



MEG Energy Corp.

Amend Christina Lake Industrial System Designation

December 15, 2011



The Alberta Utilities Commission
Decision 2011-496: MEG Energy Corp.
Amend Christina Lake Industrial System Designation
Application No. 1607774
Proceeding ID No. 1505

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1 Introduction

1. MEG Energy Corp. (MEG) filed Application No. 1607774 as an Industrial System Designation (ISD) application with the Alberta Utilities Commission (AUC or the Commission) on October 16, 2011. MEG requested that its current ISD Approval No. [U2007-289](#)¹ be amended to include the construction, operation of a second 85-megawatt (MW) gas-fired power plant and the construction and operation of additional 25-kilovolt (kV) distribution lines and the alteration of existing Conklin 762S substation.

2. The application was made pursuant to Section 4 of the *Hydro and Electric Energy Act*.

2 Discussion

3. MEG's existing industrial system encompasses all electric facilities within the Christina Lake Regional Project Central Plant site and is located in the north half of Section 9 and south half of Section 16, Township 77, Range 5, west of the Fourth Meridian. The Christina Lake Regional Project is a steam-assisted gravity drainage (SAGD project) bitumen recovery project located in the Conklin area south of Fort McMurray in north-eastern Alberta.

4. As listed in the application, MEG is seeking the following major developments to the industrial system:

- The addition of one 85-MW gas-fired power plant (the second power plant or Phase 2B plant). The second power plant was approved under Approval No. [U2009-192](#),² issued on May 21, 2009.
- The alteration of Conklin 762S substation as approved under Permit and Licence No. [U2010-413](#),³ issued on December 3, 2010. The substation alteration consists of the following additions:
 - one (1) 240/25-kV, 30/40/50 megavolt-ampere (MVA) transformer
 - three (3) 240-kV circuit breakers
 - five (5) 25-kV circuit breakers
- 25-kV distribution line extensions external to central plant facility area.

¹ Industrial System Designation Order No. U2007-289, Application No. 1514499, November 13, 2007.

² Power Plant Approval No. U2009-192, Application No. 1551656, May 21, 2009.

³ Substation Permit and Licence No. U2010-413, Application No. 1606756, Proceeding ID No. 937, December 3, 2010.

5. MEG submitted that the second 85-MW power plant was required to meet the future electric and thermal loads of the SAGD project, which will allow it to increase its bitumen production by 35,000 barrels per day (bpd), for a project total of 60,000 bpd. The increased bitumen production would increase the power consumption from 13 MW to 28.7 MW.
6. MEG submitted that work outside of the substation would involve construction and upgrades to the 25-kV feeders within the area of the Central Plant Facility, as well as 25-kV feeder extensions external to the area of the Central Plant Facility (i.e., well pads, source water well and drilling sites) as shown in Appendix C of the application.
7. MEG stated that the project would require approximately 28.7 MW of the electrical power generated on site to be used for its power load, with the balance being exchanged through the Alberta Power Pool. A total generation capacity is required to produce the thermal energy needed from the power plant operation for the on-site bitumen extraction.
8. MEG stated that the proposed additions would be equipped with islanding capabilities to minimize or eliminate the risk of plant shutdown and loss of production due to outages on the Alberta Interconnected Electric System-connected transmission system via radial transmission line 971L.
9. MEG declared that the electrical facilities within the existing and proposed ISD are essential for bitumen production and transportation and do not duplicate existing transmission or distribution facilities.
10. MEG performed its participant involvement program by notifying the Alberta Electric System Operator, AltaLink Management Ltd., Devon Canada, FortisAlberta Inc., Cenovus Energy and Rogers Communications. No questions or concerns regarding the application were received.
11. The Commission did not issue a notice of application for the ISD amendment because there are no residences and landowners within 800 metres of the substation. In addition, the second 85-MW gas-fired power plant and the substation alterations were previously approved by the Commission.

