



## **Pengrowth Energy Corporation**

### **Lindberg SAGD Industrial System Designation**

**August 20, 2013**

**The Alberta Utilities Commission**

Decision 2013-308: Pengrowth Energy Corporation  
Lindberg SAGD Industrial System Designation  
Application No. 1609200  
Proceeding ID No. 2366

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## 1 Introduction and background

1. Pengrowth Energy Corporation (Pengrowth) will operate bitumen extraction facilities at its future Lindberg steam-assisted gravity drainage (SAGD) industrial complex located approximately 18 kilometres north of Lindbergh. Pengrowth previously received approval, in Approval No. U2013-345,<sup>1</sup> to construct a new 15.92-megawatt (MW) cogeneration power plant (the power plant) at the Lindberg SAGD site. Pengrowth filed an application with the Alberta Utilities Commission (AUC or the Commission), registered on January 17, 2013, as Application No. 1609200, for approval of:

- an industrial system designation (ISD) encompassing all the proposed electric facilities at the Lindberg SAGD site pursuant to Section 4 of the *Hydro and Electric Energy Act*
- rules exempting the electric energy produced from and consumed by the industrial system from the operation of the *Electric Utilities Act*

2. The legal land descriptions of the Lindbergh SAGD project area are:

- sections 30 and 31, Township 58, Range 4, west of the Fourth Meridian
- sections 12, 13, E ½ 14, 23, 24, 25, E ½ 26 and 36, Township 58, Range 5, west of the Fourth Meridian

3. The industrial system would consist of the power plant and 25-kilovolt (kV) distribution lines to submersible production pumps, transfer pumps and other loads such as electric heat tracing within the project area.

4. The Commission issued information requests to Pengrowth on February 20, 2013, and March 27, 2013. Pengrowth responded to the information requests on March 4, 2013, and April 5, 2013 respectively.

5. The Commission issued a notice of application for the industrial system application on March 28, 2013. The notice was mailed directly to those parties identified by Pengrowth as parties who may be affected by or have an interest in the application. The Commission's notice specified April 22, 2013, as the deadline for submissions.

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<sup>1</sup> Power Plant Approval No. U2013-345, Pengrowth Energy Corporation, 15.92-MW Cogeneration Power Plant, July 25, 2013

## 2 Discussion

6. The Commission has reviewed the application, and accepts that Pengrowth's participant involvement program is satisfactory and there are no outstanding public or industry objections or concerns with respect to its ISD application.

7. The requirements to designate an electric system as an industrial system are outlined in Section 4 of the *Hydro and Electric Energy Act*. Specifically, Section 4(2) sets out the principles that the Commission must consider and Section 4(3) sets out the criteria for evaluating an ISD application.

### **Principle 4(2)(a) – most economical source of generation**

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

- no on-site generation – Pengrowth's electrical requirements would be met from the Alberta wholesale electricity market and all of the steam requirements would be met through a conventional boiler
- on-site cogeneration – Pengrowth's electrical and steam requirements would be met from the 15.92-MW cogeneration power plant

9. The Commission accepts the results of the economic comparison showing that the on-site cogeneration scenario will yield annual savings of approximately \$1.4 million. Hence, the Commission finds that the proposed industrial system, with the cogeneration power plant, satisfies the principle of the most economical 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**

10. This principle requires applicants to demonstrate that the industrial system 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.

11. The Lindberg SAGD industrial system would be comprised of a 15.92-MW cogeneration power plant to provide power and steam for Lindberg SAGD industrial operations. The total field and central processing facility load for the Lindberg SAGD is estimated to be 15.3 MW. The proposed cogeneration plant thus provides sufficient capacity to match Lindberg SAGD's peak load requirement. Under some ambient or maintenance conditions, Pengrowth would purchase power from the Alberta Interconnected Electric System (AIES), while the power generated in excess of the on-site demand would be exported to the AIES. Therefore, the Commission finds that the proposed industrial system would support the continued exchange with the interconnected electric system of electric energy that is in excess of the industrial system's own requirements.

