



AUC

Alberta Utilities Commission

Cenovus FCCL Ltd.

**Construct and Operate a 95-MW Cogeneration Power Plant,
Construct and Operate Sunday Creek 539S Substation,
Industrial System Designation and
Interconnection of the Christina Lake Industrial System
Designation**

July 23, 2012

The Alberta Utilities Commission

Decision 2012-196: Cenovus FCCL Ltd.

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Construct and Operate Sunday Creek 539S Substation,
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Applications No. 1608370, No. 1608371, No. 1608372 and No. 1608373
Proceeding ID No. 1854

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1 Introduction and background

1. Cenovus FCCL Ltd. (Cenovus) operates the Christina Lake Thermal Project (CLTP), a multi-phase commercial scheme for the recovery of crude oil using thermal in-situ technology, located approximately 20 kilometres southeast of Conklin, Alberta near Christina Lake in the Athabasca oilsands area. As a part of its phased development, Cenovus is proposing to construct and operate a power generation facility and associated substation to serve the CLTP loads.

2. Pursuant to Section 11 of the *Hydro and Electric Energy Act*, Cenovus filed Application No. 1608370 with the Alberta Utilities Commission (AUC or the Commission) on April 24, 2012, requesting approval to construct and operate a 95-megawatt (MW) cogeneration power plant within its CLTP oil sands lease.

3. Pursuant to sections 14 and 15 of the *Hydro and Electric Energy Act*, Cenovus filed Application No. 1608371 with the AUC on April 24, 2012, requesting approval to construct and operate Sunday Creek 539S substation (substation) and the associated 25-kilovolt (kV) facilities within the CLTP oil sands lease area.

4. Pursuant to Section 4 of the *Hydro and Electric Energy Act*, Cenovus filed Application No. 1608372 with the AUC on April 24, 2012, requesting approval of an industrial system designation (ISD) for the power plant, substation and associated 25-kV facilities required to serve the CLTP. Pursuant to Section 117 of the *Electric Utilities Act*, Cenovus also requested an exemption of the CLTP industrial system from the definition of an electric utility, and an exemption of the electric energy produced and consumed by the CLTP industrial system from all the provisions of the *Electric Utilities Act* and the regulations.

5. Pursuant to Section 18 of the *Hydro and Electric Energy Act*, Cenovus filed Application No. 1608373 with the AUC on April 24, 2012, requesting approval to interconnect the CLTP industrial system to the Alberta Interconnected Electric System via Sunday Creek 539S substation.

6. The Commission combined all four applications (the applications) in Proceeding ID No. 1854 to consider them jointly (the proposed project).

7. The Commission issued information requests to Cenovus on June 14, 2012 and July 16, 2012. Cenovus responded to the information requests on June 26, 2012 and July 18, 2012, respectively.

8. The Commission issued a notice of applications on June 27, 2012, to all stakeholders, agencies, companies and First Nations groups within 2,000 metres of the proposed project.
9. No objections to any of the applications were received by the July 11, 2012, deadline for intervenor submissions.

2 Discussion

2.1 Application No. 1608370 – power plant application

10. The power plant will be located in LSD 5 of Section 16, Township 76, Range 6, west of the Fourth Meridian, within the existing CLTP plant site development area.
11. Cenovus submitted that the power plant will consist of two General Electric LM6000PH 47.5-MW gas turbine generators, two heat recovery steam generators and 25-kV switchgear. The power plant will serve the CLTP industrial operations.
12. Cenovus stated that there are no residents or privately owned lands within a 2,000 metre radius of the power plant. Stakeholders notified about the proposed power plant included occupants, trappers, disposition holders, agencies, companies and First Nations groups. No concerns relating to the proposed power plant were received.
13. Cenovus stated that the power plant nitrogen oxide emissions will comply with current *Alberta Source Emission Standards* and the ground level concentration of pollutants will comply with the *Alberta Ambient Air Quality Guidelines*.
14. Following submission of an application and environmental impact assessment, the CLTP received a scheme approval for their site from the Energy Resources Conservation Board (ERCB) in 2011 (approved CLTP). Cenovus submitted that in December 2011, it made an application to amend the Alberta Environment and Water approval for the CLTP to capture the change in project scope to include the construction and operation of the proposed power plant and associated substation (revised CLTP). An environmental impacts review was conducted comparing the impacts due to the revised CLTP, including the power plant, with those from the original approved CLTP. The result was that incremental impacts due to the revised CLTP were predicted to be minimal and would still be within regulatory standards.
15. Cenovus stated that a historical resources impact assessment was completed in 2007 and *Historical Resources Act* clearance had been granted for the proposed site by Alberta Culture and Community Spirit.
16. A noise impact assessment was completed for the revised CLTP scope that included the proposed power plant. Results indicated that the revised CLTP will comply with AUC Rule 012: *Noise Control* (AUC Rule 012) requirements.
17. Cenovus stated that the in-service date for the power plant is scheduled to be on or before December 31, 2016.

