



October 24th, 2019

Patrick Wruck
Commission Secretary
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Subject: British Columbia Utilities Commission (“BCUC”) – An Inquiry into the Regulation of Municipal Energy Utilities
Borealis GeoPower Inc. (“BGP”) Intervener Submission

Dear Mr. Wruck,

Please find enclosed Borealis GeoPower Inc.’s Intervener Submission for the above proceeding, in compliance with BCUC Order G-177-19.

If you have any questions, please do not hesitate to contact me.

Warm Regards,

A handwritten signature in black ink, appearing to read "Tim Thompson", with a long horizontal flourish extending to the right.

Tim Thompson
Chair
Borealis GeoPower Inc.

**British Columbia Utilities Commission
Municipal Energy Utilities Inquiry**

Intervener Submission by Borealis GeoPower Inc.

October 23, 2019

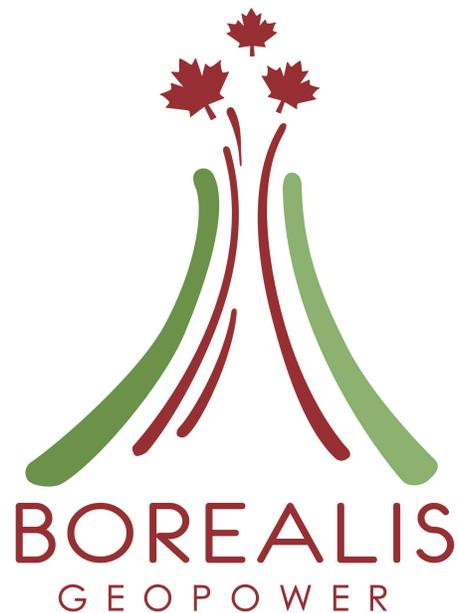


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About Borealis GeoPower Inc.

Founded in 2007, Borealis GeoPower Inc. is a small clean technology enterprise focused on developing geothermal energy projects throughout Western and Northern Canada. Our portfolio includes projects with exploration permits as well as a diverse collection of consulting assignments. We work closely with our host communities and First Nations partners to enable energy projects that support local jobs, a diversified economy, zero-emission power and heat production, and participation in the international natural resources sector via rare earth elements in geothermal brines (Figure 1).

Borealis GeoPower is woman-led by its CEO Alison Thompson, who has led the company for four years as CEO, and before that as Chair. The core technical team has a breadth of international experience. With development projects underway, Borealis GeoPower is well positioned to influence Canada’s clean energy transition.

Borealis GeoPower is a certified B Corporation, meaning that as a company we meet the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose (Figure 1).



Figure 1: Infographic highlighting Borealis GeoPower's sustainability goals and recent achievements.

Appreciation

Borealis would like to thank the BC Government and the BCUC (the “Commission”) for taking the time and effort to examine issues related to Municipal Utilities. Borealis would also like to thank the Commission for this opportunity to share our perspectives.

Framing the Discussion

Our read of Order G-177-19 is that a set of complaints from various stakeholders have been received by the BCUC related to the Municipal exemption. The Commission has been asked to examine whether it is appropriate to either alter the definition of a ‘public utility’ and/or contemplate a new set of exemptions, inclusive of Municipalities. Implicit in this discussion is that there is an underlying issue with current regulation, and that these stakeholder complaints are highlighting a need for better regulation.

Borealis’s main concern is that, as a nascent small energy producer, we might be caught up in a regulatory context where we would face increased, as opposed to reduced regulation. In the BCUC Indigenous Utilities Inquiry¹, Kitselas Geothermal Inc. and CanGEA spoke to the complexity and uncertainty of the current geothermal regulatory regime.² Borealis submits that geothermal (true geothermal and not geo-exchange) energy faces a potentially burdensome and confusing regulatory context while it looks to participate in a highly competitive market (particularly for thermal operations).

