



FortisAlberta Inc.

Micro-Generation Determination

May 18, 2010



ALBERTA UTILITIES COMMISSION

Decision 2010-215: FortisAlberta Inc.

Micro-Generation Determination

Application No. 1605864

Proceeding ID. 470

May 18, 2010

Published by

Alberta Utilities Commission
Fifth Avenue Place, 4th Floor, 425 - 1 Street SW
Calgary, Alberta
T2P 3L8

Telephone: (403) 592-8845

Fax: (403) 592-4406

Web site: www.auc.ab.ca

Contents

1	INTRODUCTION AND BACKGROUND.....	1
2	THE REGULATION AND ITS CONDITIONS FOR A “MICRO-GENERATION GENERATING UNIT”	2
3	COMMISSION FINDINGS.....	3
3.1	Renewable or Alternative Energy	3
3.2	Customer’s Electricity Needs and Nominal Capacity.....	5
3.3	Location of Generating Unit	5
4	DECISION.....	6

1 INTRODUCTION AND BACKGROUND

1. In order to encourage the generation of environmentally friendly electricity, the province of Alberta enacted the *Micro-Generation Regulation* (Regulation).¹ The Regulation sets out the rules for electricity customers who generate their own environmentally friendly electricity and who wish to send some of the generated power back to the electricity grid through a micro-generation generating unit and receive credit from any power they do not use.² There are certain conditions in the Regulation that must be met in order to be classified as a micro-generation generating unit.

2. On December 2, 2009, Canada Control Works Inc. (CCW), on behalf of Arc Resources Ltd. (Arc Resources), submitted a micro-generation application to Fortis Alberta Inc. (Fortis). CCW has developed the Enersaver Pump Jack Controller for use in the pump jacks of Arc Resources' oilfield operations. The Enersaver Pump Jack Controller (Controller) customizes a traditional pump jack to harness the force of gravity and regenerate electricity using a 25 kW generation unit (Generating Unit).³ In its application to Fortis, CCW sought to qualify its Generating Unit, comprised of the Controller and the 25 kW generation unit, as a micro-generation generating unit.

3. When a pump jack extracts oil out of the ground, the pump jack also lifts the "down hole portion of the pump and any forward imbalance in the pump jack main spar",⁴ which "creates potential energy, which converts to kinetic energy as the pump jack falls".⁵ The Generating Unit converts this kinetic energy into electricity using a built-in variable frequency drive technology. Hence, the Controller directs electricity from the grid during the upstroke of the pump jack and then sends electricity back to the grid during the down-stroke.

4. On January 26, 2010, Fortis submitted a Notice of Dispute stating that it was unclear whether the Generating Unit met the definition of "renewable or alternative energy" pursuant to section 1(1)(1) of the Regulation and whether it therefore qualified as a "micro-generation generating unit". Fortis requested that the Commission make a final determination with respect to the qualification of the Generating Unit as a "micro-generation generating unit" pursuant to subsection 2(2) of the *Micro-Generation Regulation*.

5. The basic question in this proceeding is whether kinetic energy incidentally generated during the normal course of operating a device, which is then transformed into electrical energy, can be considered "renewable or alternative energy" as defined in the Regulation. A positive

¹ Alberta Regulation 27/2008.

² Government of Alberta, "Talk About Micro-Generation", online: <http://www.energy.alberta.ca/Electricity/pdfs/FactSheet_Micro_Generation.pdf>.

³ Page 2. CCW Submission dated February 12, 2010.

⁴ Ibid.

⁵ Ibid.

answer, in addition to satisfying the other conditions in the Regulation, qualifies the proposed Generating Unit as a “micro-generation generating unit” as defined in the Regulation.

6. On February 2, 2010 the Commission issued a Notice of Application requesting Statements of Intent to Participate (SIPs) from interested parties and any additional information in support of its position by February 12, 2010. The Commission received SIPs from the following parties:

- ATCO Electric Ltd.; and
- Canada Control Works Inc.

7. In its SIP, ATCO Electric Ltd. indicated that it is engaged in regulated electric transmission and distribution businesses and will be impacted directly by the issues raised by this proceeding.

8. CCW submitted a SIP and evidence to support its position that the Generating Unit utilizes “renewable or alternative energy” and should qualify as a “micro-generation generating unit”.

9. The Commission issued two rounds of Information Requests (IRs), dated March 12, 2010 and April 9, 2010 respectively, to CCW.

