STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on July 13, 2017

COMMISSIONERS PRESENT:

John B. Rhodes, Chair
Gregg C. Sayre
Diane X. Burman
James S. Alesi

CASE 15-E-0302 – Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard.

ORDER APPROVING ALTERNATIVE PROTOCOL FOR COMPARATIVE EMISSION TEST FOR BIOMASS GASIFICATION TECHNOLOGIES

(Issued and Effective July 14, 2017)

BY THE COMMISSION:

INTRODUCTION

By this order, the Commission adopts the recommendations in a report filed on March 31, 2017, by Department of Public Service Staff (Staff) to provide for an alternative protocol to the Comparative Emission Test criterion related to the eligibility of certain biomass gasification technologies in the Renewable Energy Standard (RES) program. The Commission also directs the New York State Energy Research and Development Authority (NYSERDA), in consultation with Staff, to revise its Biomass Power Guide to reflect the recommendations adopted in this order.

BACKGROUND

On August 1, 2016, the Commission adopted the Clean Energy Standard (CES) which provided, among other things, the framework to achieve 50 percent renewable energy consumption in

the State by 2030 (50 by 30).[1] In an order, issued on December 15, 2016 in this proceeding (December Order),[2] the Commission directed Staff and NYSERDA to complete an assessment on potential revisions to the emissions testing requirements for biomass gasification plants (also referred to as biogas plants) that seek to use adulterated forms of biomass in a gasification system, without compromising the intent of promoting cleaner technologies in the RES program. The comparative emission test criterion, first established in the Renewable Portfolio Standard (RPS) in 2004, requires biomass gasification plants to demonstrate that, while using adulterated biomass feedstock, the plant could meet or exceed the emission performance of the plant using only unadulterated biomass.[3] A stack emissions test procedure, implementing the requirement is included in NYSERDA's Biomass Power Guide.[4] Direct analysis of stack emissions from a fully constructed facility in order to compare pollutant emission levels between adulterated and unadulterated fuels has emerged as an obstacle for developers seeking financing of nascent biomass gasification technology. Therefore, the Commission, in its December Order, required a review of the

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[1] 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Order Adopting a Clean Energy Standard, (issued August 1, 2016)

[2] 15-E-0302, supra, Order on Petitions for Rehearing, (issued December 15, 2016.)

[3] Unadulterated wood is clean wood that has not been painted or treated with chemicals such as glues, preservatives or adhesives. Any painted wood or chemically treated wood (e.g., pressure treated wood,) or wood containing glues or adhesives (e.g., plywood, particle board) is considered adulterated wood. See New York State Renewable Energy Standard, Biomass Power Guide (Biomass Power Guide), issued March 14, 2017, available at https://www.nyserda.ny.gov/-/media/Files/Programs/Clean-Energy-Standard/2017-March-Biomass-Power-Guide.pdf.

[4] Id.

comparative emission testing procedures in order to avoid inadvertently omitting from the RES program opportunities to help meet the State's 50 by 30 policy goal.

In compliance with the December Order, Staff submitted a report prepared by the ANTARES Group (Report).[5] The Report recommends that an alternative protocol to the comparative emissions testing requirement for generation fueled by adulterated biomass could consist of a combination of environmental performance data for the proposed system known in advance of the actual commercial operation and operational feedstock testing.

The Report explains that progress has been made in biomass gasification technologies since 2004 but that deployment has been limited. It notes that research from a few projects provides some data to evaluate the potential for biomass gasification to reduce emissions relative to direct combustion of adulterated biomass. The Report explains that the gasification process breaks down the biomass feedstocks to produce a gaseous fuel (sometime referred to as a synthetic gas or "syn" gas) for direct use or that will undergo additional conditioning prior to combustion as a generation fuel or for producing other chemicals. The gasification and other conditioning processes can result in a fuel with better environmental performance relative to direct combustion of the same, non-treated/conditioned, biomass feedstock. The Report indicates that gasification may avoid formation of problematic compounds, and additional treatment of the synthetic gas has the potential to further remove problematic compounds and/or