2.2 Application No. 1608371 – substation application

18. Cenovus submitted that the proposed Sunday Creek 539S substation would provide additional capacity to serve the increased load associated with the CLTP expansion that would not be served by FortisAlberta Inc. (Fortis) from the existing AltaLink Management Ltd. (AltaLink) Christina Lake 723S substation. The proposed power plant will be connected to the substation via 25-kV facilities.

19. The 25/240/25-kV Sunday Creek 539S substation will be located entirely within the CLTP oil sands lease in LSD 7 of Section 16, Township 76, Range 6, west of the Fourth Meridian.

20. The major equipment proposed to be installed at the substation includes:

- two 50/66-megavolt-ampere (MVA) 25/240-kV transformers
- two 30/40/50-MVA 240/25-kV transformers
- eight 240-kV breakers
- 25-kV facilities, including switchgear, distribution lines and distribution feeders

21. Cenovus stated that there are no residents or privately owned lands within an 800-metre radius of the substation. Stakeholders notified about the proposed substation included occupants, trappers, disposition holders, agencies, companies and First Nations groups. No concerns relating to the proposed substation were received.

22. The proposed substation would be located in an area of industrial oil and gas activity, in close proximity to the proposed power plant. The environmental impacts of the substation were considered as a part of the application for the revised CLTP submitted to Alberta Environment and Water in December 2011. An environmental impact review was conducted comparing the impacts of the revised CLTP, including the substation, with the impacts of the approved CLTP. The result was that incremental impacts due to the revised CLTP were predicted to be minimal and would still be within regulatory standards.

23. Cenovus stated that a historical resources impact assessment was completed in 2007 and *Historical Resources Act* clearance had been granted for the proposed site by Alberta Culture and Community Spirit.

24. A noise impact assessment was completed for the revised CLTP scope that included the proposed substation. Results indicated that the revised CLTP will comply with AUC Rule 012 requirements.

25. Cenovus stated that subject to regulatory approvals and funding approvals, the planned construction start date of the substation is in the fourth quarter of 2012 with an in-service date of January 2013.

2.3 Application No. 1608372 – industrial system designation

26. Cenovus stated in its application that supply of electricity is an integral component of the CLTP development. Cenovus requested an order for an ISD to enhance the fiscal and environmental efficiency of the development while improving the security of electricity supply. The electricity demand within the industrial system will be serviced from the Alberta Interconnected Electrical System via the proposed Sunday Creek 539S substation until the proposed power plant is commissioned.

27. The CLTP industrial system will include the proposed 95-MW cogeneration power plant, proposed Sunday Creek 539S substation and associated 25-kV distribution facilities. Cenovus stated that the industrial system would also include the Fortis-owned 25-kV distribution systems connected to Sunday Creek 539S substation. Fortis' 25-kV system will serve facilities owned by Cenovus and a third party providing service to the CLTP industrial process. Fortis' facilities are located entirely within the CLTP oil sands lease boundary and will operate under an AUC approved special facilities agreement and tariff.¹

28. Cenovus stated that electric power for the existing facilities in CLTP is currently provided from Fortis' distribution feeders sourced from AltaLink's Christina Lake 723S substation.

29. Cenovus stated that Fortis has provided the CLTP with approval pursuant to Section 101(1) of the *Electric Utilities Act* to enter into an arrangement directly with the Alberta Electric System Operator (AESO) respecting the provision of system access service for the Sunday Creek 539S substation. Fortis and Cenovus have agreed on a three phase transitional plan to manage the distribution of electricity to the CLTP industrial system during the period when the proposed substation and power plant are being constructed and commissioned. The plan is to incorporate the use of Fortis Rate 63 Electric Services Agreements (Rate 63) along with the Fortis Special Facilities Charge Rider E (Rider E tariff).

30. During the first phase, the CLTP industrial system will continue to purchase power from the wholesale power market and receive it by way of Christina Lake 723S substation. Fortis will install temporary primary meters on each of the four distribution feeders used to serve the CLTP industrial system loads and charge for distribution service under its Rider E tariff.

