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Off-Grid Energy for Bitcoin Mines in Alberta: A Problematic Legal Regime

By: Nigel Bankes

Decision Commented On: [Alberta Utilities Commission \(AUC\), Decision 26379-D02-2021](#), Allegations against Link Global Technologies Inc., Phase 1, August 19, 2021

I don't know much about Bitcoin operations, but I do know that they need a lot of power to run large computers, and it therefore makes sense for them to locate near cheap sources of power. Over the last several months, there have been a number of stories about Bitcoin operators checking out Alberta locations. For example, Collin Gallant published a nice piece in the [Medicine Hat News in April 2021](#). But this last week (August 25, 2021) [the CBC ran with a more detailed story](#) about one of the Bitcoin operators mentioned in Gallant's piece (Link Global Technologies Inc.) that had co-located close to a shut in gas well to take advantage of cheap fuel to power their gas turbine generators.

There are two ways in which a consumer can secure access to cheap electricity. It can do so as a grid customer by entering into a long-term contract at a fixed price with a generator. The customer is not buying the actual output from that generating facility because all electrons are indistinguishable once on the grid. What the customer is purchasing is effectively a contract for difference. The purchaser draws energy from the grid and the generator bids into the power pool in the normal way. The generator obtains the pool price for any given hour of generation and then settles with its counterparty. To the extent that the pool price settles above the contract price the generator will owe money to the counterparty, and to the extent that the pool price settles below the contract price the counterparty, in this case a Bitcoin operator, will owe money to the generator.

A second possibility, if the rules allow for it, is for our Bitcoin operator to build its own generation off-grid and self-generate, in which case the Bitcoin operator gets its power at the fixed and variable costs of the generation. And, if the operator is using gas turbines to generate, then the principal costs will be the capital costs of the generator and the variable cost of the fuel supply – natural gas – which may be priced on a spot market price or through a longer-term contract. A significant advantage of this second option is that the Bitcoin operator won't be paying any share of the system costs i.e., transmission and distribution.

The case reported by the CBC and under consideration here falls into this second category, and the issue that the AUC had to grapple with was the question of whether the rules allowed for this particular type of self-supply, and if so, under what conditions? Eligibility to self-supply in Alberta has proven to be a contentious issue over the last couple of years (I have commented extensively on ABlawg on the issue, see [here](#), [here](#), [here](#), [here](#), and [here](#)). But all of the decisions that I have commented on involved parties who were seeking AUC approval to both self-supply and sell any

surplus into the grid. They all involved actual applications and scrutiny by the AUC. But this case is different.

In this case, Link Global Technologies Inc. never bothered itself with an application to the AUC - or it seems anybody else; it just started operating – the wild west of Bitcoin mining operations, Alberta open for business.

So how did the matter come before the AUC? The matter came before the AUC as a result of noise complaints by residents disturbed by the noise of the gas turbines. That led enforcement staff of the AUC to make inquiries and ultimately bring the matter before the AUC for adjudication. In fact, the case as it came before the AUC involves two different facilities: a 5 MW power plan in Sturgeon County that began operations in August 2020; and a 3.5 MW facility near Kirkwall that began operations in June 2020. The noise complaint was filed with respect to the Sturgeon facility, but AUC enforcement staff and Link Global agreed to include the Kirkwall facility in negotiating a settlement of alleged violations of applicable statutes and the AUC's rules.

What ultimately came before the AUC was an application to have the AUC approve a partial settlement between AUC enforcement staff and Link Global, and to have the AUC determine some of the remaining issues related to self-supply.

Approval of the Partial Settlement

The partial settlement (which was approved by the Commission) covered three contraventions and a proposed administrative penalty (yet to be finally determined by the Commission) as follows (at para 6).

Contravention 1: Unaware of the statutory and regulatory requirements, the power plant owned and operated by Link Global at the Sturgeon site has been in operation since August 27, 2020, without an approval from the Commission, contrary to the *Hydro and Electric Energy Act* [[RSA 2000, c H-16](#)] and [Rule 007](#).

Contravention 2: The power plant operations at the Sturgeon site have exceeded, prior to Link Global ceasing nighttime operations in response to [AUC Order 26379-D01-2021](#), the permissible sound levels specified in [Rule 012](#).

Contravention 3: Unaware of the statutory and regulatory requirements, the power plant owned and operated by Link Global at the Kirkwall site has been in operation since June 26, 2020, without an approval from the Commission, contrary to the *Hydro and Electric Energy Act* and Rule 007.