[5] The report titled, *An Alternative Compliance Protocol to the Comparative Emission Testing Requirements for Gasification of Adulterated Biomass,* was prepared by the ANTARES Group and filed on March 31, 2007, in Case 15-E-0302 (Report).

precursors to help minimize emission issues. The Report concludes that if it can be demonstrated in advance of project development that (i) a specific gasification/generation system design will prevent the formation and emission of relevant contaminants in quantities that exceed the Biomass Power Guide's stated threshold levels and (ii) a feedstock testing protocol is implemented to ensure the absence of contaminants, for which the avoidance/elimination by the proposed system has not sufficiently demonstrated, then the intent of the comparative emission test could be met. The Report suggests that the protocols set forth in the Biomass Power Guide for assuring the quality of clean wood derived from Material Reclamation Facilities (MRFs) provides an existing model for a feedstock testing protocol.[6]

Therefore, the Report recommends that a gasification project seeking to qualify adulterated biomass feedstocks under the RES could do so by demonstrating through sufficient environmental performance data (e.g. scientific analysis, pilot scale testing, or testing at an analogous system constructed elsewhere) that the details of the proposed gasification process of specific adulterated biomass, followed by syngas combustion eliminates or avoids relevant contaminant emissions, and implementation of ongoing testing and monitoring protocols to prevent feedstock contaminants that are not demonstrated to be treated by the proposed gasification process.

NOTICE OF PROPOSED RULE MAKING

Pursuant to the State Administrative Procedure Act (SAPA) §202(1), a Notice of Proposed Rulemaking was published in

[6] MRFs are processing facilities that separate clean biomass wood from a mixed waste stream, typically from construction and demolition debris.

the State Register on April 26, 2017 [SAPA No. 15-E-0302SP27]. Moreover, a Notice Soliciting Comments was issued on April 24, 2017. The time for submission of comments pursuant to both Notices expired on June 12, 2017. One Comment was submitted and is summarized below.

Taylor Biomass Energy

Taylor Biomass Energy (Taylor) states that the Report provides an alternative testing protocol for syngas technologies that will address many of the negative impacts of post commercial operation emission testing while maintaining the environmental benefits of renewable technologies. Taylor states that all the aspects and designs of its current biomass gasification project under development in the Town of Montgomery, New York, meets or exceeds the requirements of the Biomass Power Guide and qualifies as a renewable source with exception of the current requirement for post operation testing. Taylor points out that the current emission testing protocol requires the facility to be operational to perform the testing and therefore makes it difficult to secure financing to construct the plant. Taylor states that the report adequately identified its concerns and provides a workable alternative testing protocol. Taylor asserts that this alternative protocol will allow developers to proceed with certainty for Tier 1 eligibility under the RES program, while maintaining the integrity of the comparative emission test. Taylor recommends approval of the alternative pathway identified in the Report.

DISCUSSION

In 2004, when the RPS program was first implemented, the extent of the emission performance benefits of biomass gasification was not well quantified and the variety of

different potential technologies that could be employed was broad. As a result, the Commission put into place the comparative emission testing requirement for a proposed biogas plant to be considered eligible under the former RPS program. As the Commission acknowledged in its December Order, the current emission testing protocols in the Biomass Power Guide have been identified as an impediment for developers to secure project financing because of the uncertainty of the technology's emissions performance, and therefore its eligibility for the RES program.

While the performance standard of the comparative emission test shall remain in place, the demonstration of those performance standards by means other than plant construction is rational and appropriate. The alternative pathways recommended in the Report, which include scientific analysis, pilot scale testing, or testing at an analogous system constructed elsewhere using similar feedstock, combined with feedstock monitoring, if sufficient, can be reasonable and reliable alternatives to demonstrate emission characteristics of a proposed facility and whether it will meet the eligibility requirements of the RES program to demonstrate the capability of a particular system. Therefore, the recommendations in the Report are adopted and Staff is directed to work with NYSERDA to amend the Biomass Power Guide to reflect the recommendations in this Order.