Borealis is currently working with a number of Municipalities to access and utilize geothermal energy, to the benefit of multiple stakeholders. While our relationship with these Municipalities could take many forms, there will likely always be:

- (a) a primary sale of energy from Borealis to the Municipality (or Regional District, or entity that includes a Municipality or Regional District),
- (b) a secondary sale of energy from the Municipality (or Regional District, or entity that includes a Municipality or Regional District) to end users,
- (c) a minority participation by Borealis in the transportation and distribution assets, and
- (d) a strong likelihood that some Borealis and/or Municipality (or Regional District, or entity that includes a Municipality or Regional District) assets would be situated outside the Municipal boundaries, as relevant subsurface geothermal structures rarely conform to relevant surface boundaries.

With respect to the Village of Valemound (“Valemound”), we have considered all of the above.

Valemound is an incorporated body, in east central British Columbia (“BC”) with a population of 1,021.³ There are another ~ 200-400 people living just outside the Municipal boundaries, who would consider themselves to be part of Valemound.

¹ BCUC Order G-62-19.

² See Appendix A for KGI’s geothermal regulatory flowcharts.

³ <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=5953007&Geo2=PR&Code2=47&Data=Count&SearchText=Valemound&SearchType=Begins&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=5953007&TABID=1>

Valemount exists in a geothermally prospective region, where Borealis has held one or more geothermal resource permits and drilling permits for ~ 9 years and ~ 1 year, respectively.

Valemount has no access to natural gas and is subject to the most interrupted electricity service in BC, as shown in Figure 2, below. Further, it is our understanding that BC Hydro’s transmission infrastructure is at capacity for more than 5 months of the year, thus no, or a limited amount of incremental electricity service is available for residential/commercial/industrial use.

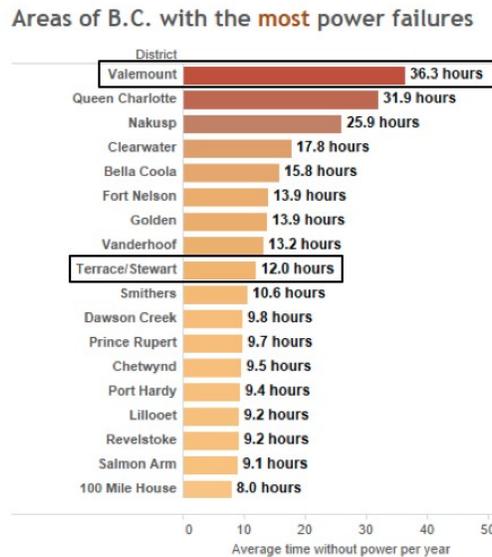


Figure 2: Areas of BC with the most time without power.⁴

Valemount has access to trucked-in propane, but rates range from > \$15/GJ to often > \$20/GJ (delivered), in periods of high demand.

Valemount suffers from, by far, the worst air quality in BC, as the high concentration of wood burning generates large amounts of smoke while local weather ‘inversions’ trap the smoke in the valley.⁵ As Valemount’s Mayor has expressed it: “we are killing ourselves just to stay warm”.

This has been further exacerbated with BC Hydro’s recent cancellation of its E-Plus pricing program, replacing it with a ‘Conservation Rate’, which penalizes ratepayers who use more than a set amount of energy in a billing period, by applying a higher rate to any amount of energy over the base amount.⁶ While this is meant to drive conservation, Valemount’s very long and cold winters necessitate a switch from electricity, as it is no longer affordable. For many Valemount residents the only available cost-effective alternative is wood.

⁴ <http://www.vancouversun.com/technology/Power+failures+more+common+remote+parts/11311997/story.html>

⁵ <https://www.therockymountangoat.com/2017/02/valemount-air-quality-among-worst-in-b-c/>

⁶ <https://www.therockymountangoat.com/2019/07/bc-hydro-scraps-e-plus-program-forces-more-wood-burning/>

Valemount and Borealis have contemplated the construction of a geothermal heat park. This heat park would serve both residential and commercial customers.