An administrative penalty for contraventions 1-3 collectively, in the range of \$50,000 to \$75,000 with a reduction of up to 50 per cent, with no additional administrative penalty regardless of the Commission's determination on the own-use issue.

I observe that the term “unaware” is doing a lot of work in contraventions 1 and 3.

Drawing on previous AUC decisions, Commissioner Kristi Sebalj noted that the issue before her was not “whether the Commission would have issued the same decision; the question is whether the partial settlement is fit and reasonable, and falls within a range of acceptable outcomes given the circumstances.” (at para 15) In assessing that question, the Commission will take into account its [Rule 013: Criteria Relating to the Imposition of Administrative Penalties](#) which in turn instructs “the Commission to take into account relevant factors including the seriousness of the contravention, the compliance system, and self-reporting or cooperation of the person named in the contravention. (at para 24) “[S]anctions are intended to be protective and preventative, not punitive” and should consider “the nature of the harm, including whether it was limited in scope, or whether it caused damage or injury to persons, property or the environment.” (at para 25) Commissioner Sebalj’s ultimate assessment, bearing in mind the principle (drawing on criminal law jurisprudence) that the Commission should only depart from a joint submission where demonstrably contrary to the public interest, was that “the partial settlement falls within a range of acceptable outcomes and accepts the partial settlement.” (at para 27)

I now turn to the self-supply issues. These issues were *not* included with the partial settlement.

The Self-Supply Issues

The rules relating to self-supply in Alberta are found in two statutes, the *Hydro and Electric Energy Act (HEEA)* and the *Electric Utilities Act*, [SA 2003, c E-5.1 \(EUA\)](#), as well as one regulation, the *Fair, Efficient and Open Competition Regulation*, [Alta Reg 159/2009 \(FEOC Regulation\)](#).

The Hydro and Electric Energy Act Issues

The general rule under s 11 of the *HEEA* is that “No person shall construct or operate a power plant unless the Commission, by order, has approved the construction and operation of the power plant.” But s 13 provides an exemption to this requirement insofar as it stipulates that s 11 does “not apply to a person generating or proposing to generate electric energy solely for the person’s own use, unless the Commission otherwise directs.” The AUC in this decision confirmed (at para 32) that the Commission has directed otherwise through the terms of Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments*.

Section 1.4.3 of Rule 7 distinguishes between facilities of different capacities. For facilities capable of generating less than 10MW, the Rule provides that an owner “may proceed without filing an application” if it can satisfy all of the following conditions: (1) no person is directly and adversely affected, (2) the power plant complies with Rule 012, (3) and there is no adverse effect on the environment. There are additional conditions if the unit is connected to the distribution or transmission system.

There is something very odd about this provision. It is designed to determine when it is unnecessary for a party to even file an application with the AUC, and thus each of these conditions effectively requires an applicant to stand in the shoes of the AUC and make its own determination

of public interest matters. Even Commissioner Sebalj seems to have had difficulty formulating an adequate sentence to describe what the Rule requires:

As is evident from the nature of the criteria in Rule 007, the limitations on the exemption ensure that projects do not cause social or environmental impacts, which the Commission will not have considered in a public interest assessment under of Section 17 of the *Alberta Utilities Commission Act* [SA 2007, c A-37.2]. (at para 32)

It's a strange world where a self-interested applicant is the guardian of the public interest even if it has read the rules.

The Own Use Requirement

The first issue to assess, however, is whether or not the person proposing to generate the electric energy is doing so “solely for the person’s own use.” In this case, that led the Commission to inquire into who owned what, and who was responsible for which activities. It turns out that at the time generation commenced at each location, Link Global owned and operated the generating plants and provided the electricity to an onsite digital currency processing facility which was initially owned by another entity, Block One under the terms of a master service agreement. That agreement, amongst other things, provided that (at para 34) “[t]he Parties are independent contractors to each other, and this Agreement does not and shall not establish any relationship of partnership, joint venture, employment, franchise, or agency between the Parties.” Given that provision, as well as the definition of “person” in the *HEEA*, (s 1(1)(j)) the Commission had little difficulty in concluding that during the time that the generation and Bitcoin facilities were under separate ownership “Link Global’s operations did not fall within the own-use exemption in Section 13 of the *Hydro and Electric Energy Act*.” (at para 39) The Commission noted that enforcement staff had agreed that there should be no additional administrative penalty associated with this breach, although it did record that this did not preclude consideration of a disgorgement order at some later point in the proceedings (at para 42).