10. In reaching its determinations set out within this Decision, the Commission has considered all relevant materials comprising the record of this proceeding, including the submissions provided by each party. Accordingly, references in this Decision to specific parts of the record are intended to assist the reader in understanding the Commission’s reasoning relating to a particular matter and should not be taken as an indication that the Commission did not consider all relevant portions of the record with respect to that matter.

2 THE REGULATION AND ITS CONDITIONS FOR A “MICRO-GENERATION GENERATING UNIT”

11. The question of whether kinetic energy qualifies as “renewable or alternative energy” is novel. Indeed, the Alberta Department of Energy in its August 9, 2009 bulletin “Talk About Micro-Generation”⁶ only listed “solar panels, small-scale hydro, wind, biomass, micro-cogeneration and fuel cells” as examples of “renewable or alternative energy”.

12. To qualify as a “micro-generation generating unit”, a customer must satisfy all five conditions in section 1(1)(h) of the Regulation. Section 1(1)(h)(i)-(v) defines a “micro-generation generating unit” to be one that:

- (i) exclusively uses sources of renewable or alternative energy,
- (ii) is intended to meet all or a portion of the customer’s electricity needs,
- (iii) is, at the time of construction or installation of the generating unit, sized to the customer’s load or anticipated load or a portion of it, as evidenced

⁶ Government of Alberta, “Talk About Micro-Generation”, online: http://www.energy.alberta.ca/Electricity/pdfs/FactSheet_Micro_Generation.pdf.

- by a total nominal capacity of the generating unit that does not exceed the rating of the customer's service,
- (iv) has a total nominal capacity not exceeding 1 MW, and
 - (v) is located on the customer's site, on a site owned by, or leased to the customer that is adjacent to the customer's site.

13. The first condition, and the crux of the matter for this proceeding, is expanded upon in section 1(1)(l) of the Regulation, which defines "renewable or alternative energy" as electric energy generated from:

- (i) products having current EcoLogo certification, or
- (ii) solar, wind, hydro, fuel cell, geothermal, biomass or other generation sources, if the greenhouse gas intensity of
 - (A) the electric energy produced, or
 - (B) the total energy produced from the simultaneous generation of electric energy and production of thermal energy from the same fuel source

is less than or equal to 418 kg per MWh;

14. The Commission notes that the Notice of Dispute filed by Fortis requires the Commission to determine whether CCW's micro-generation fuel source meets the "renewable or alternative energy" definition. Although the Notice of Dispute did not address whether the Generating Unit meets the other conditions in section 1(1)(h) of the Regulation, the Commission must ensure that proposed "micro-generation generating units" meet all five conditions.

3 COMMISSION FINDINGS

15. The Commission examined the merits of CCW's application in light of the five conditions outlined above.

3.1 Renewable or Alternative Energy

16. The thrust of CCW's argument for why its Generating Unit satisfies the first condition is that it uses potential energy that is unavoidably created during the pumping process and that is otherwise wasted.⁷

17. While this is true, the exact requirements of section 1(1)(l) of the Regulation must be met, and more specifically, subsection 1(1)(l)(ii). The subsection contemplates "other generation sources", which in this case could include kinetic energy. After all, the main spar of the pump jack has to be lifted to extract the oil, and this necessitates that the main spar must fall down. The fall is free.

18. Therefore, if the fall can be harnessed, the kinetic energy falls into the sorts of sources contemplated by the Regulation as demonstrated by the listed examples: "solar, wind, hydro, fuel

⁷ Page 3. CCW Submission dated February 12, 2010.

cell, geothermal, [and] biomass”. The main spar falls as a by-product of the customer’s activity. Generating electricity from this energy source, like the sun shining, water falling, or wind blowing, utilizes existing energy, which in this case is generated incidentally to the underlying customer’s industry.

19. The Commission, therefore, is satisfied that kinetic energy is the type of energy source contemplated in the Regulation under “other generation sources”.⁸

20. The next condition is whether the Generating Unit, in generating its electricity, has a greenhouse intensity of 418 kg per MWh or less pursuant to subsection 1(1)(i)(ii) of the Regulation.

21. The Generating Unit can be configured in two ways. The first is to generate electricity when the main spar falls during the down-stroke of the pump jack. The second is to generate no electricity. When the Generating Unit is set to generate no electricity, the controller must actually consume energy in order to allow the electric motor to stay just ahead of the acceleration of the fall of the main spar.⁹ To allow the main spar to accelerate faster than the motor, when generating no electricity, would otherwise harm the Generating Unit.

