to the *WEO Scenario*. While the substitution of gas for coal and oil reduces CO<sup>2</sup> emissions, overall, such decreases are offset by higher demand and a decrease in the share of energy generated from nuclear and renewables. Mr. Corben noted that for renewables to remain and/or maintain a role in the global energy portfolio, government support would need to continue.

To reduce risks associated with an increased use of gas, "golden standards" and regulations should be implemented in order to effectively regulate the widespread use of unconventional gas. Areas that will require further study and regulation include:

- Ensuring gas, water, and chemicals do not enter other formations;
- Minimizing water use and appropriately treating and disposing wastewater; and,
- Limiting gas venting.