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Maxim Power Corporation

86-MW Cogeneration Power Plant at Milner Site

February 11, 2015

Alberta Utilities Commission
Decision 3420-D01-2015
Maxim Power Corporation
86-MW Cogeneration Power Plant at Milner Site
Proceeding 3420
Application 1610853-1

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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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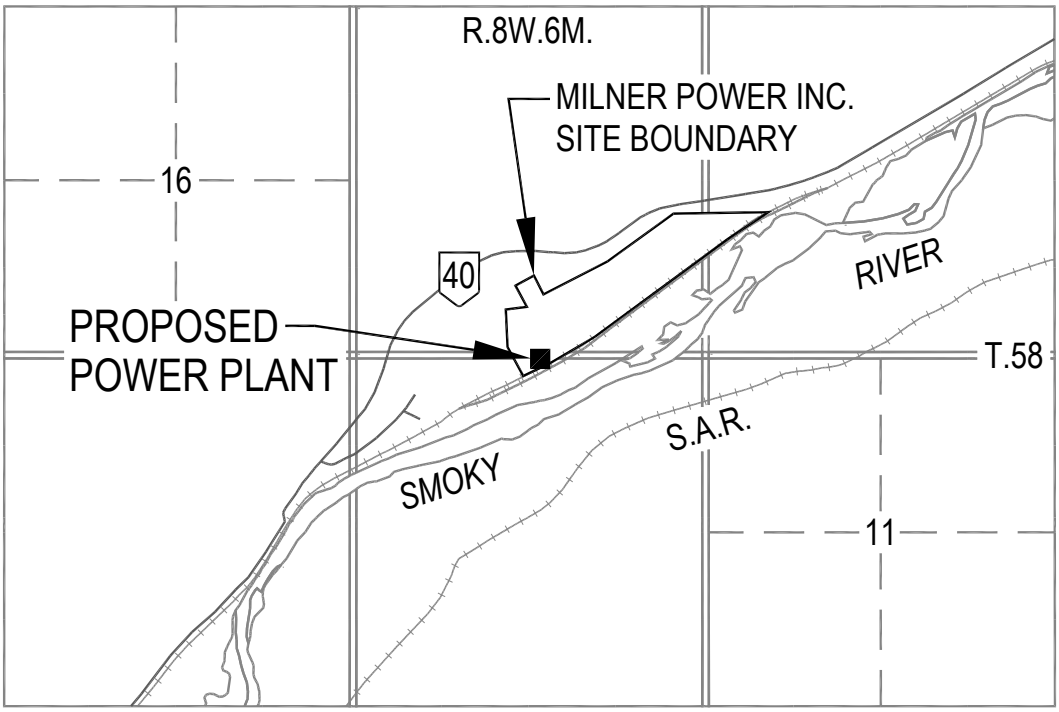
1 Introduction

1. Maxim Power Corporation (Maxim) filed an application with the Alberta Utilities Commission for approval, pursuant to Section 11 of the *Hydro and Electric Energy Act*, to construct and operate an 86-megawatt (MW) cogeneration power plant (the proposed power plant M3 or the M3 project) at its Milner site, approximately 20 kilometres north of the town of Grande Cache, Alberta. The application was registered on September 19, 2014, as Application 1610853-1, under Proceeding 3420.

2. The proposed power plant M3 would consist of two 43-MW General Electric LM6000 aero-derivative gas turbine generators, each equipped with a heat recovery steam generator and related auxiliary equipment, and would be located in the north half of Section 10 and the south half of Section 15, Township 58, Range 8, west of the Sixth Meridian.

3. A map showing the location of the proposed power plant is included below:



2 Background

4. Maxim presently owns and operates a 150-MW coal-fired power plant (M1) at the HR Milner generating station.[1] The proposed power plant M3 would be situated on the site adjacent to the existing 150-MW coal-fired power plant M1.

5. Pursuant to Approval U2014-242,[2] Maxim also holds an approval to construct and operate a 520-MW natural gas-fired power plant, designated as the HR Milner Expansion Project Amendment (M2), at its Milner site in the Grande Cache, Alberta area.

6. Maxim previously received approval to construct and operate M2 as a coal-fired power plant on August 10, 2011, pursuant to Approval U2011-255.[3] An environmental impact assessment report was submitted to Alberta Environment and Sustainable Resource Development (ESRD) and accepted as complete on January 12, 2010. Maxim also received *Historical Resources Act* clearance from Alberta Culture on August 13, 2010. Maxim received Alberta *Environment Protection and Enhancement Act* approval for this coal-fired power plant M2 on May 18, 2012.