12. Without the cogeneration plant, the Lindberg SAGD project will add approximately 15.3 MW of load to the AIES coming from generating sources outside the Lindberg SAGD site with system losses incurred in the AIES. The Commission accepts Pengrowth's statements that the Lindberg SAGD ISD would improve the efficiency of the AIES by removing base load from the system and reducing transmission system losses.

13. 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**

14. This principle requires applicants to demonstrate that the industrial system 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.

15. The Lindberg SAGD is a greenfield development and there are no existing Alberta Interconnected Electric System facilities in the SAGD area. The ISD will not facilitate an uneconomical bypass of any existing Alberta Interconnected Electric System infrastructure.

16. The Lindberg SAGD industrial system will be connected to the AIES via a planned 25-kV distribution line from ATCO Electric's Lindberg substation. This connection will allow Pengrowth to export surplus electric energy to the Power Pool of Alberta as well as to import electric energy from the Power Pool of Alberta during planned and unplanned outages of the power plant. Pengrowth will be paying tariffs for the supply of electric energy to the Power Pool of Alberta and for receiving stand-by energy from the Power Pool of Alberta. Therefore, the Commission is satisfied that there will be no avoidance of costs associated with the interconnected electric system.

17. 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)**

18. 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.

19. In this case, the Lindberg SAGD ISD will be equipped with one 15.92-MW cogeneration power plant, which will provide power and steam for the industrial operations. The Lindberg SAGD project, owned by Pengrowth, is a commercial scheme for the extraction of bitumen from the oil sands reservoir, using an 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 processing facility, water and gas are separated from the bitumen. The gas produced is then processed and used as a fuel for the power plant. The water produced will be treated and used for steam generation.

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

**Criterion 4(3)(b)**

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

22. In this case, the steam-assisted gravity drainage process used by the Lindberg SAGD yields diluted bitumen, which is shipped to an upgrading facility and ultimately sold as premium synthetic crude or sold as bitumen to market. Based on this process, the Commission finds that Criterion 4(3)(b) is met.

**Criterion 4(3)(c)**

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

24. In this case, the Lindberg SAGD project is wholly owned by Pengrowth. There is no other ownership associated with the facilities. Therefore, the Commission considers that Criterion 4(3)(c) is met.

**Criterion 4(3)(d)**

25. 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.

26. 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)**

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

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

**Criterion 4(3)(f)**

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

30. In this case, the total investment for the Lindberg SAGD project is budget to be \$590 million. Therefore, the Commission finds that Criterion 4(3)(f) is met.

**Criterion 4(3)(g)**

31. 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.

32. In this case, the proposed project is wholly located within the oil sands lease boundaries for the Lindberg SAGD operations. Therefore, the Commission finds that Criterion 4(3)(g) is met.

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

34. Since no parties objected to the application and the project is necessary to provide electricity to Pengrowth's Lindberg SAGD project, the Commission considers the project to be in the public interest in accordance with Section 17 of the *Alberta Utilities Commission Act*.

35. It is noted that although Pengrowth has received approval to construct the 15.92-MW cogeneration power plant at the Lindberg SAGD site, it has not applied for a connection order pursuant to Section 18 of the *Hydro And Electric Energy Act* to connect and operate the power plant in synchronism with ATCO Electric's 25-kV distribution system as contemplated in this application. The Commission expects that Pengrowth will soon file the application for the connection order in accordance with the requirements stipulated in AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations*.

### 3            **Decision**

36.       Pursuant to Section 4 of the *Hydro and Electric Energy Act* and sections 2(1)(d) and 117 of the *Electric Utilities Act*, the Commission approves the application and grants to Pengrowth an industrial system designation as set out in Appendix 1– Industrial System Designation – Order No. U2013-366 – August 20, 2013 (Appendix 1 will be distributed separately).

Dated on August 20, 2013.

#### **The Alberta Utilities Commission**

*(original signed by)*

Tudor Beattie, QC  
Commission Member