

Environmental Law

Renewable Energy Will Require Some Creative Legal Solutions

Biomass has potential to outshine the rock stars of wind farms and solar panels

By James Stewart

The term “renewable energy” conjures up images of solar panels and wind farms. And it should, as these are two forms of renewable energy where the technology is available to include them now in our energy grid. These two forms of energy generation are the rock stars of renewable energy. They currently receive most of the publicity and financial incentives. They are relatively easy technologically to construct and have reasonably well-defined environmental impacts.

But renewable energy sources are much broader than solar and wind. New Jersey’s Energy Master Plan (“EMP”) anticipates that in 2020 solar power will generate only about 2 percent of our total energy needs. According to the EMP, wind farms will generate 13 percent of our power needs, but the vast majority of wind power will come from offshore wind farms. If the EMP projections are correct, then 15 percent of our power

Stewart is a director in the environmental practice group of Lowenstein Sandler in Roseland.

needs in 2020 will come from solar and wind sources. To meet the 30 percent energy from renewable energy sources goal advocated in the EMP, additional sources of renewable energy will be necessary. One of the principle renewable energy sources that the EMP relies on is energy from biomass. Biomass is organic matter available on a renewable or recurring basis, including dedicated energy crops and trees, agricultural food and feed crop residues, aquatic plants, wood, wood residues, animal wastes, and other waste materials. N.J.A.C. 14:8-2.2.

From the definition, one can see why biomass is not a renewable energy rock star. Biomass provides energy principally from the decomposition gases derived from degrading plants, food waste and animal waste. Rotting food is a much more startling image than a pleasant-looking wind farm. But biomass can be an important part of our renewable energy in the future if we are to meet the EMP renewable energy goals.

The EMP adopts the findings of the Rutgers “Assessment of Biomass Energy Potential in New Jersey” to evaluate the potential for biomass as a renewable energy source. The Rutgers Assessment found that New Jersey produces 8.2 million dry tons (MDT) of biomass each year. Most of that biomass, approximately 75 percent, is produced by the state’s residents and included in the solid-waste stream

currently. The remaining 25 percent of biomass comes from agriculture and forest management. Over half, approximately 5.4 MDT, of the total biomass from all sources could ultimately be used to produce bio-energy. This biomass could deliver up to 1,124 MW of power if the appropriate technologies and infrastructure were in place. The EMP develops as a goal the generation of 900 MW from biomass by 2020. Such a goal requires that a significant portion of the biomass in the solid-waste stream become a source of renewable energy.

New Jersey is one of the leading states in requiring that electric utilities provide set percentages of renewable energy in its supply, known as a Renewable Portfolio Standard (“RPS”). The Board of Public Utilities has developed RPS regulations that impose increasing percentages of renewable energy within the portfolio of the energy utilities. As of June 1, 7.406 percent of supplied energy must be from renewable sources. N.J.A.C. 14:8-2.3. This percentage increases to 22.5 percent as of June 1, 2020. The RPS provides that the required renewable energy come from specific types of renewable energy, some from solar, some from “Class I” renewable sources and some from “Class II” renewable sources. Class I sources are: (1) solar electric generation; (2) wind energy; (3) wave or tidal action; (4) geothermal; (5) methane combustion from landfill gas; (6) from fuel cells powered by methanol, ethanol, landfill gas, digester gas, biomass gas or other renewable fuel; and (7) combustion of gas from the anaerobic digestion of food waste and sewage sludge

at a biomass-generating facility. N.J.A.C. 14:8-2.5(b). Class II sources are hydroelectric power from a facility with capacity of 30 MW or less, or power from a resource recovery facility, principally incinerators that burn waste to generate power.

