International Paper Canada Pulp Holdings ULC

Industrial System Designation and Permanent Connection Order for the Grande Prairie Pulp Mill Complex

January 10, 2020
Alberta Utilities Commission
Decision 24979-D01-2020
International Paper Canada Pulp Holdings ULC
Industrial System Designation and Permanent Connection Order
for the Grande Prairie Pulp Mill Complex
Proceeding 24979
Application 24979-A001

January 10, 2020

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The Commission may, within 30 days of 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 considers an application from International Paper Canada Pulp Holdings ULC for an industrial system designation that encompasses certain facilities at the Grande Prairie Pulp Mill Complex and for a permanent connection order to connect its power plant to the Alberta Interconnected Electric System. After consideration of the record of the proceeding, and for the reasons outlined in this decision, the Commission finds that approval of the application is in the public interest.

2 Introduction and background


3. On October 19, 2019, International Paper filed Application 24979-A001 with the Commission in which it requested (i) an industrial system designation encompassing facilities at the Mill Complex pursuant to Section 4 of the Hydro and Electric Energy Act; and (ii) a permanent connection order to connect its power plant to the AIES pursuant to Section 18 of the Hydro and Electric Energy Act.

4. The Mill Complex is located in Township 70, Range 5, west of the Sixth Meridian, approximately 20 kilometres from Grande Prairie.

5. Consistent with the Commission’s authority under Section 9 of the Alberta Utilities Commission Act, neither a notice of application nor a hearing was required in this proceeding because the Commission considered that its decision or order would not directly and adversely affect the rights of a person.

3 Legislative scheme

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

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1 Temporary Connection Order 24935-D02-2019, Proceeding 24935, Application 24935-A001, October 9, 2019.
and (iii) Subsections 4(4) and 4(5) set out further criteria for the Commission to consider when a project does not meet the criteria set out in Subsection 4(3), as follows:

(2) Where the Commission is considering an application for designation as an industrial system, the Commission shall have regard to the following principles:

(a) the designation must be consistent with the objective of giving appropriate economic signals so that integrated industrial processes can develop their own internal supply of electricity where that is the most economical source of generation;

(b) the designation must support

(i) the development of the economical supply of generation to meet the requirements of integrated industrial processes,

(ii) the efficient exchange, with the interconnected electric system, of electric energy that is in excess of the industrial system’s own requirements, and

(iii) the making of decisions respecting the location of generation and consumption facilities so that the efficiency of the interconnected electric system is improved, including improved voltage stability and reduction of losses and congestion on transmission lines;

(c) the designation must not facilitate

(i) the development of independent electric systems that attempt to avoid costs associated with the interconnected electric system, and

(ii) uneconomical by-pass of the interconnected electric system;

(d) duplication of the interconnected electric system must be avoided where it is more economical to use the transmission facilities or electric distribution systems owned by persons in whose service area the industrial system is or will be located.

(3) The Commission may make a designation under subsection (1) if the Commission is satisfied that all of the following criteria have been met:

(a) the electric system includes a generating unit located on the property of the one or more industrial operations it is intended to serve, there is a high degree of integration of the electric system with one or more industrial operations the electric system forms part of and serves, and there is a high degree of integration of the components of the industrial operations;

(b) the industrial operations process a feedstock, produce a primary product or manufacture a product;

(c) there is a common ownership of all of the components of the industrial operations;
(d) the whole of the output of each component within the industrial operation is used by that operation and is necessary to constitute its final products;

(e) there is a high degree of integration of the management of the components and processes of the industrial operations;

(f) the application to the Commission for a designation under subsection (1) demonstrates significant investment in both the expansion or extension of the industrial operations processes and the development of the electricity supply;

(g) where an industrial operation extends beyond contiguous property, the owner of the industrial operation satisfies the Commission that the overall cost of providing the owner’s own distribution or transmission facilities to interconnect the integral parts of the industrial operation is equal to or less than the tariffs applicable for distribution or transmission in the service area where the industrial operation is located.

(4) Where the Commission is not satisfied that subsection (3)(c) or (d) has been met, the Commission may make a designation under subsection (1) if the Commission is satisfied that all of the separately owned components and all of the industrial operations are components of an integrated industrial process.

(5) Where the Commission is not satisfied that all of clauses (a) to (g) of subsection (3) have been met, the Commission may make a designation under subsection (1) if the Commission is satisfied that

   (a) all of clauses (a) to (g) of subsection (3) and subsection (4) have been substantially met, and

   (b) there is a significant and sustained increase in efficiency in a process of the industrial operation or in the production and consumption of electric energy by the industrial operation as a result of the integration of the electric system with the industrial operations the electric system forms part of and serves.

4 Discussion

7. The Mill Complex contains a cogeneration facility and kraft pulp mill owned and operated by International Paper. The cogeneration facility includes a recovery boiler and a power boiler that create steam to be used for the mill’s industrial operations and to drive a 48-MW steam turbine generator that provides power to the mill. The boilers are fuelled by black liquor and residual bark that is derived from the pulp process and natural gas. The mill and cogeneration facility, in operation since 1972 and 2007 respectively, were acquired from Weyerhaeuser Canada Ltd. in 2016. International Paper explained that although the Mill Complex load averages 40 MW, it can be as high as 42 MW, and that excess power from the cogeneration facility is sold and exported to the AIES.