31. The second phase would commence once Sunday Creek 539S substation is commissioned (currently scheduled for 2013). Two of the four Christina Lake 723S substation distribution feeders will be disconnected and reconnected to Sunday Creek 539S substation. The CLTP industrial system will contract with the AESO for demand transmission service at the Sunday Creek 539S substation with Rate 63 and the Rider E tariff will continue to apply to the two remaining distribution feeders connected to Christina Lake 723S substation.

32. The final phase would commence once the proposed power plant is commissioned (currently scheduled for 2016) and would be the final system configuration. The two residual distribution feeders at Christina Lake 723S substation would be disconnected and the primary meters would be salvaged. The distribution system within the CLTP industrial system would be reconfigured through the construction of new distribution feeders that would connect the power

¹ Decision 2011-176: FortisAlberta Inc. Application for Special Facilities Charge, Application No. 1606706, Proceeding ID No. 909, May 2, 2011.

plant to production processing plants. The remaining Rate 63 agreement would terminate but the Rider E agreement and demand transmission service contract with the AESO would remain in place.

33. Cenovus submitted that when operational, the proposed power plant would provide electric power to the existing CLTP operation as well as the proposed new facilities within the CLTP. Power in excess of Cenovus' need would be exported to the Alberta Interconnected Electrical System. CLTP loads connected to the Christina Lake 723S substation via Fortis 25-kV system would be gradually transferred to the proposed substation. Some of the CLTP operations would be fed directly from the proposed power plant and others via 25-kV distribution feeders from the proposed substation. These 25-kV distribution feeders would also provide service to a shipping terminal located on the CLTP oil sands lease, owned and operated by Enbridge Pipelines Inc.

34. Cenovus stated that it had worked with the AESO, AltaLink and Fortis to ensure no duplication of Alberta Interconnected Electrical System facilities. Cenovus had provided Fortis with the required five-year termination notice for its load commitments at the Christina Lake 723S point of delivery substation. Additionally, Cenovus filed a letter from Fortis stating that the Christina Lake 723S substation will continue to serve growing customer demands forecasted in the area

35. Cenovus submitted that the implementation of on-site cogeneration provides a more economic source of electricity and steam for the CLTP with the potential for additional reliability and environmental benefits than the alternative of generating steam independently and importing electricity from the Alberta Interconnected Electrical System. To support this, Cenovus submitted an economic comparison to illustrate the advantage of on-site generation versus importing electricity and generating steam independently.

2.4 Application No. 1608373 – ISD Interconnection

36. Cenovus proposes to connect the CLTP electric facilities to the Alberta Interconnected Electrical System at the proposed Sunday Creek 539S substation. The connection will be made with AltaLink's new 240-kV transmission line, designated as 1118L, coming from Black Spruce 154S substation.

37. At this time, AltaLink has not filed the facility application for 240-kV transmission line 1118L.

2.5 Findings

38. The Commission considered the ISD application pursuant to the principles and criteria set out in Section 4 of the *Hydro and Electric Energy Act*. Section 4(2) sets out the principles the Commission shall have regard to when considering an ISD application and Section 4(3) sets out the criteria that must be met prior to the Commission making a designation. These principles and criteria, as well as the Commission's findings regarding the ISD, are addressed below.

Principle 4(2)(a) – most economic source of generation

39. This principle requires applicants to demonstrate that the internal supply through on-site generation is the most economic source of power for the industrial complex. To this end, Cenovus performed an economic comparison for the two following scenarios:

- No on-site generation – The CLTP’s electrical requirements would be met from the Alberta wholesale electricity market and all of the steam requirements would be met through three additional steam generators.
- On-site cogeneration – The CLTP’s electrical and steam requirements would be met from the 95-MW cogeneration power plant. This scenario includes the cost of required incremental electrical infrastructure and the incremental cost associated with displacing three steam generators with the cogeneration facility.

40. The Commission accepts the results of the economic comparison showing that the on-site cogeneration scenario will yield annual savings of approximately \$20 to \$30 million per year. As a result, the Commission finds that the proposed ISD, with the cogeneration power plant, satisfies the principle of the most economic source of generation.

Principle 4(2)(b) – efficient exchange, with the interconnected electric system, of electric energy that is in excess of the industrial system’s own requirements, improved voltage stability, reduction of losses and congestion of transmission lines

41. This principle requires applicants to demonstrate that the designation supports the development of the economical supply of generation to meet the requirements of integrated industrial processes, the efficient exchange with the interconnected electric system of electric energy that is in excess of the industrial system’s own requirements, and 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.