3 Findings

12. 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 deciding to grant an ISD and Section 4(3) sets out the criteria that the Commission should apply when deciding to grant an ISD.

3.1 Principle 4(2)(a) – Most economic source of generation

13. 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. In this case, MEG provided cost comparisons showing that the internal electric supply using a co-generation plant is a more economic source of generation due to the thermal integration of energy recovery for steam generation and process heat requirements.

14. Table E2 in Appendix E of the application provided the comparison between the cogeneration plant option versus the alternative of connecting to and purchasing power from the Alberta Power Pool. The cost comparisons, based on design production rates of 60,000 bpd, show savings of approximately \$4.90 per megawatt-hour (MWh) in favour of the cogeneration option.

15. The Commission, therefore, agrees that the proposed additions for the ISD, with the cogeneration option, satisfy the most economic source of generation principle.

3.2 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

16. 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.

17. In this case, the Commission recognizes that the proposed second 85-MW power plant will increase the total power generation on site of the SAGD project to 170 MW, while the power consumption to produce bitumen at 60,000 bpd will be approximately 28.7 MW. This means that there will be an average electric capacity surplus of 141.3 MW that will be sold to the Alberta Power Pool. Therefore, the Commission finds that the proposed ISD supports the continued exchange with the interconnected electric system of electric energy that is in excess of the industrial system's own requirements.

18. The Commission is satisfied that Conklin 762S substation provides an efficient and reliable exchange into the Alberta Interconnected Electric System through a single 240-kV radial transmission line 971L.

19. The Commission accepts MEG's submissions that the industrial system is currently connected to the Alberta Interconnected Electric System via a single 240-kV radial transmission line 971L, which is approximately 25 kilometres long from Conklin 762S substation to Christina Lake 723S substation. Therefore, due to the proximity to the bitumen production facilities, the provision of local generation at the industrial system, which is at the end of transmission line 971L, improves the operating efficiency of the Alberta Interconnected Electric System. The industrial system's excess generation will also act as a supply source to the adjacent oil sands projects, thus reducing system losses and providing voltage support to the area.

20. The Commission considers that the proposed additions for the ISD also meet the principles in subsection 4(2)(b) of the *Hydro and Electric Energy Act*.

3.3 Principle 4(2)(c) and (d) - Cost avoidance, uneconomic bypass and duplication

21. 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. In this case, MEG stated that it currently carries both demand transmission service (DTS) and supply transmission services (STS) contracts; therefore, it advocated that the approval of this ISD would not facilitate the development of independent electric systems that attempt to avoid costs associated with the interconnected system, and that the proposed additions would not facilitate uneconomic bypass of the interconnected system. MEG also submitted that the proposed additions would not duplicate the Alberta Interconnected Electric System.

22. The Commission, considers that the proposed additions for the ISD also meet the principles set out in the *Hydro and Electric Energy Act*, sections 4(2)(c) and (d).

3.4 Criterion 4(3)(a) – Generating unit(s)

23. 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 operation that the electric system forms part of and serves, and a high degree of component integration of the industrial operations.

24. MEG stated that the on-site electrical generation includes two gas turbine generators within the SAGD project site to serve the entire industrial system load that it is connected to. Each of the two gas turbine generator units has a nominal output of 85 MW.

25. MEG stated that waste heat from the gas turbines will be captured in the heat recovery steam generator to provide an efficient source of steam to meet the thermal energy requirements of the bitumen production facility and that all of these components are integrated and essential to the operation of the industrial complex.

26. The Commission considers that criterion 4(3)(a) has been met.

3.5 Criterion 4(3)(b) – Primary product

27. This criterion states that the industrial operations process a feedstock, produce a primary product or manufacture a product. In this case, the primary product is bitumen through a SAGD process.

28. The Commission, therefore, considers that criterion 4(3)(b) has been substantially met.

3.6 Criterion 4(3)(c) – Ownership

29. This criterion states that there is a common ownership of all of the components of the industrial operations. In this case, the components within the SAGD project site are wholly-owned by MEG. There are key services providers within the ISD where MEG has no ownership are the cellular communication system (100% owned by Rogers Communications) and the gas metering station (100% owned by TransCanada Corporation).