The largest amount of biomass identified in the Rutgers Assessment is municipal solid waste generated by the state's population. The biomass portion of municipal solid waste is mostly food waste. Most New Jersey communities already separate from the solid waste stream other potential sources of biomass, such as wood and garden residues. These biomass wastes can fit into the renewable energy issue in two ways. First, if the waste biomass that New Jersey's residents generate were segregated and subjected to anaerobic digestion, then the energy generated from the combustion of the resulting gas would be a Class I renewable energy. N.J.A.C. 14:8-2.5(b) (7). Second, the biomass in the solid waste stream sent to one of New Jersey's eleven resource recovery facilities for combustion into energy are Class II renewable energy sources. N.J.A.C. 14:8-2.6(b)(2).

At first blush, increasing the flow of municipal solid waste to the existing resource recovery facilities might seem the easiest way to increase use of renewable energy sources. This approach, however, presents significant legal and policy concerns that the regulators do not want to address. The reasons for this reluctance stem from New Jersey's tortured history of its attempts to regulate solid waste issues. When the state identified landfills as a source of significant contamination, and shrinking landfill capacity as a concern, the regulatory approach was to require each county to become self-sufficient in dealing with its own solid waste. The regulatory scheme imposed waste flow control and contemplated each county to have its own incinerator and landfill facilities sufficient to handle all waste generated in the county. Public resistance to incinerators

was intense. The courts ultimately found waste flow control to violate the Commerce Clause of the U.S. Constitution.

There remains a regulatory preference that the incinerations of solid waste not increase because it is difficult to assure that hazardous materials are not commingled in the solid-waste biomass, and because of concerns with air emissions of hazardous substances from the incinerator. These concerns influenced the RPS. While the RPS regulations recognize combustion of solid-waste biomass as a Class II renewable energy source, the renewable energy percentages limit Class II renewable energy to 2.5 percent of energy sources over time, while increasing the required percentages of "more desirable" solar and Class I renewable energy sources. In the document setting forth the implementation strategy for renewable energy in the EMP, the Board of Public Utilities indicates intent "to support waste to energy technologies that are more sensitive to the environment than the current methods. However, due to their emissions and inherent inefficiencies, incineration technologies will not be supported as part of this effort." NJEMP Implementation Strategies: Renewable Energy ("Implementation Document") at 36.

Meeting the EMP goal for renewable energy from biomass without incineration is a challenge. The Implement Document contemplates that BPU, NJDEP and state universities will identify regulatory issues and plan "to streamline and simplify the approval processes." It also suggests the development of "bio-energy enterprise zones" around concentrations of feedstocks where bio-energy can be strategically utilized. The Implementation Document has set ambitious deadlines. It proposes that the evaluation of ways to streamline and simplify the approval process be done by July and the establishment of "bio-energy enterprise zones" by December.

Biomass does not currently receive the

same treatment as solar and wind energy projects do. Biomass is sometimes considered renewable energy under existing statutes, and sometimes not. For example, biomass does not have the same zoning benefits as solar and wind energy sources. Under N.J.S.A. 40:55D-66.11, solar and wind facilities on 20 or more contiguous acres owned by the same person in an industrial zone is a permitted use. A biomass facility is not included.

The regulatory and practical challenges to biomass as a renewable energy source on a widespread basis are many. There are many policy considerations beyond simply amending N.J.S.A. 40:55D-66.11 to include biomass facilities. Any legal and regulatory scheme that deals with biomass energy will need to deal with some real-world challenges as well. Practically, a biomass facility needs a reliable source of feedstock. The feedstock needs to be reliable both as to its volume and as to its content. With flow control unavailable, how can the facility assure a reliable source of solid-waste derived biomass? Who will be responsible to segregate the biomass from the rest of the solid-waste stream? Can the biomass facility charge tipping fees?

These questions just scratch the surface of issues that arise from the use of biomass energy on any significant scale. Biomass does have great potential. It can provide a significant percentage of our energy needs if the legal and practical issues are addressed appropriately. The benefits of diverting the biomass portion of the current solid-waste stream for energy production include preservation of scarce landfill space and reduced use of carbon-based fuels. But, the challenges are also great. Without some creative approach to the legal and practical issues, biomass on a large-scale basis will not be economically viable. That result would leave us to rely on the rock stars, solar and wind, and far short of the renewable energy goals in the EMP. ■