



Connacher Oil and Gas Limited

Cogeneration Plant and Industrial System Designation
Great Divide and Algar Oil Sands Projects

March 2, 2010

ALBERTA UTILITIES COMMISSION

Decision 2010-094: Connacher Oil and Gas Limited
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Application No. 1605214
Proceeding ID. 263

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**CONNACHER OIL AND GAS LIMITED
COGENERATION PLANT AND
INDUSTRIAL SYSTEM DESIGNATION
GREAT DIVIDE AND ALGAR OIL SANDS PROJECTS**

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1 INTRODUCTION

1. Connacher Oil And Gas Limited (Connacher or the Applicant) filed an application with the Alberta Utilities Commission (AUC or the Commission) requesting approval to construct and operate a cogeneration plant and for an industrial system designation (ISD). The application was registered on June 25, 2009, as Application 1605214 (Application).

2. Connacher currently operates the Great Divide Oil Sands Project (Great Divide Project) located in northeastern Alberta, approximately 80 kilometres South of Fort McMurray. Connacher is developing the Algar Steam Assisted Gravity Drainage (SAGD) oil sands mining and extraction project (the Algar Project or Algar site) located East of, and adjacent to, its existing Great Divide Project.

3. Connacher is requesting AUC approval, pursuant to section 11 of the *Hydro and Electric Energy Act* to construct and operate a 15-MW natural gas fuelled cogeneration plant within the Algar Project. Connacher is also applying to the AUC pursuant to section 4 of the *Hydro and Electric Energy Act* for designation of the electrical system at the Algar and Great Divide projects as an industrial system.

4. The proposed cogeneration plant will consist of a single gas turbine, coupled with an electric generator and a heat recovery steam generator (HRSG). It will have a nominal output of 15 MW under ISO conditions and will supply the on-site load to the Algar Project, anticipated to be 8 MW, with the balance supplied to the existing Great Divide project. The gas turbine exhaust will run through the HRSG to create steam that will be used in the SAGD process.

5. The proposed cogeneration plant will be installed at the Algar Project site, specifically on LSD 15 of Section 18, Township 82, and Range 11, West of the 4th meridian. The Applicant expects the proposed plant to be operational by the end of September, 2010.

6. Connacher is also requesting a designation of its electrical generation and distribution systems serving the Algar and the Great Divide projects as an industrial system, pursuant to section 4 of the *Hydro and Electric Energy Act*. The Applicant has also requested that the Commission make rules exempting the electric energy produced from and consumed by the proposed industrial system from the *Electric Utilities Act* and its Regulations, pursuant to section 117 of the *Electric Utilities Act*. The proposed ISD boundary, which corresponds to the outline of Connacher's lease, encompasses the 58 sections of land shown on the attached map provided by Connacher and included as Figure 1 shown at the end of this decision.

7. Connacher further set out in the Application its public consultation program, noise and environmental impacts, a more detailed explanation of the electric system for which it is requesting the designation and the other approvals it has received for the proposed development. These topics are discussed below.

2 APPLICATION

2.1 Public Consultation Program

8. The Applicant notified all potentially directly and adversely affected persons within close physical proximity to the Algar Project and those that may have an interest in the scope or extent of the ISD. These included local municipalities, First Nations groups, a Metis group, other oil and gas companies, the Alberta Electric System Operator and ATCO Electric Ltd. (ATCO Electric). The Applicant indicated that no concerns were expressed by any of these parties.

9. The nearest residence to the proposed development is a trapper's cabin, which is used as a temporary residence and is located 5.4 kilometres West of the facility. There are no residences within 2,000 metres of the Algar Project. The nearest community is the Hamlet of Mariana Lake and is approximately 25 kilometres southwest of the proposed development.

2.2 Noise and Environmental Impacts

10. Connacher filed a Noise Impact Assessment (NIA) indicating that the maximum predicted sound levels at a distance of 1.5 kilometres was below the night-time Permissible Sound Level of 40 dBA Leq set out in Commission *Rule 012: Noise Control* (Rule 012).