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2 Black liquor is the waste product from the kraft process when digesting pulpwood into paper pulp removing lignin, hemicelluloses and other extractives from the wood to free the cellulose fibres.
8. The industrial operations at the Mill Complex include:
   i. the woodyard and woodroom where raw timber is converted into woodchips
   ii. pulping that produces cellulose fibers from the woodchips removing lignin, hemicelluloses and other extractives
   iii. the chemical recovery process that utilizes the extracts to form black liquor
   iv. the bleaching of the cellulose fibers
   v. finishing operations that include flatteners to form the final product, northern bleached softwood kraft pulp, from the cellulose

9. The Mill Complex also contains a combustion gas turbine and combined cycle power plant that are operated by International Paper but wholly owned by TC Energy Ltd. Excess steam produced in International Paper’s operations is directed to TC Energy’s facilities.

10. In response to an information request, International Paper clarified that TC Energy’s facilities would not be included in the industrial system designation.³

11. International Paper submitted that Subsection 4(3)(c) of the Hydro and Electric Energy Act, which requires common ownership of all components of the industrial operations, has been met. It stated that TC Energy’s facilities constitute a separate industrial operation, albeit one that achieves greater efficiencies and conservation by taking excess steam from International Paper’s facilities, which would otherwise be vented as a waste product, and using it to generate electricity.⁴

12. In support of its assertion that Subsection 4(3)(c) has been met, International Paper stated that the mill is not dependent on TC Energy’s facilities and that the mill was operational prior to construction of TC Energy’s facilities. It added that outages and shut-downs of TC Energy’s facilities have no bearing upon International Paper’s industrial operations.⁵

13. International Paper contended that Subsection 4(3)(d) of the Hydro and Electric Energy Act has also been met. Subsection 4(3)(d) requires that “the whole of the output of each component within the industrial operation is used by that operation and is necessary to constitute its final products.” International Paper acknowledged that its operations produced steam in excess of its mill requirements, but argued that in the absence of use for such steam, it would otherwise be vented and wasted.

14. In the alternative, International Paper submitted that if the Commission did not find Subsection 4(3)(d) of the Hydro and Electric Energy Act to have been met, subsections 4(4) and/or 4(5) would then apply.

15. Specifically with respect to Subsection 4(5), International Paper stated that the requirements of Subsection 4(3) are all substantially met, and that there is a sustained and

⁵ Ibid.
significant increase to both the process of the industrial operations and in the production and consumption of the electric energy from the integrated operations. International Paper stated that electricity produced by a steam turbine using steam generated by a chemical recovery boiler from the kraft pulping process is in excess of 75 per cent efficient. It submitted that this is the most thermally efficient and low-cost method for mechanical generation of electricity.

16. International Paper explained that kraft pulp mills utilize chemical recovery boilers and bark boilers to efficiently recover process chemicals and utilize the associated biomass to generate electricity, which in turn provides a reliable, uninterrupted, independent power supply. It submitted that the impact of improved reliability can be substantial, preventing a significant disruption to pulp production and, depending on the season, the interruption of power to the mill (it can occur multiple times per year), which could result in catastrophic equipment damage when the temperatures are below freezing.

17. In respect of Subsection 4(3)(f) of the Hydro and Electric Energy Act, which requires that an application for an industrial system designation demonstrate significant investment in the expansion of industrial operations and development of electrical supply, International Paper submitted that it has invested over $400 million in upgrades since acquiring the subject mill and four others in 2016.

18. International Paper submitted that the cogeneration facility provides voltage support to the regional transmission system. Further, by serving load on site, it reduces congestion and promotes overall efficiency of the transmission system.

19. International Paper stated that a full participant involvement program was not conducted because the application would not result in changes to the existing operations to the Mill Complex.

20. International Paper notified ATCO Electric Ltd., the transmission and distribution facilities owner in the area, and filed a letter of non-objection from ATCO Electric. In the letter, ATCO Electric stated that it has commercial, technical and operational agreements that govern the load and generation needs for International Paper’s pulp mill, and that it does not object to the industrial system designation application as long as these existing agreements remain in effect.

21. International Paper provided a letter from the Alberta Electric System Operator (AESO) supporting its application for a permanent connection order. In the letter, the AESO stated that although International Paper had previously made the request, it could not support it at that time because the necessary transmission and telecommunications developments required to address system performance issues were not in place. Upon receipt of the current request, the AESO completed a further assessment and determined that the performance issues had been addressed.

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6 Exhibit 24979-X0001, International Paper Canada Pulp Holdings ULC - ISD and Permanent Connection Application, PDF page 5.
7 Exhibit 24979-X0001, International Paper Canada Pulp Holdings ULC - ISD and Permanent Connection Application, PDF page 8.
through increased transmission line thermal ratings and teleprotection upgrades. The AESO added that any remaining system performance issues can be addressed through real-time operational practices until further transmission system reinforcements are in place.