Valemount has an active Direct Heat Committee, reporting to Village Council, and also a Valemount Geothermal Society. The Village of Valemount has a real interest in using geothermal district heating, as is demonstrated in a video made by Valemount residents.⁷ Also, extensive consultation with Valemount residents has been carried out with regards to geothermal development. Community members that were directly affected by a permit expansion request were visited in person. Every community member who was capable of doing so provided a letter of support to the BC Ministry of Energy, Mines, and Petroleum Resources for the geothermal permit expansion. It is clear that the Village of Valemount and Borealis have earned widespread landowner support for the project.

The heat park would preferably be located on the Valemount Industrial Park, part of the Valemount Community Forest lands, an area 99% owned by the Village of Valemount. However, these lands, and intervening lands, are near but outside the Municipal boundaries of Valemount, as shown in Figure 3.

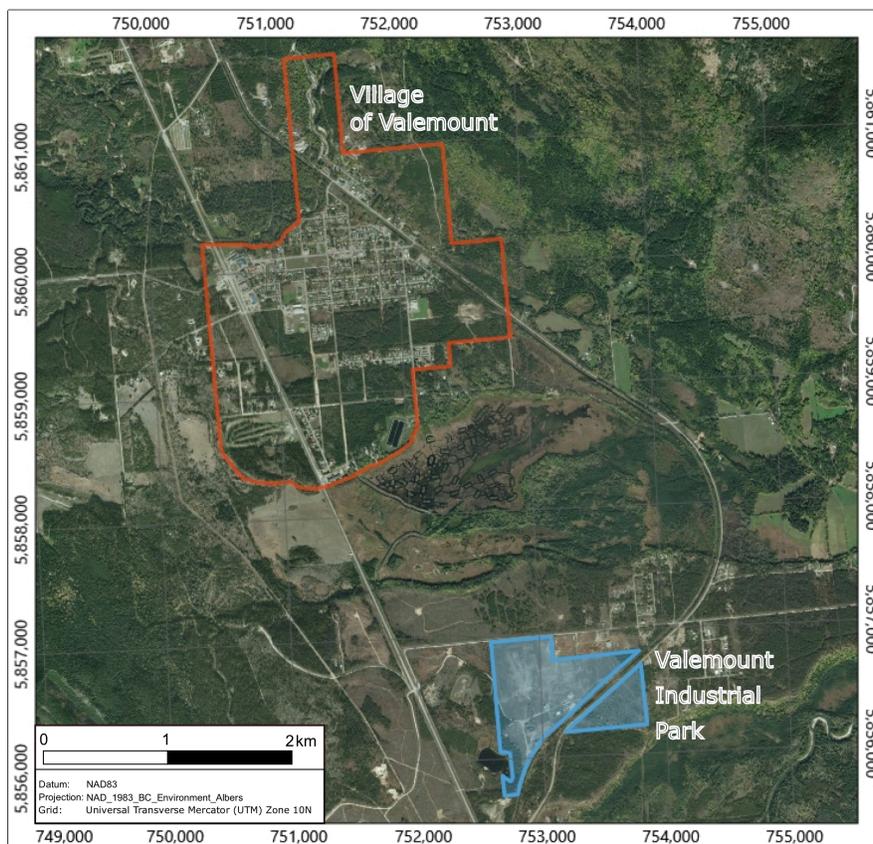


Figure 3: Geographic representation of the Municipality and the preferred heat park location.

⁷ <https://youtu.be/76zx0OKTG18>

Borealis’s notional thermal business model provides for the development of its geothermal resource permits and the sale of energy to Valemount. Valemount would then own and distribute this energy as it sees fit. The pricing between both Borealis and Valemount, and Valemount and its customers, would be lower than the available alternatives and set in a fashion to drive switching from wood and propane to geoheat, thereby working to address the air pollution crisis. Further, a wood drying facility, using renewable heat, has been contemplated, with which residents could trade wet for dry wood – thereby ameliorating, in part, their air quality issues.