11. Connacher provided details of atmospheric emissions (i.e. nitrogen oxides, sulphur dioxide, and particulate matter) from the power plant demonstrating compliance with the current *Alberta Source Emissions Standard*.

12. Connacher also provided results of dispersion modelling conducted for the proposed Algar Project, which included the proposed cogeneration plant, for normal and upset operating conditions. These results demonstrated that the ground level concentrations of pollutants would not exceed the levels specified in the *Alberta Ambient Air Quality Objectives and Guidelines*.

13. Connacher provided a summary of its site assessment indicating that no archaeological, historical or paleontological resources were found. Alberta Culture and Community Spirit did not require a Historic Resources Impact Assessment and granted *Historical Resources Act* clearance to Connacher.

2.3 Electric System to be designated

14. The existing Great Divide Project currently receives electric service from the local distribution company, ATCO Electric, at the 25 kilovolts (kV) voltage level. An internal distribution system, currently owned by ATCO Electric, feeds the processing plant facilities and the well sites that are dispersed throughout Connacher's lease.

15. The new Algar Project will house the proposed cogeneration plant, and will have a similar internal 25-kV network to feed the processing plant and well sites. Furthermore, a new 25-kV distribution line, of approximately 6 kilometres, would connect the Algar Project's

distribution network with the Great Divide Project's distribution network allowing electric energy generated by the cogeneration plant at the Algar site to supply loads to the Great Divide Project.

16. Connacher has provided a copy of a letter from ATCO Electric indicating that it has agreed to the formation of the ISD within its service area.

17. Connacher also indicates that ATCO Electric will construct, own and operate the 25-kV lines within the ISD area under a Facilities Charge agreement between ATCO Electric and Connacher. This is confirmed in ATCO Electric's letter where it states the following:

Once the ISD is approved by the AUC and invoked by Connacher, the commercial obligations at each electrical service on the Great Divide and Algar facility will be transferred to a Facilities Charge agreement between ATCO and Connacher. All future electrical services at each facility will also be serviced by ATCO Electric under the Facilities Charge Agreement.

18. In summary, the electric facilities that would be designated as an industrial system are as follows:

- the cogeneration plant owned by Connacher;
- the power plant substation (to step up the generator voltage to 25 kV) also owned by Connacher; and
- the 25-kV network (described above) to be constructed, owned and serviced by ATCO Electric under the Facilities Charge agreement between ATCO Electric and Connacher.

2.4 Other Approvals

19. Connacher received a development permit from the Regional Municipality of Wood Buffalo for the Algar Project, which includes the cogeneration facility.

20. Alberta Environment has advised that approval pursuant to the *Environmental Protection and Enhancement Act* for industrial releases is forthcoming.

21. The Commission reviewed the Application and requested additional information from Connacher on August 13 and November 10, 2009. After completing a review of all of the information provided by Connacher, the Commission deemed the Application complete and issued a Notice of Application on January 12, 2010.

22. The Notice of Application was mailed directly to all potentially affected parties as identified by the Applicant. The notice was also sent electronically to a list of other potential stakeholders. In addition, the notice was published in the Fort McMurray Today on January 14, 2010. The Commission received no objections, interventions, or statements of intent to participate in response to the Notice of Application.

3 COMMISSION FINDINGS

23. 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, are addressed below.

Principle 4(2)(a) - Most Economic Source of Generation

24. This principle requires proponents to demonstrate that the internal supply through on-site generation is the most economic source of power for the industrial complex. To this end, the Commission observes that Connacher provided a 25-year cash-flow comparison of the following two scenarios:

- A standalone SAGD facility purchasing power from the grid and purchasing natural gas for steam generation (non-cogeneration scenario); and
- A SAGD facility with an electrical load sized cogeneration component purchasing gas for both steam generation and electrical generation, expanded in year 4 to contemplate facility expansion where small amounts of surplus power are available for export onto the grid (cogeneration scenario).

25. Furthermore, the Commission notes that the 25-year cash-flow comparison of the two scenarios produced positive net present values under different discount rate assumptions and internal rate of return estimates between 19 percent and 22 percent, favouring the cogeneration scenario over the non-cogeneration scenario.