SEQRA Supplemental Findings

In February 2015, in accordance with the State Environmental Quality Review Act (SEQRA), the Commission finalized and published a Final Generic Environmental Impact Statement (FGEIS) that discussed the potential environmental impacts associated with the policy initiatives Reforming the Energy Vision (REV) and the Clean Energy Fund. On February 23,

2016, the Commission issued a Draft Supplemental Generic Environmental Impact Statement specifically relating to the CES. Seven entities submitted comments, and on May 19, 2016, the Commission adopted the Final Supplemental Generic Environmental Impact Statement (FSGEIS). In conjunction with adoption of the CES Order, the Commission adopted a SEQRA Findings Statement prepared in accordance with Article 8 of the Environmental Conservation Law and 6 NYCRR Part 617, by the Commission as lead agency for these actions and attached to the CES Order as Appendix G. The SEQRA Findings Statement was based on the facts and conclusions set forth in the FSGEIS and the FGEIS.

In conjunction with the decisions made in this Order, the Commission has again considered the information in the FGEIS, FSGEIS and the August 1, 2016 SEQRA Findings Statement, and hereby adopts a SEQRA Supplemental Findings Statement prepared in accordance with Article 8 of the Environmental Conservation Law (SEQRA) and 6 NYCRR Part 617, by the Commission as lead agency for these actions. The SEQRA Supplemental Findings Statement is attached to this Order as Appendix A. The SEQRA Supplemental Findings Statement is based on the facts and conclusions set forth in the FSGEIS, the FGEIS and the August 1, 2016 SEQRA Findings Statement. The modifications adopted in this Order do not alter or impact the findings issued previously. Neither the nature nor the magnitude of the potential adverse impacts will change as a result of this Order.

The Commission orders:

1. The recommendations in *An Alternative Compliance Protocol to the Comparative Emission Testing Requirements for Gasification of Adulterated Biomass,* prepared by the ANTARES Group and filed by Staff on March 31, 2017, are adopted (Report).

2. The New York State Energy and Research Development Authority (NYSERDA), after consultation with Department of Public Service Staff, shall file a revised Biomass Power Guide within 60 days of the issuance of this Order, to incorporate the recommendations in the Report.

3. In the Secretary's sole discretion, the deadlines set forth in this order may be extended. Any request for an extension must be in writing, must include a justification for the extension, and must be filed at least one day prior to the affected deadline.

4. This proceeding is continued.

By the Commission,

(SIGNED) KATHLEEN H. BURGESS
Secretary

State Environmental Quality Review Act

SUPPLEMENTAL FINDINGS STATEMENT

July 13, 2017

Prepared in accordance with Article 8. State Environmental Quality Review Act (SEQRA) of the Environmental Conservation Law and 6 NYCRR Part 617, the New York State Public Service Commission (Commission), as Lead Agency, makes the following supplemental findings.

Name of Action: Clean Energy Standard (Case 15-E-0302) Order on Petitions for Rehearing

SEQRA Classification: Unlisted Action

Location: New York State/Statewide

Date of Final Generic Environmental Impact Statement: May 23, 2016.

FGEIS available at:
http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=48235&MNO=15-E-0302

I. Purpose and Description of the Action:

An order of the Public Service Commission adopted recommendations put forth in the report filed on March 31, 2017 by the Staff to modify the requirements of the Comparative Emission Test criterion in the Biomass Power Guide related to the eligibility of certain syngas biomass technologies for the Tier 1 Renewable Energy Standard (RES). The modifications revise the Comparative Emission Test protocol, providing an alternative protocol to demonstrate the Comparative Emission Test criteria for syngas technologies.