By any measure, a heat park in Valemount would be a small facility, as the Village’s aggregate energy demand is < 100,000 GJ/year.

Borealis’s view of the Valemount facility, or any analogous geothermally driven thermal energy facility, is that it should not be regulated by the BCUC.

Borealis suggests that relevant regulatory exemption can be accomplished by any one of:

- a) a class exemption, as contemplated in Section 88(3) of the *Utilities Commission Act* (“UCA”),
- b) a project specific exemption, granted under Section 88(3) of the UCA, or
- c) a modification of the wording of the Municipal exclusion.

We will discuss each of these potential solutions in more detail in this submission.

In support of this position, Borealis would like to recall 3 fundamental principles underlying the BCUC perspective on regulation.

In the Commission report issued on *Inquiry into the Offering of Products and Services in Alternative Energy Solutions and Other New Initiatives Report*, dated December 27, 2012, the Commission articulated 2 key principles:

- only regulate where required; and
- regulation should not impede competitive markets.⁸

In Order G-104-18 dated June 5, 2018 related to SSL-Sustainable Services Ltd., the Commission linked regulation to the public interest. The Commission said:

“...the object of the UCA is the protection of the public interest by regulating public utilities to ensure that they provide safe and reliable service at reasonable prices. ...

⁸ https://www.bcuc.com/Documents/Decisions/2012/DOC_33023_G-201-12_FEI-AES-Inquiry-Report_WEB.pdf, at page 6-7.

The scheme of the UCA acknowledges that there may be circumstances where an entity is caught by the definition of public utility yet the rationale for regulation is not compelling because the public utility has little or no ability to exercise monopolistic behaviour **to the detriment of ratepayers and the public interest.** [emphasis added] ... ⁹

Borealis would also like to recall the basis by which the BCUC created the Municipal Exemption, which overlaps the first principle above.

Borealis understands this to be that BCUC regulation of Municipalities would be redundant. Part of the BCUC mandate is to protect ratepayers from potentially monopolistic power, where it might arise. However, Municipalities already possess processes for ratepayers to have recourse against potentially abusive uses of monopoly power, which creates accountability for those who wield it. Thus, Municipal regulation (or control) has the necessary oversight that would make BCUC oversight redundant.

Principle 1: Only regulate where required

This requires demonstration that Municipalities, generally, have the capacity to regulate their service provision, with effective feedback mechanisms that create sufficient accountability to address potential abuses of power.

We believe that this question is ‘asked and answered’ by the BCUC’s previous adoption of a Municipal Exemption, within the UCA.

Principle 2: Regulation should not impede competitive markets

Borealis understands this principle to be better articulated as “where effective competition exists, regulation to protect ratepayers from monopoly abuse is unnecessary.”

Further, by effective competition, we refer to Mr. Hempling’s paper, ‘*Utility Regulation: What Is It, Why Do We Have It, and How Does It Work?*’, where he states:

*“We use regulation to align private behavior with the public interest, in situations where private behavior, unregulated, would conflict with the public interest.”*¹⁰

As applied to this principle, it is Borealis’s view that effective competition aligns private behaviour with the public interest.

⁹ BCUC Order G-104-18, page 9.

¹⁰ BCUC Indigenous Utilities Regulation Inquiry, Exhibit A-8, page 2.

In this context, it is Borealis's view that the basic indicator of effective competition is the requirement for a new utility to offer the sale of energy below current market prices in order to attract customers to consider fuel switching and actually sell energy.

Principle 3: Public Interest

Borealis would suggest that any definition of the Public Interest must at least encompass the core features of energy service. Further, the *Clean Energy Act*¹¹ enumerates an extensive list of considerations, shown below, almost all of which geothermally driven thermal energy supports, meets, or exceeds.