As of March 8, however, the ownership position changed when the parties agreed to transfer ownership of the digital processing facilities at both the Sturgeon and Kirkwall sites from Block One to Link Global. This led the Commission to conclude that (at para 41):

As a result of the transfer of ownership, a single entity owns the generating units and the digital currency processing facilities on each site: Link Global. After the March 8 agreement and to date, Link Global generates electric energy via units it owns and are located on the Sturgeon and Kirkwall sites, and uses that electric energy to power digital currency processing facilities it owns, on those same sites. The Commission finds that since March 8, 2021, Link Global has been “a person generating or proposing to generate electric energy solely for the person’s own-use” at both sites.

While this was enough to answer the “own use” question it still left open the question of whether or not Link Global could meet the additional conditions established by Rule 7 namely: (1) no person is directly and adversely affected, (2) the power plant complies with Rule 012, (3) and there is no adverse effect on the environment. While the Commission seems to have been of two

minds as to whether to address this issue as part of an enforcement proceeding (rather than an approval proceeding), in the end Commission considered that “regulatory certainty is served by commenting on whether Link Global requires further process to obtain approval of its facilities.” (at para 60)

Adverse Effect

The Commission clarified the concept of adverse effect by referencing both s 9 of the *Alberta Utilities Commission Act*, and the participant involvement program provision of Rule 7 which contemplate that those who may be affected by a proposed project should have the opportunity to make representations as to how a project might affect them. In this context, proximity to the project boundaries is a key consideration (at para 62).

In the case of the Sturgeon plant, the Commission noted that the current proceedings had been triggered by noise complaints from the owners of adjacent residences and that while the sound issues might have been resolved (see below) it would be inappropriate for the Commission to decide in these enforcement proceedings that there were no other direct and adverse effects. The Commission noted that:

... without an opportunity for landowners in close proximity to a proposed electric generating facility to express their concerns in relation to a proposed project, the Commission cannot know what those concerns are. It would be improper for the Commission to conclude that because there is no evidence on the record of this enforcement proceeding of a direct and adverse effect on stakeholders, no direct and adverse effect exists. An enforcement proceeding is not the appropriate forum to consider the concerns of landowners whose rights may be directly and adversely affected by a proposed development. In fact, the Commission denied standing to a landowner in Greystone Manor to participate in this proceeding because it is an enforcement proceeding, and not an appropriate venue to consider the merits of the project.

It is not sufficient to substitute an enforcement proceeding for an approval process in which stakeholders would have an opportunity to be informed about a proposed development and voice their concerns to the proponent and, if those concerns remain unresolved, to the Commission. Accordingly, the Commission finds that the Sturgeon plant may have a direct and adverse effect on persons and does not fulfill this exemption criterion. (at paras 63 – 64)

The Commission did not have the same concerns with respect to Kirkwall plant which is located in a relatively unpopulated part of Alberta. The Commission noted that there had been no complaints with respect to the operation of this facility and accordingly ruled that “no person appears to be directly and adversely affected by the operation of the Kirkwall plant and the Commission is satisfied that the Kirkwall plant fulfills this exemption criterion.” (at para 77)

Rule 012

The Commission concluded (at para 66) that the Sturgeon plant was now capable of operating within the permissible sound levels of Rule 012 with the installation of an acoustic barrier (hay bales), and accordingly now meets this condition for an exemption as demonstrated by a recent comprehensive sound level survey filed with the Commission.

The Commission could not offer the same degree of certainty with respect to the Kirkwall Plant. On the one hand there was no sound level survey for the plant to establish compliance, but on the other hand there was “no evidence on the record of this proceeding to suggest that the Kirkwall plant has failed to operate in compliance with applicable Rule 012 permissible sound levels” and there had been no noise complaints (at para 78). However, Link Global still bore some risk:

... it remains the responsibility of the owner/operator of the plant to ensure that noise levels associated with the proposed facility or modifications to a facility are compliant with Rule 012. Should a complaint arise or the Commission become concerned with the sound levels at the Kirkwall plant, Link Global may be asked to demonstrate that it meets applicable Rule 012 permissible sound levels. (at para 79)

Adverse Effect on the Environment

As is its practice with respect to actual applications under s 11 of the *HEEA*, the Commission used as a proxy for adverse effects the question of whether or not Link Global was in compliance with other applicable rules – in this case the provisions of the [Alberta Air Emission Standards for Electricity Generation and the Alberta Air Emission Guidelines for Electricity Generation](#) and s 60 of the *Environmental Protection and Enhancement Act*, [RSA 2000, c E-12 \(EPEA\)](#) and the accompanying *Activities Designation Regulation*, [Alta Reg 276/2003](#).

