



**Air Products Canada Ltd.**

**Edmonton 3 H2 Power Plant, Substation and  
Industrial System Designation**

**May 16, 2023**

**Alberta Utilities Commission**

Decision 27380-D01-2023

Air Products Canada Ltd.

Edmonton 3 H2 Power Plant, Substation and Industrial System Designation

Proceeding 27380

Applications 27380-A001 and 27380-A002

May 16, 2023

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The Commission may, no later than 60 days from the date of this decision and without notice, correct typographical, spelling and calculation errors and other similar types of errors and post the corrected decision on its website.

## **1 Decision summary**

1. In this decision, the Alberta Utilities Commission approves applications from Air Products Canada Ltd. to construct and operate a hydrogen power plant and a substation and for an industrial system designation.

## **2 Introduction**

2. Air Products Canada Ltd. applied to construct and operate a combined-cycle power plant and a substation at its proposed Edmonton 3 H2 Plant. Air Products also applied for the facilities to be designated as an industrial system. The proposed facilities are located on land owned by Air Products in northeast Edmonton.

## **3 Is approval of the power plant and substation in the public interest?**

3. For the following reasons, the Commission finds that approval of the power plant and substation is in the public interest having regard to the social, economic, and other effects, including effects on the environment.

4. The combined-cycle power plant consists of three 19.36-megawatt (MW) gas turbine generators and one 32.4-MW steam turbine generator. The power plant has a total capability of 90.5 MW. The power plant would supply the majority of its electricity to the Edmonton 3 H2 Plant and export excess electricity to the Alberta Interconnected Electric System (AIES).

5. The Aurum Park 1007S Substation has one 240/35-kilovolt (kV), 50/67/83 megavolt-ampere (MVA) transformer and one 240-kV circuit breaker. The Alberta Electric System Operator and EPCOR Distribution & Transmission Inc. filed applications for the need and facilities to connect the substation to the AIES. These applications are being considered in a separate proceeding.<sup>1</sup>

6. The Commission finds that the participant involvement program conducted by Air Products meets the requirements of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines*. The Commission received one objection to the project from Lac Ste. Anne Metis Community Association (LSAMCA) in response to the notice of applications. The Commission granted LSAMCA standing and scheduled a hearing to consider the applications. LSAMCA later withdrew its objection and the hearing was cancelled.

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<sup>1</sup> Proceeding 27676, Clover Bar Interconnection Project.

7. Air Products retained Worley Canada Services Ltd., operating as Advisian, to conduct a noise modelling assessment for the project. The assessment found that the project would comply with sound levels set out in Rule 012: *Noise Control*. The Commission accepts the conclusions of the noise modelling assessment and finds that the project will comply with Rule 012.

8. Advisian prepared an ambient air quality assessment for the project, including the power plant and the hydrogen facility. The assessment concluded that the predicted maximum concentrations of SO<sub>2</sub>, NO<sub>2</sub>, CO, TPM and NH<sub>3</sub><sup>2</sup> are below the *Alberta Ambient Air Quality Objectives* (AAAQO). However, the assessment found that cumulative PM<sub>2.5</sub> (fine particulate matter) exceeded the AAAQO. In response to an information request, Air Products explained that the PM<sub>2.5</sub> 24-hour background concentration is 28 µg/m<sup>3</sup>, which is 1 µg/m<sup>3</sup> below the AAAQO of 29 µg/m<sup>3</sup>. When other existing facilities within five kilometres are included, but without the Air Products facility, the predicted 24-hour PM<sub>2.5</sub> is 36 µg/m<sup>3</sup>. With the Air Products facility included, the PM<sub>2.5</sub> concentration is 37 µg/m<sup>3</sup>, an increase of 1 µg/m<sup>3</sup>.

9. The Commission acknowledges that emissions from the proposed power plant will result in exceedances of the AAAQO for cumulative PM<sub>2.5</sub>, but considers that Air Products' contribution is minor relative to the existing background concentration of PM<sub>2.5</sub>. The Commission recognizes that Alberta Environment and Protected Areas will also review these emissions as part of Air Products' *Environmental Protection and Enhancement Act* application.

10. The Commission finds that the environmental impacts of the power plant and substation are not likely to be significant based on the environmental evaluation provided and the proposed mitigations set out in the environmental protection plan. The project is located on previously disturbed land within an industrial park. Air Products indicated that there is no native vegetation or natural wetlands, and limited habitat for wildlife on the site. The Commission understands that the Edmonton 3 H2 Plant, including the power plant, substation and hydrogen facility is designed to achieve net-zero greenhouse gas emissions and the Commission recognizes that the Edmonton 3 H2 Plant is likely to result in significant benefits to Albertans.