- (a) to achieve electricity self-sufficiency;
- (b) to take demand-side measures and to conserve energy, including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least 66%;
- (c) to generate at least 93% of the electricity in British Columbia from clean or renewable resources and to build the infrastructure necessary to transmit that electricity;
- (d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;
- (e) to ensure the authority's ratepayers receive the benefits of the heritage assets and to ensure the benefits of the heritage contract under the *BC Hydro Public Power Legacy and Heritage Contract Act* continue to accrue to the authority's ratepayers;
- (f) to ensure the authority's rates remain among the most competitive of rates charged by public utilities in North America;
- (g) to reduce BC greenhouse gas emissions
 - (i) by 2012 and for each subsequent calendar year to at least 6% less than the level of those emissions in 2007,
 - (ii) by 2016 and for each subsequent calendar year to at least 18% less than the level of those emissions in 2007,
 - (iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007,
 - (iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and
 - (v) by such other amounts as determined under the *Climate Change Accountability Act*;
- (h) to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;
- (i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently;

¹¹ SBC 2010, c 22, s 2.

- (j) to reduce waste by encouraging the use of waste heat¹², biogas and biomass;
- (k) to encourage economic development and the creation and retention of jobs;
- (l) to foster the development of first nation and rural communities through the use and development of clean or renewable resources;
- (m) to maximize the value, including the incremental value of the resources being clean or renewable resources, of British Columbia's generation and transmission assets for the benefit of British Columbia;
- (n) to be a net exporter of electricity from clean or renewable resources with the intention of benefiting all British Columbians and reducing greenhouse gas emissions in regions in which British Columbia trades electricity while protecting the interests of persons who receive or may receive service in British Columbia;
- (o) to achieve British Columbia's energy objectives without the use of nuclear power.

An important side point is that most, if not all, other forms of energy supply do not meet as many of these objectives as geothermal energy does.

We would also like to specifically call out the Valemount opportunity.

Here, Borealis would suggest that a geothermally driven thermal energy supply is not only in the public interest, it has become a public imperative. It has the potential to:

- reduce hospital visits related to respiratory distress,
- measurably improve local air quality,
- provide Valemount with a long-term revenue stream,
- create new local jobs within a challenging employment context given the state of the forestry industry,
- put downward pressure on local propane pricing,
- create an option for attracting energy intensive industry to the area, and
- provide backup for, or an alternative to electric heating therefore relieving pressure on an otherwise at-capacity electrical grid. It would improve service/reliability to all regional BC Hydro customers if Valemount residents switched from electric heat to geothermal heat.

Request for Class Exemption

Relying on 'Principle 2: Regulation should not impede competitive markets', it is Borealis's view that all geothermal thermal energy plants operating as a 'Traditional Utility' with service to a Municipality or Regional District should receive a section 88(3) class exemption from the application of the *Utilities Commission Act*.

¹² Emphasis Added. Examples of geothermal waste heat include the excess that is derived from a geothermal electricity facility.

The BCUC has referred to a ‘Traditional Utility’ as having “no exclusivity [but able to enjoy the] economic barriers to entry [of competition]”.¹³ BCUC has endorsed a description of ‘Traditional Utility’ as follows:

- “The nature of the product or commodity, the capital investment and the physical connection to the customer may act to make it impractical for another service provider to install and compete to provide the identical product or commodity once the investment has been made;
- The provision of the product or commodity (natural gas, electricity, steam, etc.) differs from the use by which that product or commodity may be employed (the provision of light, heat, cold or power);
- A customer remains free to: decline to connect to a Traditional Utility’s system; to take service from it; and to satisfy its needs for a particular end use from any other source.”¹⁴

In the context of geothermally driven thermal energy facilities participating in the heat energy market, existing market competition is high. Irrespective of location in British Columbia, in a Municipal setting, it will be true that none of these geothermal facilities will be entering ‘green field’, or new markets. In every case, Municipalities are currently served by a number of existing competitors; notably natural gas (by pipeline or CNG), propane, fuel oil, and wood.