The alternative pathway provides for demonstration in advance of project development that (i) a specific gasification/generation system design will prevent the formation and emission of relevant contaminants in quantities that exceed the Biomass Power Guide's stated threshold levels and (ii) a

feedstock testing protocol will be implemented to ensure the absence of contaminants, for which the avoidance/elimination by the proposed system has not been sufficiently demonstrated.

Regarding the gasification and treatment process, the demonstration may be made through provision of sufficient environmental performance data (e.g. scientific analysis, pilot scale testing, or testing at an analogous system constructed elsewhere) showing that the proposed gasification/treatment process of the adulterated biomass, followed by syngas combustion eliminates or avoids certain relevant contaminant emissions. Feedstock monitoring program protocols must be equivalent to those set forth in the Biomass Power Guide for assuring the quality of clean wood derived from Material Reclamation Facilities (MRFs).[7]

II. Facts and Conclusions in the FSGEIS Relied Upon to Support the Decision:

In developing this supplemental findings statement, the Commission has reviewed SEQRA Findings Statement issued in conjunction with the Order Adopting a Clean Energy Standard issued on August 1, 2016, the "Final Supplemental Generic Environmental Impact Statement, issued on May 23, 2016 (FSGEIS), as well as the related Final Generic Environmental Impact Statement issued February 6, 2015 in Case 14-M-0101 (FGEIS). The following findings are based on the facts and conclusions set forth in the FSGEIS and the FGEIS.

The modifications to the RES program described above do not alter the nature of the potential adverse impacts nor the quantity of generation, installed capacity and potential locations of development related to biomass/biogas resources previously described in the FSGEIS and FGEIS. However, modifying the requirements of the comparative emission test is intended to remove an impediment to certain gasification technology project development. As a result, certain technologies may come on-line sooner than initially anticipated.

Impacts associated with biomass energy development include impacts to: land use; air emissions, water use and solid

[7] MRFs are processing facilities that separate clean biomass wood from a mixed waste stream, typically from construction and demolition debris.

waste streams. The potential environmental impacts of utilizing biomass as a fuel source depend upon both the conversion technology employed (i.e., thermal or chemical conversion) and the class of biomass resource used as feedstock.

Air Emissions:

By its nature, combustion of biomass fuels releases sequestered carbon. Measuring the exact balance of atmospheric emissions from biomass is complex and depends upon not only the conversion technology and the emissions control technologies employed, but also upon the biomass resource utilized, the condition of that resource from which the biomass was harvested and type of generation displaced. To the extent biomass feedstock consists of wood waste that would otherwise be disposed of in landfills, biomass energy development can avoid the creation of methane that would be created through decomposition of the feedstock. Criteria pollutants associated from biomass gasification plants are similar to emissions from conventional gas plants, are substantially lower than coal or oil fired plants and should be less than or equal to direct combustion of biomass.

Land Use:

Expanded use of biomass may have a variety of potential land use impacts depending on the type of conversion technology and the type of input. Impacts associated with the construction of a main-tier biomass facility will be similar to a comparably sized non-biomass electric generation facility including: converted land area and short-term increases in dust, noise levels, traffic, visual intrusion, and ecological disturbances. Note that these impacts do not apply to co-fired facilities, which do not require significant new construction.

Water Use:

Water use for large scale biomass projects may also vary depending on the type of conversion technology and biomass input. Water is required during the biomass combustion process. In a typical biomass plant, most of the water will be used as part of the cooling system to condense the steam for reuse. The water requirements for biomass combustion are similar to a similarly-sized fossil fuel power plant.

Waste Impacts:

Increased large scale biomass from adulterated wood may result in decreased wood waste because wood would be used in biomass burners instead of landfill disposal. Increased biomass combustion may result in increased solid waste such as construction wastes, solid biomass boiler ash, stillage cake and syrup, and lignin. Solid biomass ash and lignin are potentially useful consumer products. Large scale biomass facilities may also produce significant amounts of bottom ash requiring disposal either in landfills or spread over area lands. Biomass produces less hazardous waste overall compared to coal combustion.