



## **White Paper: Natural Gas in a Smart Energy Future**

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The need to include natural gas in policy and infrastructure planning discussions between industry, regulators and policy makers is the impetus behind a white paper released on February 3, 2011 and jointly sponsored by the American Natural Gas Foundation, APGA Research Foundation, Canadian Gas Association, the INGAA Foundation Inc., and the Natural Gas Supply Association.

As explained by INGAA's President Don Santa, "Natural gas must be fully integrated with electricity from multiple sources, including renewables, to ensure a smart energy future. In achieving this vision, and implementing seamless communications and data management between the gas and electric infrastructure, we will make our energy system more reliable, safer and better able to manage peak demand."

The white paper presents a vision for a smart energy future by creating a smart energy infrastructure that includes natural gas. The vision requires action in three identified sectors: supply, delivery and end use.

1. Supply: Within the Supply sector, establish tighter coordination of natural gas supply and natural gas-fired electricity generation to complement variable renewable resources, thereby enhancing responsiveness and operation of the electric grid.
2. Delivery: Within the Delivery sector, create or improve sensing, monitoring and controlling technologies to effectively enhance the safety and efficiency of the network and accommodate new end uses and emerging supply sources.
3. End Use: Within the End-Use sector, implement technology to help consumers make well informed energy choices.

The vision is supported by five key policy recommendations:

- (1) include natural gas in advanced metering infrastructure development to optimize common infrastructure, interoperability and cross-compensation among all utility infrastructures including electricity and water;
- (2) ensure that future federal funding programs including Smart Grid encourage and allow the use of funding for dedicated natural gas projects and combined electric/natural gas projects;
- (3) develop a technology roadmap for natural gas in a smart energy future, including critical input from a broad group of stakeholders and the energy technology R&D community;
- (4) increase governmental funding for basic as well as applied research in natural gas safety and reliability and smart energy infrastructure technology; and
- (5) establish a governmental public-private research, development and deployment program for natural gas similar in size to the electric Smart Grid programs that includes component and system suppliers.

The vision is further supported by eight key regulatory recommendations:

- (1) expand the use of source energy standards to recognize the value of full-fuel-cycle energy efficiency and carbon emission benefits and incorporate full-fuel-cycle analysis in all conservation and energy efficiency standards, including common measures of energy and greenhouse gas emissions;
- (2) expand ongoing Smart Grid standards development efforts to include natural gas;
- (3) provide consumers information about energy usage and energy appliance selections so they can make educated decisions;
- (4) modify the International Green Construction Code to ensure that every new building has access to natural gas service where available;
- (5) modify market rules to facilitate and create procedures for direct communications between pipeline and electric grid operators to fully optimize the usage of energy;

- (6) promote real-time communications between the gas and electricity grids;
- (7) approve projects in a timely manner to ensure natural gas infrastructure can meet the needs of all current and future end-uses; and
- (8) make energy efficiency programs neutral with respect to energy sources, and encourage collaboration among all energy providers.

Achieving this vision will require adequate infrastructure and enhanced communication. To meet current and future end-use needs the gas infrastructure must be able to accommodate emerging technologies, peak demand, and new sources of supply. Enhanced communication will enable improved forecasting and monitoring of load and grid performance thereby enabling dispatch of a more efficient generation mix. Coordinating operation of base load units, renewable resources, and ancillary services provides the support necessary for system operators to address system variability and optimize grid performance.

Industry can support these recommendations by creating and/or expanding real-time communications between gas and electricity grids, enhancing systems for fast-ramping generation to complement variable renewable resources and provide ancillary services; and by working with regulators to facilitate developing shale gas as a long-term energy source.

As a sponsor of the Global New Energy Summit, Beatty & Wozniak is working with the Summit steering committee to put together a panel to discuss natural gas as a critical element in the energy infrastructure discussion. More information can be found here: [www.gnes.rmtech.org/agenda](http://www.gnes.rmtech.org/agenda)

The white paper can be accessed here:  
[http://media.godashboard.com/gti/Natural Gas in a Smart Energy Future 01-26-2011.pdf](http://media.godashboard.com/gti/Natural_Gas_in_a_Smart_Energy_Future_01-26-2011.pdf).