



Maxim Power Corporation

520-megawatt Natural Gas-fired Power Plant

June 4, 2014



The Alberta Utilities Commission

Decision 2014-157: Maxim Power Corporation

520-megawatt Natural Gas-fired Power Plant

Application No. 1610072

Proceeding No. 2930

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Published by

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1 Introduction

1. Pursuant to Approval No. [U2011-255](#)¹ Maxim Power Corporation (Maxim) holds an approval to construct and operate a 500-megawatt (MW) coal-fired power plant designated as the HR Milner Expansion Project (M2), in the Grande Cache, Alberta area.
2. Maxim filed an application with the Alberta Utilities Commission (AUC or the Commission) for approval to alter the approved, by not yet constructed, M2 power plant in the Grande Cache area. The application was registered on November 15, 2013 as Application No. 1610072.
3. The application for the power plant and associated transmission line was made pursuant to sections 11 and 18 of the *Hydro and Electric Energy Act*.

2 Background

4. Maxim received approval to construct and operate M2 as a coal-fired power plant on August 10, 2011, pursuant to Approval No. U2011-255. An Environmental Impact Assessment (EIA) report was submitted to Alberta Environment and Sustainable Resource Development (AESRD) and accepted as complete on January 12, 2010. Maxim also received Alberta Culture clearance on August 13, 2010. Maxim received *Alberta Environment Protection and Enhancement Act* approval for M2 on May 18, 2012.
5. In its amendment application, Maxim proposed to alter the power plant 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.
6. Maxim presently operates a 150-MW coal-fired power plant (M1) at the HR Milner Generating Station.² The gas-fired power plant would be situated on this site adjacent to the existing 150-MW coal-fired power plant M1. The physical footprint of the previously approved M2 power plant would remain unchanged.
7. Maxim stated it plans to build the power plant in two phases with the construction of two 260-MW combined-cycle gas turbine generators. Each phase would consist of a gas turbine

¹ Approval No. U2011-255, Application No. 1604766, Proceeding No. 203, August 10, 2011.

² 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 kilometers north of the town of Grande Cache, Alberta.

generator, a heat recovery steam generator, a steam turbine generator and ancillary support systems. The gas turbine would be used to drive an electric generator and the exhaust would be passed through a heat recovery boiler which raises steam to drive the steam turbine generator. The gas would be supplied via an expansion of the existing natural gas pipeline that currently supplies M1.

8. Maxim stated it plans to commence construction for the first phase in the third quarter of 2014 and begin operation in the first quarter of 2018. The second phase is anticipated to begin construction in the fourth quarter of 2016 and operation in the first quarter of 2020.

9. In support of its application, Maxim stated the effects of the project on vegetation, wetlands, wildlife and aquatics have not changed because the majority of the project site is brownfield and no new land disturbance is required beyond what was previously approved. Maxim stated that an additional 0.03 hectares of wetlands would be lost, but the habitat is low quality and not unique to the region.

10. Maxim indicated that the natural gas-fired configuration would require less water per day than the coal-fired configuration. The raw water intake would be reduced from 279 litres per second to 135 litres per second for the natural gas-fired alteration. Maxim also stated that its existing water license is sufficient to accommodate the existing M1 facility and the new M2 facility. Therefore, a new hydrology assessment was not required by AESRD.

11. Maxim conducted a fog assessment for the power plant to estimate fog frequency on public roads. The assessment evaluated the southwest to northwest oriented Highway 40 near the cooling tower and the coal haul road that parallels Highway 40. The results of the model showed that there would be no plume induced fog or ice hours on the roadway over the five-year simulation period.

12. Maxim stated the conservation and reclamation plans have not changed since the original application because the project footprint and surface disturbance are generally unchanged. The temporary storage area for the project has increased from 1.4 hectares to 9.16 hectares. This would consist of on-site, short-term equipment laydown and off-site temporary equipment storage.

13. Further, Maxim indicated that it consulted with AESRD to determine which studies would be required to be updated for the new fuel type configuration and it was determined that the air quality assessment, noise assessment and storm water management plan required updates. Concurrent with its application to the AUC, Maxim has applied to AESRD for an amendment to its approvals pursuant to the *Alberta Environmental Protection and Enhancement Act* and the *Alberta Water Act*.

14. Maxim conducted an updated air quality assessment for the gas-fired power plant. The predicted concentrations for NO₂, SO₂, PM_{2.5}, CO and NH₃ associated with emissions from M2 for all relevant averaging periods would be below the Alberta Ambient Air Quality Objectives. Maxim submitted that these measurements showed that the baseline concentrations largely meet the objectives and that the measurement obtained for fine particulate matter (PM_{2.5}) which exceeded these limits was an outlier. Maxim explained that while the modelling indicated exceedances of the 24-hour SO₂ and PM_{2.5} objectives and the one-hour PM_{2.5} guidelines, the SO₂ predictions are likely conservative as monitoring data has not shown exceedances of the objectives and the PM_{2.5} values are strongly influenced by fugitive emission sources related to

the Grande Cache Coal Company's coal mining operation. Maxim submitted that there is little difference between the existing levels and the cumulative levels with the addition of the power plant. Maxim explained that given this data, the operation of M2 does not exert a strong influence on regional air quality. Maxim also stated that the change from a coal-fired to gas-fired configuration results in a reduction of CO₂ emissions by 49 per cent.