7. Maxim filed Application 1610072 with the AUC on November 15, 2013, for approval to alter and operate the approved, but not yet constructed, power plant M2 by changing the fuel type from coal to natural gas and increasing the size of the power plant from 500 MW to 520 MW. Maxim cited new federal government greenhouse gas emissions legislation and the low cost of natural gas as drivers for the alteration.

8. The Commission, on June 4, 2014, approved the application in Decision 2014-157,[4] and granted Approval U2014-242 to Maxim to alter and operate the power plant M2, pursuant to Section 11 of the *Hydro and Electric Energy Act*.

9. Maxim stated that Environment Canada's federal greenhouse gas regulation, which came into force in September 2012, has stringent performance standards for coal-fired generators. The regulation requires new coal-fired generators to meet the standard of 420 tonnes of carbon dioxide per gigawatt hour by July 1, 2015. The regulation also requires existing coal-fired power plants to be in compliance with this new standard.

10. Maxim submitted that, in accordance with the federal greenhouse gas regulation, the existing coal-fired power plant M1, that was built in 1972, would be required to cease or end its base load operation by December 31, 2019, and would then only be allowed to operate as a standby unit and to burn coal at a capacity factor of nine per cent per year as of December 31, 2029. Maxim also submitted that in accordance with the provincial regulation, a Best Available Technology Economically Achievable (BATEA) would be required to be installed on the coal-fired power plant M1 by January 1, 2023.

[1] Milner site is referred to the land owned by Maxim, where the HR Milner generating station (M1) and the majority of its associated infrastructure are situated. The Milner site is located approximately 20 kilometres north of the town of Grande Cache, Alberta.
[2] Approval U2014-242, Proceeding 2930, Application 1610072, June 4, 2014.
[3] Approval U2011-255, Proceeding 203, Application 1604766, August 10, 2011.
[4] Decision 2014-157: Maxim Power Corporation – 520-megawatt Natural gas-fired Power Plant, Proceeding 2930, Application 1610072, June 4, 2014.

11. To meet the requirements of the federal and provincial regulations, Maxim stated that it proposed to build the cogeneration power plant M3 to enhance the current energy output at the HR Milner site. The proposed power plant M3 would be comprised of two gas turbine generators, each equipped with a heat recovery steam generator. The gas turbines would be used to drive the electric generators and the exhaust energy to be produced from the gas turbines would be converted to steam in the heat recovery steam generators. The steam would be piped into the existing coal-fired power plant M1 and expanded in the steam turbine of the power plant M1 to generate electricity, which would displace a portion of the coal-sourced steam. Maxim submitted that this process would allow the power plant M1 to reduce the amount of coal that it presently burns. The natural gas for the power plant M3 would be supplied via an expansion of the supply service from the TransCanada pipeline system. Maxim also stated that it plans to commence construction in the second quarter of 2015 and begin operation in the third quarter of 2016.

12. Maxim stated that it would reduce the greenhouse gas emissions and increase the power output from the HR Milner generating station by using the steam to be generated from the proposed power plant M3 in the existing power plant M1. Maxim submitted that a net increase of electric power output would be approximately 84 MW, with a total net capacity of 228 MW. The total emissions of carbon dioxide (CO_2), nitrogen oxides (NO_x), sulfur oxide (SO_x) and particulate matter would be reduced.

13. Maxim stated that the proposed power plant M3 would be constructed within the existing boundary of the Milner site and would not change the physical footprint of the Milner site. Therefore, no expansion of the Milner site would be required and there would be no new restrictions on the land use for the proposed power plant M3.

3 Process

14. The Commission issued a first round of information requests[5] to Maxim on November 6, 2014, and Maxim responded to the information requests on November 25, 2014. The Commission issued a second round of information requests[6] on December 8, 2014, and Maxim responded to the information requests on December 15, 2014.

15. The Commission issued a notice of application[7] on November 19, 2014, for the proposed power plant. The notice was sent directly to those parties identified by Maxim who may be affected by or have an interest in the power plant and was also published on the AUC website. In the notice of application, the Commission directed any person who had concerns about or objections to the application, or who wished to support the application, to file a submission with the Commission by December 15, 2014.

