Slave Lake Pulp Corporation

Biomethanation & Power Generation Project

May 2, 2013
The Alberta Utilities Commission
Decision 2013-168: Slave Lake Pulp Corporation
Biomethanation & Power Generation Project
Application No. 1609240
Proceeding ID No. 2384

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The Alberta Utilities Commission
Fifth Avenue Place, Fourth Floor, 425 First Street S.W.
Calgary, Alberta
T2P 3L8

Telephone: 403-592-8845
Fax: 403-592-4406

Website: www.auc.ab.ca
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1 Introduction

1. Pursuant to sections 11 and 18 of the Hydro and Electric Energy Act, Slave Lake Pulp Corporation (SLP) filed an application with the Alberta Utilities Commission (AUC or the Commission) for approval to install, operate and connect a 9.06 megawatt (MW) biogas power plant, known as the Biomethanation & Power Generation Project (project), to be located in the Northeast and Southeast quarters of Section 22, Township 72, Range 4, west of the Fifth Meridian and within the existing SLP’s pulp mill in the East Mitsue Industrial Park approximately 15 kilometres east of Slave Lake, Alberta. The application was registered on January 28, 2013 as Application No. 1609240.

2 Discussion

2. The project would entail the installation of an anaerobic digester, biogas scrubber handling system, and reciprocating engines to generate electric energy. Pulp mill waste, which is currently piped into an existing aerobic treatment system, together with recovered organic material would be fed into a new anaerobic digester, where a methane-rich biogas would be produced. Then the biogas would be piped into a scrubber to remove hydrogen-sulphide (H₂S), and fed to three reciprocating engine-generators to produce up to 9.06 MW of power. All the electric energy produced by the proposed generators would be used on-site and waste heat from the engines would be utilized in the pulp dryers to further reduce the mill’s overall energy consumption.

3. SLP had planned to connect the proposed generators to one of the existing 13.8 kilovolt (kV) buses from which electric power is currently supplying the load at the pulp mill. The peak load demand was recorded at 70 MW. Since the proposed power plant would only produce 9.06 MW, all the electric energy from the proposed power plant would be consumed on-site and not exported to the Alberta Interconnected System (AIES). SLP had provided a copy of a connection study and results prepared by the Alberta Electric System Operator (AESO). SLP had not requested Supply Transmission Service (STS) from the AESO. It thus confirmed SLP’s commitment not to export electric energy to the AIES. The AESO also indicated that based on its system studies, electric system impact studies were not required for this project because the applicant did not requested a STS contract. The capacity of the proposed generators would be relatively small, and the site is currently connected directly to a strong supplying source, the Mitsue 732S substation, which is one of the main 240-kV substations in the High Prairie area and the North Central region. The AESO study concluded that the impact of the proposed power plant on the AIES system would be minor.

4. SLP stated that it had obtained Historical Resources Act clearance from Alberta Culture as well as a development permit from the Municipal District of Lesser Slave River.
5. SLP also stated that it had applied to Alberta Environment and Sustainable Resource Development (AESRD), pursuant to the Alberta Environmental Protection and Enhancement Act (EPEA), for the construction, operation, and future reclamation, of the biomethanation and power generation facilities. SLP also submitted that, because the proposed plant would be fueled by biogas, a fuel with no pre-defined emission limits, it had consulted with AESRD with respect to the emission limits applicable to this project. SLP further stated that emission limits will be established by AESRD, based on air dispersion modeling and technical evaluation provided by AESRD’s Air Policy group. SLP committed to operate and maintain the necessary air pollution control equipment to achieve the emission limits determined by AESRD.

6. In its original application SLP stated that the biogas produced in the anaerobic digester contains H₂S that would be removed by a scrubber before going into the reciprocating engine-generators. Subsequently, in response to the Commission’s request for additional information filed on April 9, 2013, SLP clarified that in the case of a catastrophic failure the maximum instantaneous release of H₂S would be 1.63 cubic metres (m³) from the biogas sweep where the biogas collects along the outer perimeter of the reactor and that the maximum sustained flow of H₂S gas from the reactor would be 0.012 m³ per second. SLP pointed out that there are more than 150 similar installations from its supplier and it is unaware of any significant failures.