42. The CLTP industrial system would be comprised of a 95-MW cogeneration power plant to provide power and steam for CLTP industrial operations. Initially, before the generation is commissioned, the on-site annual average demand would be approximately 59-MW. When the CLTP is fully developed, the on-site annual average demand would be approximately 92-MW. The power generated in excess of the on-site demand would be exported to the Alberta Interconnected Electrical System. Therefore, the Commission finds that the proposed ISD would support the continued exchange with the interconnected electric system of electric energy that is in excess of the industrial system’s own requirements.

43. The connection study performed by the AESO confirmed that the CLTP development would not violate any of the AESO’s reliability criteria and rules. The Commission accepts Cenovus’ statements that the CLTP ISD would improve the efficiency of the Alberta Interconnected Electrical System by creating a new Alberta Interconnected Electrical System point of supply and by removing base load from the system and that the CLTP cogeneration units would meet or exceed the voltage support and stability requirements.

44. Therefore, the Commission finds that the proposed ISD meets the principles in subsection 4(2)(b) of the *Hydro and Electric Energy Act*.

Principle 4(2)(c) and (d) – cost avoidance, uneconomic bypass and duplication

45. This principle requires applicants to demonstrate that the designation does not facilitate the development of independent electric systems that attempt to avoid costs associated with the interconnected electric system and uneconomical bypass of the interconnected electric system.

46. The CLTP electric system will be connected to the Alberta Interconnected Electrical System at the proposed Sunday Creek 539S substation. This connection will allow Cenovus to export surplus electric energy to the Alberta Power Pool as well as to import electric energy from the Alberta Power Pool during planned and unplanned outages of the power plant. Therefore, Cenovus will be paying tariffs for the supply of electric energy to the Alberta Power Pool and for receiving stand-by energy from the Alberta Power Pool. Also, Fortis' 25-kV distribution facilities located within the CLTP will be operated under the AUC approved special facilities agreement and tariff. Therefore, the Commission is satisfied that there will be no avoidance of costs associated with the interconnected electric system.

47. Cenovus has stated that after the power plant is commissioned, all of the CLTP site loads will be shifted from Christina Lake 723S substation to Sunday Creek 539S substation. Hence, the capacity in Christina Lake 723S substation will be released and available to supply the forecasted load increases.

48. Therefore, the Commission finds that the proposed ISD meets the principles in Section 4(2)(c) and (d) of the *Hydro and Electric Energy Act*.

Criterion 4(3)(a)

49. This criterion requires applicants to demonstrate that the electric system includes a generating unit located on the property of the one or more industrial operations it is intended to serve, that 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 a high degree of integration of the components of the industrial operations.

50. In this case, the CLTP will be equipped with one 95-MW cogeneration power plant, which will provide power and steam for the industrial operations. The CLTP, owned by Cenovus, is a commercial scheme for the recovery of crude oil, using thermal in-situ steam assisted gravity drainage technology. Steam from the power plant will be injected into wells to warm up the bitumen and allow it to flow out of the formation along, with gas and any water from the condensation of injected steam. At the central plant facilities, water and gas are separated from the bitumen. The gas produced is then processed and then used as a fuel for the power plant. The water produced will be treated and used for steam generation. The power plant and Sunday Creek 539S substation will provide power to all existing and new CLTP field and plant sites through the 25-kV distribution lines included in the CLTP electric system. Cenovus submitted that the proposed power plant will not be in service until 2016.

51. Based on the above information, the Commission considers that Criterion 4(3)(a) is met, as there is internal generation and a high degree of integration of the components of the industrial operations.

Criterion 4(3)(b)

52. This criterion states that the industrial operations process a feedstock, produce a primary product or manufacture a product.

53. In this case, the steam assisted gravity drainage process used by CLTP yields diluted bitumen, which is shipped via commercial pipelines to market. Based on this process, the Commission finds that Criterion 4(3)(b) is met.

Criterion 4(3)(c)

54. This criterion states that there is a common ownership of all the components of the industrial operations.

55. In this case, all equipment and facilities are owned by Cenovus, except the 25-kV distribution feeders owned and operated by Fortis under the special facilities agreement and tariff. Therefore the Commission considers that Criterion 4(3)(c) is met.

Criterion 4(3)(d)

56. This criterion states 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.

57. In this case, the whole of the output of each component within the industrial operation of obtaining reservoir fluid from production wells is used by the operation and is necessary to constitute the final diluted bitumen product. Therefore, the Commission finds that Criterion 4(3)(d) is met.

