

To Address Its Energy Issues, Connecticut Cannot Go It Alone

December 29, 2014

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Connecticut Law Tribune

For millennia, mankind has pondered the age old mystery of what came first, the chicken or the egg? While the solution to that puzzle is relatively simple,[1] the conundrum Connecticut and other New England states find themselves in is far more complex. Put simply, Connecticut must determine how it will build new electric plants to add to its generation fleet while simultaneously dealing with a constrained natural gas market. This electricity need vs. gas infrastructure debate has become the new “chicken-and-egg” riddle for the region’s energy industry.

The Need for New Generation

To begin to solve this riddle, an understanding of the market is in order. Connecticut is part of ISO-New England, which is the federally-authorized entity responsible for the electricity grid in New England. Massachusetts accounts for approximately 50% of the electric load for ISO-NE, with Connecticut accounting for approximately 25%, leaving the other four New England states to make up the difference. As a result of this distribution of load, Connecticut and Massachusetts lead the way for the rest of the region.

Many of the plants providing electricity to Connecticut and the region were built in the 1950s to the 1970s. As these plants age, they become less efficient and more costly to run. In addition, new environmental requirements, particularly requirements relating to cooling water discharges and intake systems, further add to the expense of operations of older power plants. As the expenses increase, these plants’ owners are choosing to retire these costly generation assets rather than keep them in operation. As a result, the region’s capacity to generate electricity will diminish as these assets retire in the next several years.

Interestingly, many of the older assets utilize fuels *other* than natural gas. The bulk of the facilities that will be slated for retirement are nuclear, oil and/or coal-fueled facilities. In 2014 alone, Salem Harbor Station retired two coal units and one oil-fired unit resulting in a generation decrease of 585 MW, and the Vermont Yankee nuclear plant retired 615 MW of nuclear power at the end of the year.

To the extent that such facilities will be replaced, however, there will be far less diversity in the fuel mix. It is likely that these facilities will be replaced with natural gas-fired generators, rather than oil, coal or nuclear fuel. Therefore, as New England’s fleet ages, it will need to be replaced, and it will be replaced with units burning natural gas.

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Natural Gas Is Not a Panacea

The problem with this focus on natural gas is that Connecticut is putting all of its generation “eggs” into one basket. Yes, Connecticut has a nuclear facility and a host of renewable energy options, but the bulk of its generation, particularly recently-built generation, is powered by natural gas. Simply put, more than half of Connecticut’s power production will continue to come from natural gas-fired units.

Natural gas has many advantages for electricity generation. It is the cleanest burning fossil fuel, and right now, there are abundant supplies of natural gas available for harvesting in North America. The problem, however, is getting that natural gas to the markets in Connecticut. Connecticut is currently at the end of various interstate gas pipelines, and natural gas capacity is exceedingly constrained in Connecticut, particularly in the winter months when homes and businesses are using gas for heating purposes. The constraint in the gas supply results in significant price spikes during the winter months, which in turn cause increases in electricity prices.

Not only is this capacity problem not going away any time soon, it is likely to get worse in the near future. Connecticut’s Comprehensive Energy Strategy calls for an increase in the use of natural gas for home and business customers, and the state’s gas utilities are currently attempting to expand the local gas distribution system to accommodate that increased use. Over the past ten years, the available gas capacity in Connecticut has dwindled to the point where natural gas marketers have asked the Public Utilities Regulatory Authority to investigate how natural gas capacity should be allocated so that the marketers can continue to supply gas to their customers. The PURA has agreed to re-examine this issue, and will be doing so during the first half of 2015. This docket will be one to keep an eye on throughout the winter and spring, as it may very well determine the fate of natural gas choice in Connecticut.

Building More Infrastructure Is Not Easy – or Cheap

While the PURA is examining natural gas choice, ISO-NE is looking to the interplay between gas supply and electricity generation. As recently as November 20, 2014, ISO-NE noted that although it believes that there will be enough natural gas availability to handle electricity generation needs this winter, “insufficient pipeline capacity to meet power generators’ demand for natural gas continues to be a particular concern during the winter months.” ISO-NE is doing what it can to address the short-term impacts of gas capacity shortages, through such measures as its Winter Reliability Program, but there is only so much ISO-NE can do. Moreover, such measures assume that the natural gas supply will continue largely uninterrupted. One need to only look back to the aftermath of Hurricane Katrina in 2005 to recall that there is no guarantee that gas will always flow unabated to Connecticut.

There are really only two potential solutions to this problem. As posited by the Analysis Group, one potential solution is to accept a lower standard of reliability in our electric system. Putting aside the fact that such a solution would require federal approval (which would be exceedingly difficult to obtain), such a solution is

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less than optimal for the residents of Connecticut and New England. While occasional blackouts are technically an option for addressing the shortage of electricity that may be brought about due to a lack of gas supply, the Analysis Group noted that the public health and safety risks associated with such a policy would be untenable.

So, Connecticut is then truly left with only one choice – increasing the natural gas supply to Connecticut and the region. Connecticut tried to take the lead on this issue by gathering the six New England governors together to incentivize increased development of energy resources and infrastructure throughout the region. As a result of this prodding, the six governors issued a statement of “Commitment of Regional Cooperation on Energy Infrastructure Issues” at the end of 2013. Since that time, however, there has been no significant movement on the issues raised in the governors’ statement, and none appears to be evident on the horizon.

The situation is exacerbated because, for a variety of reasons, the owners of natural gas pipelines cannot commit to increasing the pipeline supply unless they can guarantee that they will receive sufficient economic benefit from increased gas sales to justify the investment in new or expanded gas pipelines. Generators of electricity, given the realities of a deregulated market and the seasonal nature of their business, cannot provide the gas pipeline owners with the firm commitments they require when making infrastructure investment decisions. Hence, Connecticut is once again caught playing a game of “chicken-and-egg,” with no easy solution in sight.

Such a solution needs to be forthcoming, however, before Connecticut’s ratepayers are stuck with even higher costs for both natural gas and electricity. One first step may be the December 11, 2014 release of Connecticut’s Integrated Resource Plan, which is the planning document designed to address Connecticut’s resource needs and planning in the energy sector. Regulators will be taking comments on the Plan until February 11, 2015, and this dilemma will be front and center throughout the planning process. As such, 2015 promises to be an interesting year for energy developments.

[1] The egg came first, as fish and dinosaurs were laying eggs long before there were chickens.

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