15. Maxim revised its stormwater management plan, stating that M2's effects on groundwater had not changed and the effects on industrial water had improved by changing to a gas-fired fuel source.

16. Maxim conducted a noise impact assessment for the proposed natural gas-fired power plant. The assessment included sound contributions from both the M1 and M2 power plants, and the approved coal beneficiation plant (under both normal and maximum operating scenarios). There are no residences within 1,500 metres of the site and the closest residences are approximately 4,000 metres away. As a result, the noise impact assessment was conducted for locations 1,500 metres away and at the Wanyandie Flats residences 4,000 metres away. The noise impact assessment concluded that the predicted sound level contribution from the natural gas-fired plant is slightly lower than from the original coal-fired configuration and that the power plant would comply with AUC Rule 012: *Noise Control* (AUC Rule 012) under all operating scenarios.

17. Maxim received a letter from the Canadian Environmental Assessment Agency stating that the power plant did not require an EIA under the *Canadian Environmental Assessment Act*.

18. Maxim submitted that *Historical Resources Act* clearance is not required because the clearance was obtained previously for M2 and the new configuration does not require any new land disturbance. Alberta Culture also confirmed that a historic resources impact assessment for paleontological resources was not required.

19. 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 who are located approximately four kilometres away. The local jurisdictions included the Member of Parliament for Yellowhead, the Member of the Legislative Assembly for West Yellowhead, the MD of Greenview No. 16, and the mayor and council for the Town of Grande Cache. Maxim delivered project notification packages 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. No objections were received by Maxim.

20. Maxim held an open house for the project in Grande Cache on September 18, 2013. The open house was advertised in the Mountaineer newspaper for three consecutive weeks as well as in the project notification packages. The open house was attended by 26 individuals and no written concerns were received. An open house information update was sent to stakeholders on October 3, 2013.

21. The Commission issued a notice of application on March 18, 2014. The notice was sent directly to those parties identified by Maxim as parties who may be affected by or have an interest in the power plant. The Commission did not receive any submissions in response to the notice.

3 Discussion

22. The Commission has reviewed the potential environmental impacts of the power plant and is satisfied that these impacts are acceptable for the following reasons.
23. The Commission is satisfied that the potential impacts on vegetation, wildlife and wetlands will be minimal because the alteration will occur on land owned by Maxim and in the same footprint as the previously approved power plant. 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 EIA.
24. The Commission further considers that its previous approval, Approval No. U2011-255, for the coal-fired power plant contained clauses that Maxim shall monitor and report the effects of plant operations on air and water emissions, plant waste, air quality, soil, vegetation, surface water, sediment, ground water, wildlife and fish to AESRD. The natural gas-fired power plant's approval will also be subject to this condition.
25. Maxim conducted a fog assessment which showed that there was no plume induced fog or ice hours on the roadways. Based on the evidence submitted by Maxim, the Commission finds that fog mitigation is no longer required.
26. With respect to impacts on fish and fish habitat from the raw water intake, the Commission accepts Maxim's submissions that changing the fuel source will decrease the required water quantity. The Commission is satisfied that the condition contained in Approval No. U2011-255 for the coal-fired M2 directing Maxim to design, construct and operate the water intake to the satisfaction of AESRD and the federal department of Fisheries and Oceans, is adequate to protect fish and fish habitat in this circumstance.
27. The Commission considers that changing the power plant type, from coal-fired to natural gas-fired results in a decrease in air emissions, specifically a reduction in CO₂ emissions by 49 per cent. With respect to the ambient air quality, while Maxim reported exceedances of SO₂ and PM_{2.5}, 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 Maxim made a number of commitments in Application No. 1604766, Proceeding No. 203, that led to the original approval of M2 (Approval No. U2011-255) and that AESRD will be issuing site-specific stack air emission standards to Maxim, and Maxim committed to meeting these standards. The Commission expects Maxim to uphold these commitments.
28. The Commission has reviewed Maxim's submission regarding its stormwater management plan and finds that it is acceptable in the circumstances.
29. The Commission finds the application compliant with AUC Rule 012 and notes that there are no residences within 1,500 metres of the power plant. The Commission considers that based on the information received from Maxim, the condition contained in Approval No. U2011-255 directing Maxim to conduct a comprehensive sound level survey in the event of a noise complaint would remain.
30. In making its above findings on environmental matters, the Commission expects Maxim to comply with all direction received from AESRD.

31. The Commission is satisfied with the consultation conducted by Maxim and notes that there are no residences within 1,500 metres of the power plant and that Maxim consulted with the residents of Wanyandie Flats. The Commission also considers that no concerns with respect to the power plant were expressed.

32. The Commission has reviewed the application and has determined that the technical, siting, emissions, environmental and noise aspects of the power plant alteration have been met. Maxim's participant involvement program has been conducted and there are no outstanding public or industry objections or concerns.

33. 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*.

4 Decision

34. Pursuant to Section 11 of the *Hydro and Electric Energy Act*, the Commission approves the application and grants Maxim the approval set out in Appendix 1—Power Plant Approval No. U2014-242 – June 4, 2014 to alter and operate the power plant (Appendix 1 will be distributed separately).

Dated on June 4, 2014.

The Alberta Utilities Commission

(original signed by)

Neil Jamieson
Commission Member