16. In response to the notice of application, the Horse Lake First Nation (HLFN), represented by Mr. Timothy Bayly of KMSC Law LLP, filed a submission or statement of intent to participate[8] on December 16, 2014. In its submission, the HLFN stated that it was not aware of the proposed power plant M3 application until December 15, 2014. It stated that Maxim did not consult the HLFN with respect to the M3 project and its potential impacts on the HLFN

[5] Exhibit 0018.01.AUC-3420.
[6] Exhibit 0021.01.AUC-3420.
[7] Exhibit 0019.01.AUC-3420.
[8] Exhibit 0027.01.AUC-3420.

members, their aboriginal rights and their Treaty 8 rights. As part of its submission, the HLFN requested a time extension to January 15, 2015, to file further submissions on how its rights may be directly and adversely impacted by the M3 project. In its submission, the HLFN also included a map of the traditional territory claimed by the HLFN in the provinces of Alberta and British Columbia. The HLFN also stated that the HLFN would like to discuss the project and to coordinate a site visit with Maxim.

17. On December 17, 2014, the Commission issued a letter[9] to interested parties, in which it granted the HLFN an extension to the submission deadline. In addition, to maintain application-processing timelines, the Commission established the following process schedule for reply submissions:

Deadline for the HLFN further submission on Standing	January 15, 2015
Submissions of the applicant on standing of the HLFN	January 22, 2015
Reply submissions of the HLFN, if required	January 29, 2015

18. On January 14, 2015, the HLFN filed its further submission by letter[10] dated January 8, 2015, with the Commission. Maxim filed its response to the submissions of the HLFN on January 22, 2015. On January 28, 2015, the HLFN withdrew its statement of intent to participate in Proceeding 3420. As a result, the Commission was not required to determine if the HLFN had standing to participate in the proceeding. The Commission did not receive any other submissions from any party and as a result, no hearing was required prior to the Commission considering and determining Maxim's application.

4 Discussion

19. Maxim submitted that it consulted with ESRD to determine which studies would be required to be updated for the proposed power plant M3 application and it was determined that the air quality assessment, noise impact assessment and stormwater management plan required updates. Concurrent with its application to the AUC, Maxim was in the process of applying to ESRD for an amendment to its approvals in relation to the proposed power plant M3 pursuant to the Alberta *Environmental Protection and Enhancement Act* and the Alberta *Water Act.*

20. Maxim submitted an air quality assessment[11] for the power plant M3, conducted by Stantec Consulting Ltd. The assessment indicated that the predicted concentration of nitrogen oxides (NO_x) to be emitted from the proposed power plant M3 when it operates as a cogenerating unit would be less than the current Alberta Source Emission Standards and would equal that limit when it operates as a single-cycle gas turbine. The assessment further indicated that the total emissions of NO_x, sulphur dioxide (SO_2) and primary particulate matter ($PM_{2.5}$) from the power plant M3, with consideration of the reduced emissions from the existing power plant M1, would be significantly lower than the current air emissions from the power plant M1. The emission of carbon monoxide (CO) was said to increase relative to the current emission, but the ambient CO concentrations were predicted to be below the Alberta Ambient Air Quality Objectives.

[9] Exhibit 0027.01.AUC-3420.
[10] Exhibit 3420-X0001.
[11] Exhibit 0023.01.MAXIM-3420.

21. The air quality assessment also indicated that the ambient air concentrations of NO_2, SO_2, $PM_{2.5}$ and CO associated with emissions from the proposed power plant M3 and the existing power plant M1operating at reduced load were predicted to be below the respective Alberta Ambient Air Quality Objectives. For most of the parameters, the maximum ambient concentrations were predicted to be substantially less than when the power plant M1 operates alone except for the maximum NO_2 concentration, which was predicted to be higher than that currently resulting from the existing power plant M1.

22. Maxim concluded that the results of the air quality assessment showed that the proposed power plant M3 was predicted to have a positive and beneficial effect on the regional air quality due to a reduction in NO_2, SO_2 and $PM_{2.5}$ emissions. As a result, a decrease in maximum predicted ambient air quality concentrations in most of the study area were also predicted.