In this context, market entry requires being competitive across all dimensions of service provision; price, safety, reliability, etc., or customers will simply not be motivated switch their energy supply.

As a result, in all Municipalities, Borealis envisions a competitive market environment where an alignment with the public interest naturally occurs.

The 3rd Principle, public interest, further supports Borealis’s proposed section 88(3) class exemption of geothermal thermal energy plants operating as a ‘Traditional Utility’ in the service of a Municipality. Due to the fact that widespread availability of geothermally sourced heat energy furthers all applicable BC Energy Objectives and that it has the potential to solve serious societal issues in certain areas of the Province, it is in the public interest to eliminate barriers to its development.

Request for Individual Exemption

In the alternative to the BCUC granting a section 88(3) class exemption for all geothermal thermal energy plants operating as a ‘Traditional Utility’ with service to a Municipality or Regional District, Borealis requests that the BCUC exempt individuals of that class on a case-by-case basis, under the authority of section 88(3).

¹³ Appendix A to Order G-151-16, page 19.

¹⁴ *Ibid.*

Municipal Exclusion

As presently written, the Commission has found that the words of the Municipal exclusion, “when read in their entire context and in their ordinary and grammatical sense” can only apply to Municipalities and regional districts.¹⁵ As presently written, it is Borealis’s understanding that the Municipal exclusion only applies in respect of services provided within its own boundaries, with ‘services’ including “the plant, equipment, apparatus, appliances, property and facilities employed”.¹⁶

It is Borealis’s submission that it is not strictly Municipal boundaries or forms of Municipal affiliation that matter when considering a Municipality’s capacity to regulate. What matters is whether a Municipality has, by definition, sufficient recourse and accountability to ensure customer/ratepayer protection. We believe this condition can be satisfied when the Municipality controls the entity. Without a controlling position, the Municipality could not be accountable. It would not have the power to effect necessary change. **As such, it is Borealis’s submission that the Municipal exclusion be amended to be based around Municipal control.**

Municipal Boundaries

Since Borealis would suggest that it is Municipal control that confers recourse and accountability to ensure customer/ratepayer protection, it is our recommendation that the definition of Municipal utility is amended to be boundary agnostic. Contrary to the existing BCUC position, we would suggest that the physical location of Municipally controlled utility infrastructure, or the physical location of those served by a Municipally controlled entity does not undermine the pre-existing governance framework that forces Municipalities to act in the public interest.

A benign scenario involving Municipal boundaries entails a Municipality that controls and utilizes utilities infrastructure that is physically located outside of its boundaries to serve customers within its boundaries. As currently contemplated, it is Borealis’s interpretation of the UCA that such a utility does not qualify as a Municipal utility. Given that Borealis cannot envision any scenario whereby the location of infrastructure outside of a Municipal boundary allows for potential abuse of monopolistic power, it is our view that this contemplation of a Municipal utility must be exempted from BCUC regulation.

The more provocative scenario entails a Municipal-controlled utility serving customers who do not live within the Municipality. As currently contemplated, those customers cannot be served by the Municipal utility; they must be served by a separate public utility that is regulated by the BCUC. It is Borealis’s view that this is unnecessary, and that customers still have multiple safeguards to protect their safety, reliability, and pricing without direct oversight from the

¹⁵ APPENDIX A to Order G-104-18, page 9.

¹⁶ *Utilities Commission Act*, RSBC 1996, c 473, s 1(1)(“public utility”)(c) and s 1(1)(“service”)(c).

BCUC. In Borealis’s view, if you are served by the Municipality, that alone is sufficient for you to have standing in any complaint or feedback process related to service pricing and/or delivery. As such, direct regulation from the BCUC is not eminently required in such a scenario.

In order to minimize regulation where it is not required, contiguous facilities under Municipal control should be exempt from BCUC regulation, even if the physical location of either infrastructure or customers straddles a Municipal boundary. Doing so will allow for a more efficient regulatory regime that still affords appropriate protections to the energy customers of BC, meanwhile encouraging the efficient use of infrastructure capital.