30. The Commission therefore considers that criterion 4(3)(c) has been substantially met.

3.7 Criterion 4(3)(d) – Output

31. 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 case, the whole of the output of each component within the industrial operation is used by MEG and is necessary to constitute its final products. The distribution of electric energy produced by the power plant and the industrial process are described and illustrated in Appendix E of the application.

32. The increased bitumen production from 25,000 bpd to 60,000 bpd would increase its thermal and electric power consumption due to the operation of Phase 2B Well Pads and other additional loads associated with Phase 2B Well Pads.

33. The Commission considers that criterion 4(3)(d) has been substantially met.

3.8 Criterion 4(3)(e) – Management

34. 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 additional components and processes of the industrial operations are wholly under the direction of MEG.

35. The Commission considers that criterion 4(3)(e) has been substantially met.

3.9 Criterion 4(3)(f) – Investment

36. This criterion states that the ISD application to the Commission for a designation demonstrates significant investment in the expansion or extension of the industrial operations processes and the development of the electricity supply. In this case, MEG stated that the total facility investment is approximately \$1.4 billion, which it is expected to be typical for a SAGD bitumen production facility as it is a very significant capital investment.

37. The Commission considers that criterion 4(3)(f) has been substantially met.

3.10 Criterion 4(3)(g) – Beyond contiguous property

38. This criterion applies where an industrial operation extends beyond contiguous property. In this case, MEG stated that both the existing ISD and the proposed additions are on a single contiguous area of Crown land.

39. MEG submitted that the cost to provide distribution facilities to interconnect the SAGD project site and cogeneration facilities is equal to or less than the costs associated with providing separate electrical services for each of the industrial operations.

40. MEG submitted that the MEG House (operators' quarters) is located outside of the contiguous area of Crown land. However, the MEG House is located on MEG's private property which is located immediately adjacent to such areas of Crown land. MEG holds the necessary surface rights to own and operate the electric supply to the MEG House.

41. The Commission finds that criterion 4(3)(g) has also been met.

42. In addition, Section 4(5) of the *Hydro and Electric Energy Act* states:
- (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.
43. The Commission considers that the cogeneration efficiency figures presented by MEG in Table E1 and Table E2, Appendix E of the application are consistent with the industry standard for cogeneration plants. Therefore, the Commission agrees that there is significant and sustained increased efficiency in this case.
44. The Commission recognizes that a participant involvement program was conducted by MEG with respect to the application, and that there are no outstanding objections or concerns. The Commission finds that the PIP meets the requirements of AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations*.
45. Based on the fact that the two main additions to the industrial system (the second power plant and the alteration of the substation) have previously been approved by the AUC and that there are no residences within 800 metres of the substation, a notice of application was not issued and, therefore, a hearing was not required as the Commission considered that its decision or order would not directly and adversely affect the rights of a person pursuant to Section 9 of the *Alberta Utilities Commission Act*.
46. Having considered all of the principles and criteria set out in Section 4 of the *Hydro and Electric Energy Act*, the Commission finds that MEG's proposal substantially meets all the principles and criteria for designation and also demonstrates significant and sustained increased efficiency.
47. The Commission recognizes that MEG will apply for a connection proposal under a separate application.
48. 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

49. Pursuant to Section 4 of the *Hydro and Electric Energy Act*, the Commission approves the Application for amending MEG's ISD and grants to MEG Energy Corp. a revised industrial system designation as set out in Appendix 1 – Industrial System Designation Order No. U2011-464 – December 15, 2011 (Appendix 1 will be distributed separately).

50. MEG Energy Corp. shall file an application with the AUC for an order to connect its ISD to the Alberta Interconnected Electric System.

Dated on December 15, 2011.

The Alberta Utilities Commission

(original signed by)

Neil Jamieson
Commission Member