23. Maxim submitted a revised stormwater management plan[12] for the power plants M2 and M3 expansion, prepared by Westoff Engineering Resources Inc. (Westoff). This plan proposed a drainage system for the Milner site to handle surface runoff under an ultimate development condition that includes the power plants M1, M2 and M3 and excludes the coal beneficiation facility, which is under a separate plan prepared in 2012. Based on design and analysis of the proposed drainage system, Westoff concluded that the volumes of runoff, discharge rates and removal rates would meet the relevant requirements, and a procedure would be implemented to operate the control structure of the storm pond in order to comply with the Alberta *Environmental Protection and Enhancement Act* requirements. Westoff also recommended that Maxim make an application to ESRD under the Alberta *Water Act* and the Alberta *Environmental Protection and Enhancement Act* in regard to the stormwater storage facility and its discharge.

24. Maxim submitted a noise impact assessment[13] for the proposed power plant M3, completed by SLR Consulting (Canada) Ltd. (SLR). SLR presented two noise modelling scenarios in the assessment – normal operating scenario and maximum operating scenario. In the normal operating scenario, the noise assessment included the noise contributions from the existing power plant M1, the approved natural gas-fired power plant M2, the approved coal beneficiation plant and the proposed power plant M3. In the maximum operating scenario, the noise contributions from the rail loading operations for the coal beneficiation plant were added into the noise assessment. This noise impact assessment was prepared based on the noise impact assessment that SLR (formerly HFP Acoustical Consultants Corporation) prepared for Maxim's gas-fired power plant M2 application.

25. Maxim stated that because there are no residences within 1,500 metres of the site and the closest residences are located at Wanyandie Flats approximately 4,000 metres away, the noise impact assessment was conducted for locations 1,500 metres away and at the Wanyandie Flats residences. The noise impact assessment indicated that the predicted sound level contributions including the M3 project would be less than one dBA higher than the value submitted in the noise impact assessment for the gas-fired power plant M2. The noise impact assessment concluded that the predicted cumulative sound levels of the M3 project would be in compliance with the permissible sound levels determined in accordance with the requirements of Rule 012: *Noise Control* under all operating scenarios.

[12] Exhibit 0013.00.MAXIM-3420.
[13] Exhibit 0001.00.MAXIM-3420.

26. Maxim's consultation process involved local jurisdictions, landowners and Crown disposition holders within 5,000 metres of the power plant including the residents of Wanyandie Flats. The local jurisdictions included the Member of Parliament for Yellowhead, the Member of the Legislative Assembly for West Yellowhead, the Municipal District of Greenview No. 16, and the mayor and council for the Town of Grande Cache.

27. Maxim delivered project notification packages to the interested parties or stakeholders via registered mail or email, and delivered the packages in person to the residents of Wanyandie Flats. Maxim followed up the information packages with telephone calls to confirm receipt of the information and to discuss any questions and concerns that arose. Maxim provided all the interested parties an opportunity to review the project information and to submit concerns or questions within approximately six weeks of delivery of the information. Maxim also conducted personal consultations with the residents of Wanyandie Flats. No objections were received by Maxim.

28. Maxim held an open house for the project at Grande Cache Tourism and Interpretive Centre on August 13, 2014. The open house was advertised in the Mountaineer newspaper for two consecutive weeks as well as included in the project notification packages. The open house was attended by 21 individuals and no written concerns were received.

29. In support of its application, Maxim indicated the effects of the project on vegetation, wetlands, wildlife and aquatics have not changed because the physical footprint would not change with the addition of the power plant M3 and no new land disturbance is required beyond what was previously approved.

30. Maxim submitted that the conservation and reclamation plans have not changed because the project's footprint and surface disturbance are generally unchanged. Maxim stated that there would be no potential siting or land use issues because the proposed power plant M3 would be constructed entirely within its existing Milner site and no new land would be acquired. Further, the Milner site is zoned for industrial use so there would be no land use issues for the project.

31. Maxim indicated that the proposed power plant M3 would only require raw water intake of 9.8 litres per second, while the existing M1 requires raw water intake of 44.8 litres per second. Maxim also stated that its existing water licence is sufficient to accommodate the existing M1 facility, the approved M2 facility and the proposed M3 facility.

32. Maxim submitted that *Historical Resources Act* clearance is not required because the clearance was obtained previously for the power plant M2 and the new configuration does not require any new land disturbance.

5 Findings

33. The Commission has reviewed the application and the potential impacts, including the environmental impacts, of the M3 project and is satisfied that the project is acceptable.