Criterion 4(3)(e)

58. This criterion states that there is a high degree of integration of management of the components and processes of the industrial operations.

59. In this case, the CLTP is owned by Cenovus and it has one management organization responsible for conducting operations for the entire CLTP. Therefore, the Commission finds that Criterion 4(3)(e) is met.

Criterion 4(3)(f)

60. This criterion states that an application to the Commission for a designation demonstrates significant investment in both the expansion and extension of the industrial operations processes and development of the electricity supply.

61. In this case, the incremental investment for the new electrical facilities, including the power plant and substation, is approximately \$100 million. Therefore, the Commission finds that Criterion 4(3)(f) is met.

Criterion 4(3)(g)

62. This criterion applies where an industrial operation extends beyond contiguous property. It states that the owner of the industrial operation must satisfy 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.

63. In this case, the proposed project is wholly located within the oil sands lease boundaries for the CLTP operations or on overlapping contiguous CLTP dispositions. The dispositions that overlap with the oil sands lease are for the CLTP camp facilities and the CLTP drilling and completion lay down and assembly area. The CLTP will not be providing distribution facilities to serve these loads which will be served from the existing Fortis distribution system under an approved AUC tariff. Therefore, the Commission finds that Criterion 4(3)(g) is met.

64. With regard to the interconnection application, the Commission considered that a facility application for AltaLink's Black Spruce 154S substation and transmission line 1118L has not yet been filed with the AUC and therefore, a connection order of the CLTP to the Alberta Interconnected Electrical System at this time cannot be granted.

65. The Commission has reviewed the applications for the power plant, substation and ISD filed by Cenovus. The Commission finds that these applications meet the requirements in AUC Rule 007: *Rules Respecting Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations*.

66. The Commission accepts that the additional potential environmental impacts of the new power plant and substation will be minimal based on the evidence provided, as the footprint for the CLTP plant site (including the proposed power plant and substation) has not changed since the approved 2011 environmental impact assessment. The power plant will be situated within the existing CLTP plant site development area and the substation site was selected based on the approved area that is close to the proposed power plant. Environmental effects for the substation were considered as part of the revised CLTP submitted to the ERCB and Alberta Environment and Water in December 2011 and the Commission accepts Cenovus' statement that the potential effects of the revised CLTP, including power plant and substation, are the same or less than the impacts of the approved CLTP and the effects are within regulatory standards.

67. The Commission is satisfied that upon completion of the revised CLTP, including power plant and substation, the CLTP will meet the noise requirements as prescribed by AUC Rule 012.

68. The Commission accepts that a participant involvement program for each of the applications was conducted by Cenovus and that there are no outstanding concerns.

69. Having considered all of the evidence before it, the Commission finds the proposed project to be in the public interest having regard to its respective social, economic and environmental impacts. The Commission further finds that the facility applications comply with all requirements in sections 4, 11, 14 and 15 of the *Hydro and Electric Energy Act*.

70. For all of the above reasons, the Commission finds that Cenovus' applications for the power plant, Sunday Creek 539S substation and ISD for the electric system in CLTP should be approved. However, as the power plant will not be in service until 2016, the ISD order will not take effect until the power plant is commissioned.

71. As the approval of the interconnection application is dependent upon receipt and approval of the applications for AltaLink's transmission line 1118L and Black Spruce 154S substation, the Commission cannot consider the interconnection unless or until those additional applications are approved. Accordingly, Cenovus should reapply with its request to interconnect the ISD at that time.

3 Decision

72. Pursuant to Section 11 of the *Hydro and Electric Energy Act*, the Commission approves Application No. 1608370 and grants to Cenovus approval to construct and operate the power plant as set out in Appendix 1 – 95-MW Cogeneration Power Plant – Approval No. U2012-340 – July 23, 2012 (Appendix 1 will be distributed separately).

73. Pursuant to sections 14 and 15 of the *Hydro and Electric Energy Act*, the Commission approves Application No. 1608371 and grants to Cenovus approval to construct and operate the substation as set out in Appendix 2 – New Sunday Creek 539S Substation – Permit and Licence No. U2012-341– July 23, 2012 (Appendix 2 will be distributed separately).

74. Pursuant to Section 4 of the *Hydro and Electric Energy Act*, the Commission approves Application No. 1608372 and grants to Cenovus approval for the CLTP ISD as set out in Appendix 3 – Industrial System Designation – Order No. U2012-342– July 23, 2012 (Appendix 3 will be distributed separately).

Dated on July 23, 2012.

The Alberta Utilities Commission

(original signed by)

Neil Jamieson
Commission Member