5 Committee findings

22. As mentioned earlier, the Commission must consider International Paper’s industrial system designation application in accordance with the principles and criteria set out in Section 4 of the Hydro and Electric Energy Act. In doing so, the Commission finds it appropriate to describe its assessment of each of the criteria found in Subsection 4(3).

23. The Commission is satisfied that Subsection 4(3)(a) has been met. As mentioned above, the Mill Complex includes a cogeneration facility that consists of boilers that create steam that is used both in the industrial operations of the mill and to drive the 48-MW steam turbine generator. The steam generator, in turn, is used to provide power to the mill’s industrial operations forming a high degree of integration of the electric system with the industrial operations of the Mill Complex.

24. Subsection 4(3)(b) has also been met because the industrial operations utilize raw materials to produce a primary product in the form of pulp.

25. The Commission accepts International Paper’s submission that TC Energy’s facilities, although located on-site, are part of a separate industrial operation that utilizes excess steam that would otherwise be wasted. Because TC Energy’s facilities are not included in the proposed industrial system designation, nor required for International Paper’s industrial operations, the Commission finds that Subsection 4(3)(c) has been met.

26. The Commission is not prepared to accept International Paper’s argument that Subsection 4(3)(d) has been met. Subsection 4(3)(d) requires that the whole of the output of each component within the industrial operation be used by the operation and be necessary to constitute its final products. Although the Commission acknowledges that output from the cogeneration plant is necessary to produce pulp, which is the primary product of the industrial operation, the cogeneration plant produces steam and electricity in excess of what the industrial operation requires. The excess steam is then utilized by TC Energy’s facilities such that not all of the output is used by the industrial operation.

27. The Commission emphasizes that an industrial system designation is intended to support generation that is proportional to the requirements of integrated industrial processes, and cautions that an industrial system’s maximum generation capability should not intentionally exceed the maximum load for its industrial operations. While the Commission maintains the view that the development of generation capacity within an industrial system must reflect the scale of the operations it supports, it is also cognizant that it may not always be possible to perfectly harmonize an industrial system’s capacity and load given the dynamic nature of certain industries and industrial processes.

28. In the present case, the Commission considers that the cogeneration plant is reasonably scaled to meet the needs of the mill and accepts that the excess steam produced would otherwise
be a waste product were it not being utilized by TC Energy’s facilities. For this reason, the Commission is satisfied that Subsection 4(3)(d) has been substantially met.

29. Subsection 4(3)(e) has been met because International Paper owns and operates both the mill and the steam turbine generator. Hence, there is a high degree of integration of management of both the components and the processes of the industrial operations.

30. The subject application follows Decision 24393-D01-2019,\textsuperscript{10} in which International Paper was granted an extension to its temporary connection order to provide it with sufficient time to pursue an industrial system designation in respect of its existing power plant. In these circumstances, the Commission finds that significant investment to the extension of the industrial operation and the development of the electricity supply had been met previously when the power plant was initially approved and constructed, thereby satisfying Subsection 4(3)(f).

31. The Commission finds that Subsection 4(3)(g) is not applicable here because the industrial operations do not extend beyond contiguous property.

32. Subsection 4(5) gives the Commission the discretion to approve an industrial system designation application if subsections 4(3) and 4(4) have been substantially met and there is a significant and sustained increase in efficiency in a process of the industrial operation or in the production and consumption of electric energy by the industrial operation as a result of the integration of the electric system with the industrial operations the electric system forms part of and serves. As explained above, the Commission finds that Subsection 4(3) has been met with the exception of Subsection 4(3)(d), which it finds has been substantially met. It is also satisfied that the cogeneration of steam and power results in a significant and sustained increase in efficiency.

33. The Commission considers that a comprehensive participant involvement program was not required because approval of the application would not alter the operation of the Mill Complex or otherwise affect any other person’s rights. The letter of non-objection filed by the transmission and distribution facilities owner, ATCO Electric, is acknowledged.

34. The Commission has reviewed the AESO’s letter of support and is satisfied that permanent connection of the power plant will not result in adverse impacts to the AIES.

35. Having considered all of the principles and criteria set out in Section 4 of the Hydro and Electric Energy Act, the Commission finds that International Paper’s proposal substantially meets all the principles and criteria for an industrial system designation and also demonstrates significant and sustained increased efficiency.

6 Decision

36. Pursuant to Section 4 of the *Hydro and Electric Energy Act* and sections 2(1)(d) and 17 of the *Electric Utilities Act*, the Commission approves the application and grants to International Paper an industrial system designation as set out in Appendix 1 – Industrial System Designation Order 24979-D02-2020 – January 10, 2020 (Appendix 1 will be distributed separately).

37. Pursuant to Section 18 of the *Hydro and Electric Energy Act*, the Commission approves the permanent connection to connect International Paper’s 48-MW power plant to the AIES via ATCO’s Electric Ltd.’s Proctor & Gamble A808S Substation and grants International Paper the approval set out in Appendix 2 – Connection Order 24979-D03-2020 – January 10, 2020 (Appendix 2 will be distributed separately).


Alberta Utilities Commission

*(original signed by)*

Anne Michaud
Vice-Chair