EIA Review: Trends and Challenges in the Energy Sector

By Edward Hancox

Clean energy, the current obstacles facing the oil sector and the future of liquefied natural gas dominated the discussions at this year's Energy Information Administration conference. The annual conference brings participants together with industry leaders, top analysts, regulators and politicians to discuss the future of the energy sector.

Many of panel discussions at this year's convention were focused on the renewable energy sector and the effects of the energy industry on the global climate. The contrasting renewable energy experiences of New York and Hawaii, for example, were outlined in the "Renewable Electricity: State-level Issues and Perspectives" panel.

Both states are now seeking to increase the share of electricity they generate from clean sources, and both are also dealing with the challenge of linking widely-distributed, small-scale solar power generation to the grid. Moreover, both states also are trying to determine how to value wind and solar power properly, given that each industry has seen growth fueled, in part, by government subsidies.

New York is implementing a plan backed by Gov. Andrew Cuomo called "Reforming the Energy Vision (REV), which has been designed to place locally-generated power at the center of New York's energy mix and to "reorient" the electric industry to better integrate these resources into the state's power grid. A key to REV is the proper valuation of distributed energy resources (DER), which send accurate price signals to customers and which change the calculation of locational marginal pricing (LMP) at the grid-level.

Hawaii has long been in a leader in renewable power, seeing it as a necessity since the Hawaiian Islands cannot be connected to the North American power grid system. The state has, in fact, suffered from its own success in promoting the adoption of clean energy,

Hawaii's Net Energy Metering (NEM) system, for example, has encouraged the growth of clean energy sources – but is now unable to keep up with the state's DER. (On some days, wind and solar power can meet more than 50% of an island's peak demand). While still encouraging further growth in the clean energy sector, Hawaii is exploring different options to integrate DERs into the grid and to combat the state's highest-in-the-nation power costs.

The US, the EU and China talk GHG

Addressing climate change related to energy production, Sarah Ladislaw – director and senior energy fellow at the Center for Strategic and International Studies – outlined the United States' efforts to meet greenhouse gas (GHG) reduction targets. The US is on track to meet the goal of a 17% reduction of 2005 GHG levels by 2020, though she noted that the ability to meet future targets of greater reductions are currently being hampered by uncertainty about the outcome of the November elections and by challenges to recent EPA rulings on pollution level limits.

The European Union, meanwhile, is on track with their plans for a 40% reduction of GHGs (when compared to 1990 levels) by 2030, according to Jacob Werksman, a principal adviser at the Directorate-General for Climate Action (DG-CLIMA) of the European Commission. The EU, Werksman said, is not concerned about the impact of the Brexit on EU emissions targets, for two reasons: (1) the UK itself is also on track to meet the 2030 levels; and (2) a non-EU Great Britain is not expected to change its climate policy greatly.

The view from China – where greening the energy sector is seen as a national imperative to combat poor air quality issues in many Chinese cities – was provided by Jiang Kejun, a senior researcher at the Energy Research Institute of the National Development and Reform Commission of China. As part of a major effort to transform the country's power generation mix, China has started to move away from using coal as a fuel source for power plant. Indeed, it is now the country with the largest installed renewable power base in the world.

Countering the positive renewable energy presentations, Gregory Goff – the president, chairman and CEO of Tesoro Corporation – offered a full-throated defense of the fossil fuel sector. Goff noted that the adoption of wind and solar power in the US has been helped by often generous subsidies for those sectors, which distort the true cost of renewable power.

What's more, he dismissed as unrealistic many claims by renewable power advocates that a carbon-free energy sector was possible in the near term. Natural gas and oil, he argued, are needed (particularly when refined into gasoline and diesel fuel) to keep our economy working and to provide people with the kind of lifestyle to which they have become accustomed.

LNG Trends

As has been the case at EIA conferences in recent years, liquefied natural gas (LNG) remained a hot topic. According to the panelists on "LNG Markets: Implications of a Low Energy Price Environment for Demand and US Exports," the global LNG market is currently oversupplied, with more volume coming on-line – particularly from a spate of LNG export terminals in the US that are coming into production.

Ernie Megginson, President of Megginson & Associates, suggested the answer to this dilemma could be found in smaller LNG "trains," the facilities that turn compressed natural gas into a liquid state for waterborne shipment. In the past, the industry has adopted a "bigger is better" attitude. But Megginson believes that smaller trains – which cost less to construct and operate – are a better option. These trains, she said, can be run with more optionality and flexibility to meet the often changing demands of a dynamic global gas market.

Keo Lukefahr, general manager of natural gas for PetroChina International (America), backed up the idea that producers will need to be more flexible with their gas supplies as the LNG market develops. She also noted that LNG producers are increasingly finding themselves competing with wind and solar installations for market share and that the costs of green energy are dropping, putting price pressure on LNG.

Coal Perspective

Growth in the natural gas sector, though, has largely come at the expense of coal. One panel ("World Coal Markets: The Changing Global Landscape") looked at the markets currently driving the coal industry: China, India and Southeast Asia.

Xizhou Zhou, a senior director of Asia gas and power research at IHS Energy, said that peak coal usage is in sight in China, with demand expected to crest by the middle of next decade. While reducing dependence on coal has been long-term goal of the Chinese government due to concerns over air quality, Zhou explained that China's coal sector has been battered by the "hard landing" of the country's heavy industry sector, which has experienced sharp declines in recent years.

Restructuring away from heavy industry will lower the demand for electricity and, in turn, the demand for coal. However, Zhou also said that coal-fired power plants are still being built in China's interior, where low transportation costs makes coal a cheap and attractive fuel. Even this growth, though, will not stave off the projected coal demand peak in the mid-2020s.

The picture for coal looks better in India. But, just as in China, a push for more stringent pollution controls will impact coal usage and could harm the domestic market as higher-quality, cleaner-burning coal is imported to meet emissions targets. Heavy industry is also still a major consumer in India, with steel and iron not having an alternative to coal in their production methods.

Finally, if there is a bright spot for coal producers, it can likely be found in the nations of Southeast Asia, where 26 gigawatts of coal-fired power production is expected to come online by the beginning of the next decade. Indeed, growth in coal usage in Southeast Asia is expected to climb through 2035, as the nations of the region rapidly develop. However, even in this region, there is a growing demand for cleaner energy options, with Vietnam, for one, reviewing development plans for all coal projects.

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