With respect to the former, the AUC found that the generators used in both facilities would, if operated at capacity, slightly exceed the limits established by the above standards and guidelines for NO_x (nitrogen oxides) emissions. However, Link Global indicated that its generators optimally run at 80 to 93 per cent capacity which reduces the NO_x emissions below the prescribed level. This led the Commission to observe that:

Although as noted above, it is not sufficient to substitute an enforcement proceeding for an approval process, the Commission considers that the adverse effect on the environment associated with the emissions from Caterpillar XQ1250G generators is likely to be negligible provided that Link Global operates in the low NO_x emission configuration and at reduced capacity. (at para 72, footnote omitted)

The Commission made much the same observation with respect to the Kirkwall Plan (at para 81). Presumably, if this were an actual application for approval the Commission would have included a condition requiring Link Global to operate at this reduced capacity.

The *EPEA* requirement was more problematic. As the Commission summarized, s 60 of *EPEA*

... prohibits any person from commencing or continuing an activity that requires approval under the *Activities Designation Regulation*. The regulation in turn requires approval for any “power plant,” defined as “a plant that produces steam or thermal electrical power and has a rated production output of greater than one megawatt under peak load” subject to limited exceptions. (at para 73 references omitted)

On the face of it, both plants fell within this definition and yet neither had an approval. This led the Commission to conclude in each case that neither plant fulfilled this particular exemption condition (at paras 74 and 81). Accordingly, the Commission issued identical orders to Link Global in the following terms:

- To immediately and in a safe manner cease operation of the Sturgeon [Kirkwall] plant.
- To file with the Commission a letter confirming the status of its efforts to cease operations at the Sturgeon plant within three days of the release of this decision.
- To file with the Commission a letter confirming that operations have been ceased within seven days of the release of this decision.

Should Link Global wish to recommence operations at the Sturgeon [Kirkwall] plant, it may file an application with the Commission for its consideration in the normal course, in accordance with all applicable Rule 007 requirements. (At paras 75 and 76 for Sturgeon and paras 82 and 83 for Kirkwall)

While intended to provide some regulatory certainty to this particular party, the observations of the Commission with respect to all three conditions further illustrate the problematic nature of the *HEEA* and Rule 7 exemption regime. The Commission may be in a position to offer greater clarity for all concerned through appropriate amendments to Rule 7.

The Electric Utilities Act and the FEOC Regulation

While the own-use exemption in the *HEEA* substitutes proponent assessment of public interest for AUC assessment of public interest considerations, the exemption provisions of the *EUA* are designed to exempt a generator from the duty to participate in Alberta’s electricity market and to comply with the must offer, must exchange rules of the *EUA* and the *FEOC Regulation*. Specifically, s 2(1)(b) of the *EUA* provides that “This Act does not apply to ... (b) electric energy produced on property of which a person is the owner or a tenant, and consumed solely by that person and solely on that property”.

Thus, the exemption applies to the energy produced on a property where that energy will be consumed solely on that property by the owner or tenant of that property. The exemption makes the entire *EUA* inapplicable to the energy that is covered by the exemption. Subsection 2(3) clarifies that the exemption applies “whether or not the owner or tenant is the owner of the generating unit producing the electric energy.” This clarification allowed the Commission to conclude in this case that Link Global’s activities were always entitled to the benefit of the *EUA* exemption even during the period when Link Global was only the owner of the generation and not the owner of the Bitcoin facilities. The exemption extended to the regulations passed under the *EUA* including the ‘must offer’ rule of s 2(g) of the *FEOC Regulation*.

Conclusions

There are at least two sets of issues associated with self-supply arrangements. One set of issues relates to energy markets and the implications of self-supply for system costs. These issues fall within the ambit of the *Electric Utilities Act*. A number of prior AUC decisions have engaged with this set of issues and have been discussed in the pages of this blog as noted above. The AUC prepared a [discussion paper](#) on self-supply and export issues in June 2020 and the Department of Energy apparently [held consultations](#) with industry (but not beyond) on these issues between December 2020 and January 2021. We have yet to see whether those consultations will result in any changes to the legislation.

This decision however serves to remind us that self-supply may also raise a set of issues with respect to the impacts of the generation facilities themselves. These issues fall within the *Hydro and Electric Energy Act*, but also, as pointed out above, may engage other provincial policies and guidelines and the provisions of the *Environmental Protection and Enhancement Act*. This decision suggests that the current exemptions regime provides inadequate protection for public interests. While the AUC is not in a position to resolve any of the issues identified on the energy markets side of things referenced above (since this will require new legislation) the AUC does have the authority to revise the exemption rules under the *HEEA*, because of the “unless the Commission otherwise directs” provision in s 13 of the Act.

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