22. Hence, the Generating Unit has the potential to consume energy if configured to generate no electricity because the Generating Unit is drawing upon the grid to consume more electricity in order to accelerate the electric motor faster than the fall of the main spar. This would mean that the drawing of extra electricity would have a greenhouse intensity associated with those times when the Generating Unit is configured not to generate any electricity.

23. As the Generating Unit can be configured to either use extra energy or regenerate energy, the Commission is required to determine under what circumstances the Generating Unit would be configured in either way.¹⁰ If, at any time, the Generating Unit is expected to use extra energy, the Commission would have to calculate the greenhouse gas intensity of the Generating Unit, including when it is configured in this way.

24. If the Generating Unit used extra energy, the greenhouse gas intensity would be the annual greenhouse gas emissions (in kg of CO₂) of the extra energy wasted (when the Generating Unit generated no electricity) divided by the annual production of electricity (in MWh) when the Generating Unit generated electricity. This would derive the greenhouse gas intensity (in kg per MWh) associated with the installation of the Generating Unit.

25. Under these calculations, it is possible for a generating unit of this type to have a greenhouse gas intensity of greater than 418 kg per MWh.

26. There is no need, however, to engage in these calculations for this proceeding. CCW has stated that, once approved as a “micro-generation generating unit”, the Generating Unit will

⁸ The Commission relies on the canon of statutory construction *Ejusdem Generis*. It states that when a list includes specific items and the catchphrase “and other items”, the other items are defined by looking at the type of specific items listed. See Ruth Sullivan, *Statutory Interpretation, Second Edition* (Toronto: Irwin Law, 2007), pages 178-82.

⁹ Page 3. CCW IR Response dated April 14, 2010.

¹⁰ Page 1. AUC Information Request No. 2 to CCW dated April 9, 2010.

generate electricity at all times.¹¹ As such, the operation of CCW's equipment will not use any extra electricity. The greenhouse gas intensity will be 0kg per MWh. This satisfies the second part of subsection 1(1)(l)(ii), and thereby satisfies the first condition of section 1(1)(h).

27. The Commission finds that, as long as the CCW Generating Unit as installed in Arc Resources' oilfield operations is configured to always generate electricity, CCW's Generating Unit complies with section 1(1)(h)(i) of the Regulation. This is because it exclusively uses "renewable or alternative energy" given that the electric energy is generated by other generation sources and the greenhouse gas intensity of the electric energy being produced is less than or equal to 418 kg per MWh.

28. Given that the Commission did not have to engage in calculating the greenhouse intensity of the Generating Unit when configured to not generate electricity, the Commission makes no judgment on the merits of this Generating Unit if it were to be configured differently in the future or if the current configuration were to change.

3.2 Customer's Electricity Needs and Nominal Capacity

29. CCW stated that the Generating Unit can recover only a fraction of the energy that is required to lift the oil and pump jack mechanism. Further, the Generating Unit has a rated capacity of 25kW, compared to a 53.79kW motor capacity.¹²

30. The Commission finds that the Generating Unit is intended to meet all or a portion of the customer's electricity needs; that it is sized to the customer's load or anticipated load or a portion of it (as evidenced by a total nominal capacity of the Generating Unit that does not exceed the rating of the customer's service), and that it has a total nominal capacity not exceeding 1 MW.

31. The Commission finds that the Generating Unit complies with sections 1(1)(h)(ii), (iii) and (iv) of the Regulation.

3.3 Location of Generating Unit

32. CCW has stated that the Generating Unit is located on the customer's site and has provided diagrams and maps to support this.¹³

33. As the Generating Unit is located on the customer's site, the Commission finds that the Generating Unit complies with section 1(1)(h)(v) of the *Micro-Generation Regulation*.

¹¹ Page 3. CCW IR Response dated April 14, 2010.

¹² Page 4, 5. CCW Submission dated February 12, 2010.

¹³ Page 5. CCW Submission dated February 12, 2010.

4 DECISION

34. For the foregoing reasons, the Commission finds that CCW's Generating Unit meets the definition of a "micro-generation generating unit" as provided for in the *Micro-Generation Regulation*.

Dated on May 18, 2010.

ALBERTA UTILITIES COMMISSION

(Original signed by)

Anne Michaud
Chair

(Original signed by)

Mark Kolesar
Commissioner

(Original signed by)

Moin A. Yahya
Commissioner