Municipal Forms of Affiliation

Since Borealis would suggest that it is Municipal control that confers recourse and accountability to ensure customer/ratepayer protection, it is our recommendation that the definition of Municipal utility is amended to be ‘form of affiliation’ agnostic.

The current Municipal exclusion provides that only a Municipality or regional district is entitled to the Municipal exclusion. Corporate entities are not entitled to the Municipal exclusion. Even if it is in the public interest for a Municipally-affiliated utility to be unregulated (as if it were a Municipal utility), the BCUC must stay within the bounds of the UCA and deem it a public utility. The public utility can then seek a regulatory exemption from the BCUC.¹⁷

While able to exempt public utilities from regulation for reasons of public policy, this current regulatory framework is inefficient and onerous for parties who have less internal capacity (i.e. small Municipalities and small companies). First, the framework forces Municipalities to use the limited resources at their disposal if they would like to be self-regulated. This is a risk for Municipalities. Second, it allows for third parties with more internal resources to arbitrarily contest the exemption, effectively forcing the Municipality to use even more human and funding resources. This is a public policy issue.

If the words of the Municipal exclusion are amended to allow for any ‘form of affiliation’ between Municipalities and other entities, it will provide the BCUC with the opportunity to consider the totality of the circumstances when determining if an ‘affiliation’ is a public utility or not.

It is Borealis’s opinion that if a ‘form of affiliation’ exists between a Municipality/regional district and a non-Municipal/regional district entity, in order to determine whether the ‘affiliation’ should enjoy the Municipal exclusion, the level of Municipal control within the ‘affiliation’ should be the determining factor.

¹⁷ Sustainable Services Ltd. Geothermal Energy System Status as a Public Utility under the UCA

The BCUC has requested comments on the following ‘forms of affiliation’:

- a. The utility’s assets are owned by a corporation of which the Municipality or Regional District is a shareholder or the sole shareholder;***

Comment: If the utility’s assets are owned by a corporation of which the Municipality or regional district is a shareholder, the corporation must be incorporated in such a way that ensures that the Municipality has effective control over the corporation.

- b. The utility’s assets are owned by a partnership of which the Municipality or Regional District is a partner, a limited partner or a general partner;***

Comment: The sharing of costs and profits between a Municipality and another party should not prejudice the Municipality’s ability to effectively regulate the utility. In partnerships, the partnership agreement is free to prescribe unanimity in respect of certain decisions and majority in respect of others.

Comment: *Limited Partnerships* - Since a limited partner cannot participate in managing the partnership, a limited partnership should only be allowed if the Municipality or regional district is the general partner in the limited partnership. That way, the Municipality has the necessary control to effectively regulate.

- c. The utility’s assets are owned by a third party, but the Municipality or Regional District has granted a franchise agreement, a licence and/or has enacted enabling bylaws to facilitate the construction and/or operation of the utility;***

Comment: In Borealis’s opinion, in this scenario, the Municipality is not in control and therefore the Municipal exemption should not be granted.

- d. The utilities’ assets are owned by a Municipality or Regional District but are operated by a third party; and***

Comment: If the utilities’ assets are not operated by a Municipally controlled entity, but simply owned by a Municipality, Borealis foresees a lesser degree of control and accountability from the Municipality. In our view, this form of affiliation should not be allowed to be granted the Municipal exemption.

- e. The Municipality or Regional District, by agreement with the utility owner, sets or approves the setting of rates for the utility.***

Comment: In Borealis’s opinion, it is more than just rates that need to be under the control of the Municipality. The Municipality must be able to ensure that the customers/ratepayers receive safe, reliable, and non-discriminatory energy services from the utility owner, whoever

that may be. As this form of affiliation does not equate to control, we would suggest that this structure not be eligible for exemption.

