

View from Wall Street: Nuclear Energy and Small Modular Reactors

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The Department of Energy’s Office of Nuclear Energy has been monitoring¹ attitudes in the U.S. financial community (“Wall Street”) with regard to Small Modular Reactors (“SMRs”) and the Department’s support for SMR development. This aids the Department in identifying both challenges and opportunities for SMR developers and customers as perceived by those who are most likely to be the institutions that provide the financing for commercial deployment of SMRs once the designs are finalized and certified by the regulator.

The 2014 research indicates three fundamental developments in Wall Street attitudes, with tension between the first two, that are important to nuclear energy in general and to the future of SMRs in particular. These are:

1. A generally improving view on the long term prospects for nuclear energy in the U.S. reinforced by views on other economically developed countries that nuclear should continue to be an essential part of their electric supply systems,
2. A reduction in nuclear’s expected long term (10-20 years) role in the future of U.S. electric supply due to competition from natural gas and expectations for growth in use of solar energy
3. A shift toward more distinctly pro and con views on SMR competitiveness, away from a historically undecided or less certain view.

¹ Monitoring for the DOE is provided by Lacy Consulting Group and Chappaqua Capital Consultants via their annual survey of Wall Street financiers engaged in electric energy related financing. The 2014 survey results are based on in-person interviews conducted in May-June 2014 with 51 electric energy financing professionals composed of commercial and investment bankers, debt and equity investors, rating agencies, and private equity. Interviewing a broad segment of Wall Street professionals provides the benefits of a broader and deeper understanding of Wall Street views while avoiding the risks associated with “one person” statements, pro or con, that may not be more broadly representative. In addition to nuclear issues, the survey included natural gas, coal, wind, solar and related issues.

Views on Nuclear Energy

The view of generally improving favorable attitudes toward nuclear energy is based on Wall Street responses to a series of questions on current and future expectations for nuclear energy.

When directly asked their view on prospects for nuclear energy in the U.S., the average of short term responses (0-10 years) was a score of 2.7 on a scale of 1 to 5 where 1=decline and 5=growth. This is a modest improvement from the 2013 result was a score of 2.3. When asked about the long term (10-20 years), the score was 2.9, a significant increase from the 2013 score of 1.5. This indicates that Wall Street is expecting the nuclear contribution to U.S. generation to be stable both short and long term. Comments during interviews suggest participants are thinking primarily about “large” nuclear, e.g. AP 1000 type of developments versus shutdowns of existing operating plants.

In a financing related question where risk premiums are the issue in replacing a retiring coal fired plant with nuclear or natural gas, the individuals polled believed there was a distinct reduction in the nuclear risk premium for both debt and equity in the period 2013 to 2014. The ongoing experience with financing the Vogtle 3&4 and Summer 2&3 nuclear plants led by Georgia Power and South Carolina Gas & Electric appears to be an important factor in this perception of declining nuclear risk.

When inquiring as to the prospects for nuclear energy in Germany, Japan and the U.K., the Wall Street responses and commentary indicate a strong view toward the need for nuclear energy as part of the energy supply for those countries. While opinion is divided on whether the Germans will follow through with their nuclear shutdown, the view is clear that the shutdown strategy is largely a mistake. The strong majority Wall Street view is that Japan will restart and needs to restart, most of their fleet of nuclear reactors. By a smaller majority, Wall Street also believes the U.K. will succeed with their new nuclear construction effort.

Role of Nuclear Energy

Notwithstanding these generally improving and favorable views toward nuclear energy, when asked specifically about replacement of retiring coal and nuclear plants in the long term, Wall Street indicates a strong view natural gas will be the leading replacement technology. This perception in favor of natural gas has developed in response to the widespread deployment of hydraulic fracturing for natural gas. Through 2013, new nuclear was the second choice, following natural gas for long term replacement of coal and nuclear. However, in 2014 solar energy has moved to become the long term expected second choice for replacement of coal and nuclear with nuclear moving into the third choice position.

Wall Street's trend toward solar energy appears to be driven by perceptions of roof top solar conceptual advantages that in addition to its reputation for being clean, include a general correlation of daytime demand with sunlight and a more customer focused supply (e.g. at the customer's location on the customer's side of the meter) supported by the availability of flexible natural gas generation from the grid as backup. This paradigm relies on a flow of electricity back and forth (Net Metering) between the grid and the home depending upon the relative usage of the home and the production of the roof top system. Wall Street expects this current paradigm to develop and shift over time as a result of breakthroughs in electric storage. These breakthroughs are expected to lead to customers increasingly storing their excess solar generation for their own use, reducing their relationship with the grid.

SMR Competitiveness

In a question directly asking if they believe the costs of SMRs can be contained such that those costs do not overwhelm the potential advantages associated with their smaller size and greater flexibility, Wall Street in a shift from prior years is moving to a more distinct pro and con view of SMRs. Over the period 2010 to 2013, the response to this question has been largely "no opinion" (72% in 2013) with a minority giving a slight edge to "yes" (17% in 2013) over the "no" (11% in 2013) responses. In 2014 the "no opinion" response has shrunk to the minority position (22%), with increases in both the "yes" (29%) and "no" (49%) responses. Reasons for this shift will be the subject of additional attention in future monitoring but appear to be due in part to a combination of favorable interaction with SMR vendors contrasted with Wall Street expectations for natural gas and impatience for results of SMR development efforts.

The competitiveness issues also emerged in discussions related to the role of government support for SMR development. While there were strong views by the Wall Street survey participants on the pros and cons of government support for SMR development, a cross cutting theme for both sides, and those in the middle, was the importance of SMR competitiveness long term, regardless of how the development process is carried out.

Looking Ahead

The Department will continue to monitor Wall Street attitudes to better understand expectations by those who will be called upon to provide financing for customers as commercial SMR deployment begins. This will include understanding the shift in attitudes regarding SMR competitiveness, the attraction of natural gas and solar energy versus SMRs, and how the large nuclear experience at Vogtle 3&4 and Summer 2&3 may influence thinking regarding nuclear in general and SMRs in particular.