26. In addition, the Commission reviewed the economic comparison provided by Connacher, including all of the costs and benefits as well as assumptions identified.

27. As a result, the Commission finds that the proposed ISD, with the cogeneration option, satisfies the most economic source of generation principle.

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

28. This principle requires proponents 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.

29. In this case, the Commission notes that the Algar Project will be initially equipped with a cogeneration plant capable of producing 13 MW at the site¹ that will provide power and steam for the initial phases of development of the SAGD facilities. Also, in four years, during the final

¹ The cogeneration plant is rated at 15 MW under ISO conditions. The generating capacity at the site (13 MW) is less than under ISO conditions due to factors such as ambient temperature, elevation, etc.

phases of development of the SAGD facilities, a second similar generating unit will be added to the cogeneration plant, which will supply the entire electrical load of the SAGD facilities. There will be a small electric capacity surplus (3.2 MW) that will be sold to the Alberta Power Pool. Therefore, the Commission finds that the proposed ISD will support the continued exchange with the interconnected electric system of electric energy that is in excess of the industrial system's own requirements.

30. The Commission considered that the existing Great Divide Project, which does not have internal generation, is currently connected to, and supplied by, ATCO Electric's distribution network. Once the Algar Project is completed, and if the ISD designation is granted encompassing both the Algar and Great Divide projects, the industrial complex will continue to be connected to ATCO Electric's distribution network. The Commission is of the view that the addition of internal generation (at the Algar site) will improve operating efficiency, as it will provide additional voltage stability in the area.

31. The Commission accepts Connacher's submissions that the transmission losses associated with the exchange of electric energy that is in excess of the industrial system's own requirements are expected to be negligible given the small 3.2 MW surplus that the industrial complex will sell to the Alberta Power Pool. Without internal generation, the total load would have been supplied by the ATCO Electric network and this would have resulted in significantly larger line losses.

32. The Commission notes that there is no known transmission congestion attributed to the Algar Project's generation in the area.

33. Therefore, the Commission considers that the proposed ISD also 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

34. This principle requires proponents 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 by-pass of the interconnected electric system.

35. The Commission notes that the Great Divide and Algar projects will continue to be connected to the grid via ATCO's distribution system. This connection will allow Connacher to sell surplus electric energy to the Alberta Power Pool and to consume electric energy from the Alberta Power Pool during planned and unplanned outages of Connacher's cogeneration plant. Therefore, Connacher 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. Therefore, the Commission is satisfied that there will be no avoidance of costs associated with the interconnected electric system.

36. The Commission also notes that in this case ATCO Electric will construct, own and operate the 25-kV network within the ISD under a Facilities Charge agreement between ATCO Electric and Connacher. ATCO Electric has agreed to this arrangement. Therefore, there would be no duplication or by-pass of the interconnected electric system.

37. In summary, for the reason stated in paragraphs 35 and 36 above, the Commission considers that the proposed ISD also meets the principles set out in the section 4(2)(c) and (d) of the *Hydro and Electric Energy Act*.

Criterion 4(3)(a)

38. This criterion requires proponents 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.

39. In this case, the Commission considered that the Algar Project will be initially equipped with one cogeneration plant capable of producing 13 MW at the site, which will provide power and steam for the initial phases of development of the SAGD facilities. Connacher has requested approval, as part of this Application, for this first cogeneration plant at the Algar site. In four years, Connacher plans to add a second similar generating unit to the cogeneration plant.

40. The Commission notes that both the Great Divide and Algar projects, which are owned by Connacher, are industrial processes that produce bitumen by way of SAGD technology. They will be physically connected by pipelines that will transfer diluents and other liquids between the Algar and Great Divide projects' processing plants. In addition, the facility on the Algar site will also supply electric energy to the Great Divide Project facility via the 25-kV distribution network. Therefore, the Commission considers that criterion 4(3)(a) is met, as there is internal generation and there is a high degree of integration of the components of the industrial operations.