11. 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 Does the hydrogen facility and associated electrical facilities meet the requirements to be designated as an industrial system?**

12. The Commission must consider Air Products' industrial system designation application in accordance with the principles and criteria set out in Section 4 of the *Hydro and Electric Energy Act*. Section 4(2) sets out a number of principles that the Commission must have regard for when considering an application for an industrial system designation; Section 4(3) sets out specific criteria for determining whether a project should be designated as an industrial system.

13. The industrial system designation would consist of the combined-cycle power plant, the Aurum Park 1007S Substation and the associated electric facilities at the Edmonton 3 H2 Plant.

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<sup>2</sup> Sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), total particulate matter (TPM), ammonia (NH<sub>3</sub>).

14. The Commission is satisfied that granting the designation is consistent with the principles in Section 4(2) of the *Hydro and Electric Energy Act*. Air Products has confirmed that the power plant is the most economical source of generation.<sup>3</sup> While the majority of the electricity produced will be provided to the hydrogen facility, the power plant will also export excess energy to the AIES. In addition, Air Products submitted that the power plant will provide voltage support to the AIES and reduce losses on the transmission system.

15. The Commission is satisfied that Section 4(3)(a) of the *Hydro and Electric Energy Act* has been met. The combined-cycle power plant is located on the same site as the hydrogen facility and the Commission considers that the power plant and the industrial operations are integrated. The hydrogen facility will produce hydrogen from locally sourced natural gas. The hydrogen produced will then be used as fuel for the combined-cycle power plant. The power plant will assist the Edmonton 3 H2 Plant achieve net-zero emissions, because it will avoid indirect carbon emissions from the AIES and the exported power will offset the remaining emissions from the hydrogen facility.

16. Air Products is the sole owner and operator of the industrial operations, which will produce hydrogen. The Commission considers that sections 4(3)(b) and 4(3)(c) of the *Hydro and Electric Energy Act* have been met.

17. The Commission considers that the power plant is reasonably scaled to the needs of the project. The majority of the electricity will be used on site with approximately 5-7 MW of power either being imported or exported pending seasonal temperature fluctuations that impact process requirements and the power plant's production. The Commission recognizes that the exported electricity will assist Air Products in achieving net-zero emissions for the project. The Commission is satisfied that Section 4(3)(d) of the *Hydro and Electric Energy Act* has been met.

18. The Commission finds that Section 4(3)(e) of the *Hydro and Electric Energy Act* has been met as Air Products owns and operates both the hydrogen facility and the electric facilities. Hence, there is a high degree of integration of management of the components and the processes of the industrial operations.

19. The Commission finds that Section 4(3)(f) of the *Hydro and Electric Energy Act* has been met as Air Products indicated it will be investing approximately \$1.6 billion in the development of the hydrogen facility, power plant and associated facilities.

20. The Commission finds that Section 4(3)(g) of the *Hydro and Electric Energy Act* is not applicable in this case because the industrial operations do not extend beyond contiguous property.

21. In conclusion, having considered the applicable principles and criteria set out in Section 4 of the *Hydro and Electric Energy Act*, the Commission finds that Air Products' proposal meets the principles and criteria for an industrial system designation.

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<sup>3</sup> Exhibit 27380-X0107, Air Products Response to AUC Additional IRs.

## 5 Decision

22. Under sections 11, 14, 15 and 19 of the *Hydro and Electric Energy Act*, the Commission approves the power plant and substation applications and grants Air Products Canada Ltd. the following approvals:

- Appendix 1 – Power Plant Approval 27380-D02-2023 to construct and operate a 90.5-megawatt combined-cycle power plant.
- Appendix 2 – Substation Permit and Licence 27380-D03-2023 to construct and operate Aurum Park 1007S Substation.

23. Under Section 4 of the *Hydro and Electric Energy Act* and Section 2(1)(d) and Section 117 of the *Electric Utilities Act*, the Commission approves the industrial system designation application and grants to Air Products Canada Ltd. an industrial system designation as set out in Appendix 3 – Industrial System Designation Order 27380-D04-2023.

24. The appendices will be distributed separately.

Dated on May 16, 2023.

### Alberta Utilities Commission

*(original signed by)*

Cairns Price  
Commission Member