7. SLP stated that, as required by its current industrial operating approval under EPEA, it had developed an Emergency Response Plan (ERP) meeting the requirements of the Pulp and Paper Effluent Regulations, the Canadian Environmental Protection Act, and the requirements of additional regulations that apply to sulphur dioxide, methane, and H₂S. Furthermore, SLP also stated that the ERP will be updated to include new hazards from potential emergency biogas and H₂S venting from the proposed facilities. In addition, spill response guidelines, evacuation guidelines, and at least one emergency response exercise will be completed prior to the commencement of operations of the proposed facilities.

8. A noise impact assessment (NIA) was conducted with all major sources of noise associated with the proposed project, the existing mill, and other energy related facilities in the area taken into consideration. All noise sources were assumed to be operating continuously and simultaneously throughout the daytime and nighttime period. Since there are no affected receptors (i.e. occupied dwellings) in the project area, the permissible sound levels were deemed, as prescribed in AUC Rule 12: Noise Control (AUC Rule 012), to be 40 dBA Leq nighttime and 50 dBA Leq daytime at 1.5 kilometres from the project’s perimeter. Predictions indicated that, at 1.5 kilometres from the project’s perimeter, cumulative noise level would be 38.2 dBA at nighttime, which is 1.8 dBA lower than the 40 dBA Leq nighttime permissible sound level. SLP concluded that the power plant would comply with AUC Rule 012.

9. SLP had informed all potentially affected stakeholders within two kilometres of the proposed project, namely other industries operating in the area, government agencies, and two trappers. SLP also held an open house on November 16, 2012 for all stakeholders including the employees at the pulp mill. SLP stated that there were no concerns expressed by any of the stakeholders.
3 Findings

10. The Commission considered the power plant application pursuant to sections 11 and 18 of the *Hydro and Electric Energy Act* which provides, in part:

11 No person shall construct or operate a power plant unless the Commission, by order, has approved the construction and operation of the power plant.

... 

18(1) The owner or operator of a power plant, transmission line or electric distribution system shall not connect that power plant, transmission line or electric distribution system, or cause or permit it to be connected,

(a) to any other power plant, transmission line or electric distribution system, unless the connection is in accordance with an order under this section,

11. The Commission considered that its decision would not directly and adversely affect the rights of any person, and therefore did not issue a notice of application or require a hearing pursuant to Section 9 of the *Alberta Utilities Commission Act*.

12. The Commission has reviewed the application, including the noise impact assessment provided by SLP. Based on its review, the Commission is satisfied that the power plant meets the permissible sound levels as outlined in AUC Rule 012.

13. The Commission accepts that the project is not predicted to adversely affect the environment, SLP’s commitment to continue consultation with AESRD, and to operate and maintain the necessary air pollution control equipment to achieve the emission limits determined by AESRD.

14. The Commission has reviewed SLP’s estimates of potential H\textsubscript{2}S release. The Commission observes that SLP’s ERP will be updated to include new hazards from potential emergency biogas and H\textsubscript{2}S venting in addition to spill response guidelines, evacuation guidelines, and at least one emergency response exercise prior to commissioning the project. Given the low H\textsubscript{2}S levels and considering that the anaerobic digester is 600 metres within the boundary of the site, the Commission is satisfied that SLP has addressed off-site safety concerns associated with the H\textsubscript{2}S production at the power plant. The Commission accepts SLP’s commitment to update its ERP to include the potential venting of H\textsubscript{2}S from the proposed facilities.

15. The Commission accepts that SLP conducted a consultation program with all potentially affected residents and stakeholders in accordance with AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations* (AUC Rule 007). The Commission understands that there are no residences in the area and SLP has notified all stakeholders within two kilometres of the proposed power plant.

16. The Commission accepts the conclusions of the AESO’s connection study that the impact of the proposed power plant on the AIES system is minor and that electric system impact studies
are not required for this project. Furthermore, SLP does not intend to export electric energy to the AIES.

17. The Commission has reviewed the application and determined that the technical, siting, and environmental requirements of the Hydro and Electric Energy Act and AUC Rule 007 have been met.

18. Based on the foregoing, the Commission considers the power plant to be in the public interest in accordance with Section 17 of the Alberta Utilities Commission Act.

4 Decision

19. Pursuant to sections 11 and 18 of the Hydro and Electric Energy Act, the Commission approves Application No. 1609235 and grants SLP the approval set out in Appendix 1 – Power Plant Approval No. U2013-210 and Appendix 2 – Connection Order No. U2013-211 (the appendices will be distributed separately).

Dated on May 2, 2013

The Alberta Utilities Commission

(original signed by)

Tudor Beattie, QC
Commission Member