Criterion 4(3)(b)

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

42. The Commission considered that the SAGD process, used by the Algar and Great Divide facilities, involves drilling pairs of horizontal wells (a top and a bottom well) and injecting steam for several months until there is fluid connection between the two wells. Connacher explained that the process continues as steam is injected into the top horizontal well and reservoir fluids are extracted from the bottom horizontal well. The extracted fluids are then piped to a central processing facility where bitumen, steam condensate, other gases and water are separated and treated. The bitumen is then either shipped to an upgrader and ultimately sold as Premium Synthetic Crude or as bitumen. Based on this process, the Commission finds that criterion 4(3)(b) is met.

Criterion 4(3)(c)

43. This criterion states that there is a common ownership of all of the components of the industrial operations. In this case, the Commission notes that all equipment and facilities are owned by the Applicant and considers that criterion 4(3)(c) is met.

Criterion 4(3)(d)

44. 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. In this Application, the Commission considered that the whole of the output of each component within the industrial operation (reservoir fluid from production wells) is used by that operation (the processing plants) and is necessary to constitute its final products (bitumen). Therefore, the Commission finds that criterion 4(3)(d) has been met.

Criterion 4(3)(e)

45. This criterion states that there is a high degree of integration of the management of the components and processes of the industrial operations. In this case, the Commission notes that the Algar and Great Divide projects are owned by Connacher and will be managed as a single integrated operation. Therefore, the Commission considers that criterion 4(3)(e) has been met.

Criterion 4(3)(f)

46. 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 the development of the electricity supply. The Commission took note that the total facility investment is expected to be in excess of \$390 million, including new SAGD facilities, wells, electrical generation, and distribution facilities. Therefore, the Commission considers that criterion 4(3)(f) has been met.

Criterion 4(3)(g)

47. This criterion applies where an industrial operation extends beyond contiguous property. In this case, the Commission observes that the industrial operations will take place within the single contiguous area of crown land within the Applicant's lease boundary (as shown in Figure 1) and will not extend beyond contiguous property. Therefore, the Commission finds that criterion 4(3)(g) does not apply.

48. As a result of the above stated findings, the Commission is satisfied that all of the principles set out in section 4(2) and all of the applicable criteria set out in section 4(3) of the *Hydro and Electric Energy Act* have been met.

49. The Commission notes that ATCO Electric, the Distribution Facility Owner (DFO) in whose service area the proposed ISD is located, has agreed to the formation of the ISD within its service area.

50. With respect to the applied-for cogeneration facility, the Commission has reviewed the Application and has determined that it meets the requirements as stipulated in AUC Rule 007. The Commission notes that a noise impact assessment demonstrating compliance with the noise standards has been provided and the cogeneration plant will have minimal impact on the environment as it meets the source emission standards as well as the Alberta Ambient Air Quality Objectives and Guidelines. Additionally, all other necessary approvals have been obtained by Connacher.

51. Finally, the Commission notes that a participant involvement program has been conducted by the Applicant with respect to both the proposed cogeneration plant and the proposed ISD and that there are no outstanding public or industry objections or concerns.

52. For all of the foregoing reasons the Commission finds that Connacher's proposal should be approved.

4 DECISION

53. Pursuant to sections 4 and 11 of the Hydro and Electric Energy Act the Commission approves the Application subject to the terms and conditions as set out in Appendix 1 – Industrial System Designation Order U2010-106 – March 3, 2010 and Appendix 2 – Power Plant Approval U2010-107 – March 3, 2010 which are being released concurrently with this Decision. The Commission further grants the subject industrial system an exemption for the electric energy produced from, and consumed by, the industrial system from the operation of the *Electric Utilities Act*, in accordance with section 117 of the *Electric Utilities Act*.

Dated on March 2, 2010.

ALBERTA UTILITIES COMMISSION

(original signed by)

Carolyn Dahl Rees
Vice-Chair

(original signed by)

Anne Michaud
Commissioner

(original signed by)

Bill Lyttle
Commissioner

FIGURE 1

ISD BOUNDARY MAP PROVIDED BY CONNACHER