34. The Commission is satisfied that the potential impacts on vegetation, wildlife and wetlands will be minimal because the proposed power plant M3 will occur on land owned by Maxim and in the same footprint as the previously approved power plant M2. In making its finding, the Commission accepts Maxim's submission that the potential impacts to vegetation,

wildlife and wetlands are similar to those under the previous configuration and that the project did not require a new environmental impact assessment.

35. The Commission further considers that with the inclusion of appropriate conditions, that any air and water emission, plant waste, air quality, soil, vegetation, surface water, sediment, ground water, wildlife and fish concerns will be addressed. Therefore, the approval of the proposed power plant M3 will also be subject to the following condition:

- Maxim shall, to the satisfaction of Alberta Environment and Sustainable Resource Development, manage, monitor and report on air emissions, water emissions, and waste generation from plant operations.

- Maxim shall, to the satisfaction of Alberta Environment and Sustainable Resource Development, as applicable, manage, monitor and report the effects of plant operations on ambient air quality, soil, vegetation, surface water, sediment, groundwater, wildlife and fish.

36. With respect to the impacts on fish and fish habitat related to the raw water intake, the Commission accepts Maxim's submissions that the M3 project will have a small increase in the amount of water required. The Commission is satisfied, that with the following condition appropriate measures will be in place to ensure the there is adequate protections in place for fish and fish habitat:

- The power plant will be cooled by water, withdrawn from the Smoky River via a new water intake, to be located on Crown land near the northeast quarter of Section 10, Township 58, Range 8, west of the Sixth Meridian. The water intake shall be designed, constructed and operated to the satisfaction of Alberta Environment and Sustainable Resource Development and the federal Department of Fisheries and Oceans. Maxim shall provide compensation for the loss of associated fish habitat as may be required by the Department of Fisheries and Oceans.

37. The Commission considers that using the steam generated from the proposed power plant M3 in the existing power plant M1 results in a decrease in air emissions, specifically a reduction in NO_2, SO_2 and $PM_{2.5}$ emissions. With respect to the ambient air quality, while Maxim reported all regulated parameters would meet ambient air quality objectives, the maximum NO_2 concentration will increase in one area. The Commission considers that ambient air quality may be influenced by a number of emission sources including non-regulated sources such as roads. The Commission further considers that ESRD will be issuing site-specific stack air emission standards to Maxim, and that Maxim has committed to meeting these standards. The Commission expects Maxim to uphold these commitments.

38. The Commission has reviewed Maxim's submission regarding its stormwater management plan and finds that it is acceptable to address any issues that may arise in relation to stormwater.

39. The Commission finds that the application is compliant with Rule 012 and notes that there are no residences within 1,500 metres of the proposed power plant M3. The Commission considers that based on the information received from Maxim, that the approval should contain a

condition directing Maxim to conduct a comprehensive sound level survey in the event of a noise complaint as follows:

- In the event of a noise complaint, Maxim shall conduct a comprehensive sound level (CSL) survey, in accordance with the provisions of Rule 012: *Noise Control*. Should the results of the CSL indicate non-compliance with the permissible sound level, a detailed noise mitigation plan and a timeline for when compliance will be met must be provided to the AUC.

40. In making its above findings on environmental matters, the Commission expects Maxim to comply with all direction received from ESRD.

41. The Commission is satisfied with the consultation conducted by Maxim and notes that there are no residential landowners within 1,500 metres of the proposed power plant M3 and that Maxim consulted with the residents of Wanyandie Flats. As the HLFN withdrew its submission, the Commission considers that there were no concerns raised by any party with respect to the power plant.

42. Having regard to all of the above, the Commission has determined that the application meets the technical, siting and environmental requirements set out in Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments* and Rule 012. Maxim's participant involvement program has been conducted in accordance with the requirements of Rule 007 and there are no outstanding public or industry objections or concerns.

43. Based on the foregoing, the Commission considers the project to be in the public interest in accordance with Section 17 of the *Alberta Utilities Commission Act*.

6 Decision

44. Pursuant to Section 11 of the *Hydro and Electric Energy Act*, the Commission grants Maxim the approval set out in Appendix 1 – Power Plant Approval 3420-D02-2015 – February 11, 2015 (Appendix 1 will be distributed separately).

Dated on February 11, 2015.

Alberta Utilities Commission

(*original signed by*)

Tudor Beattie, QC
Commission Member