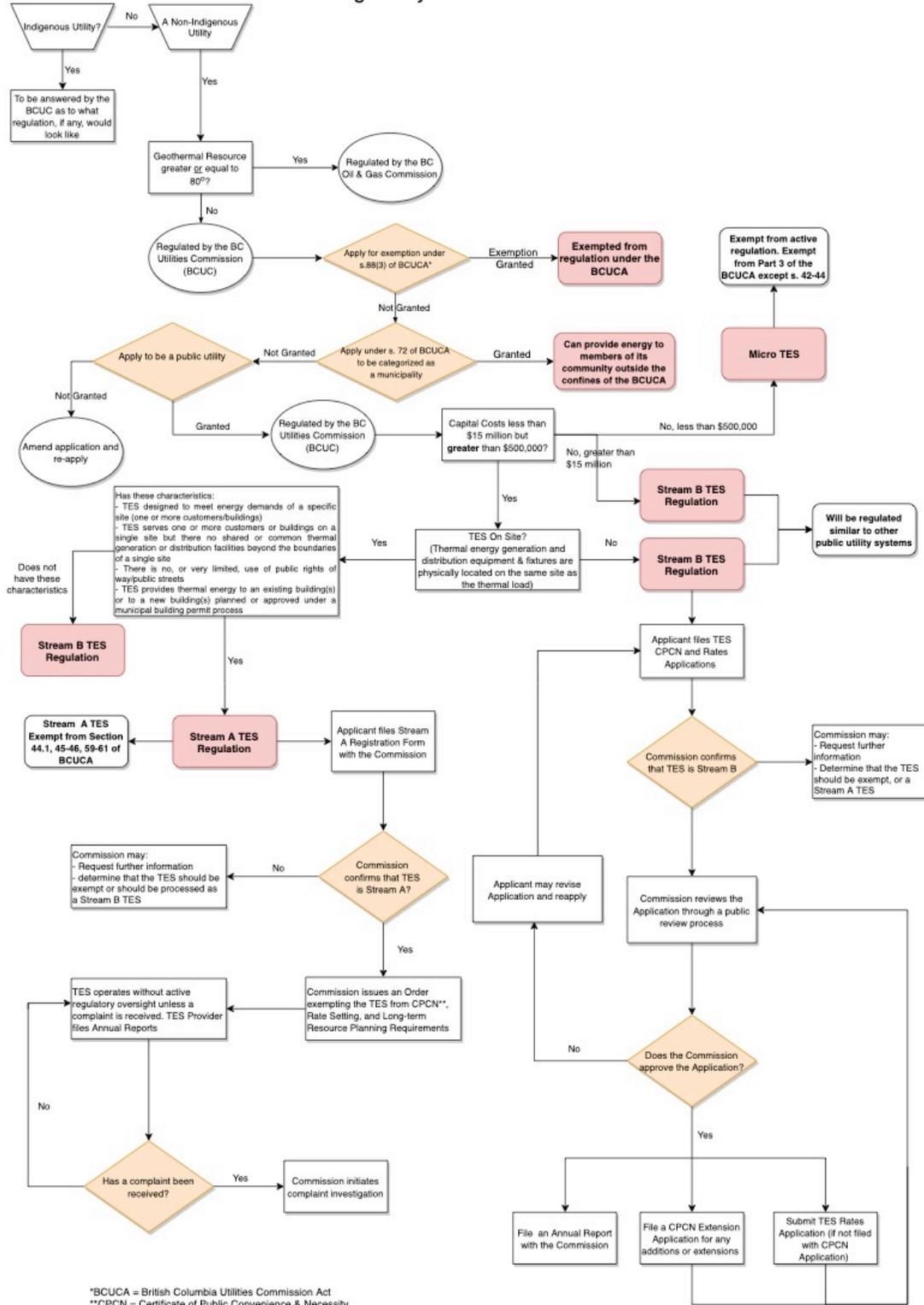
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Tim Thompson
Chair
Borealis GeoPower Inc.

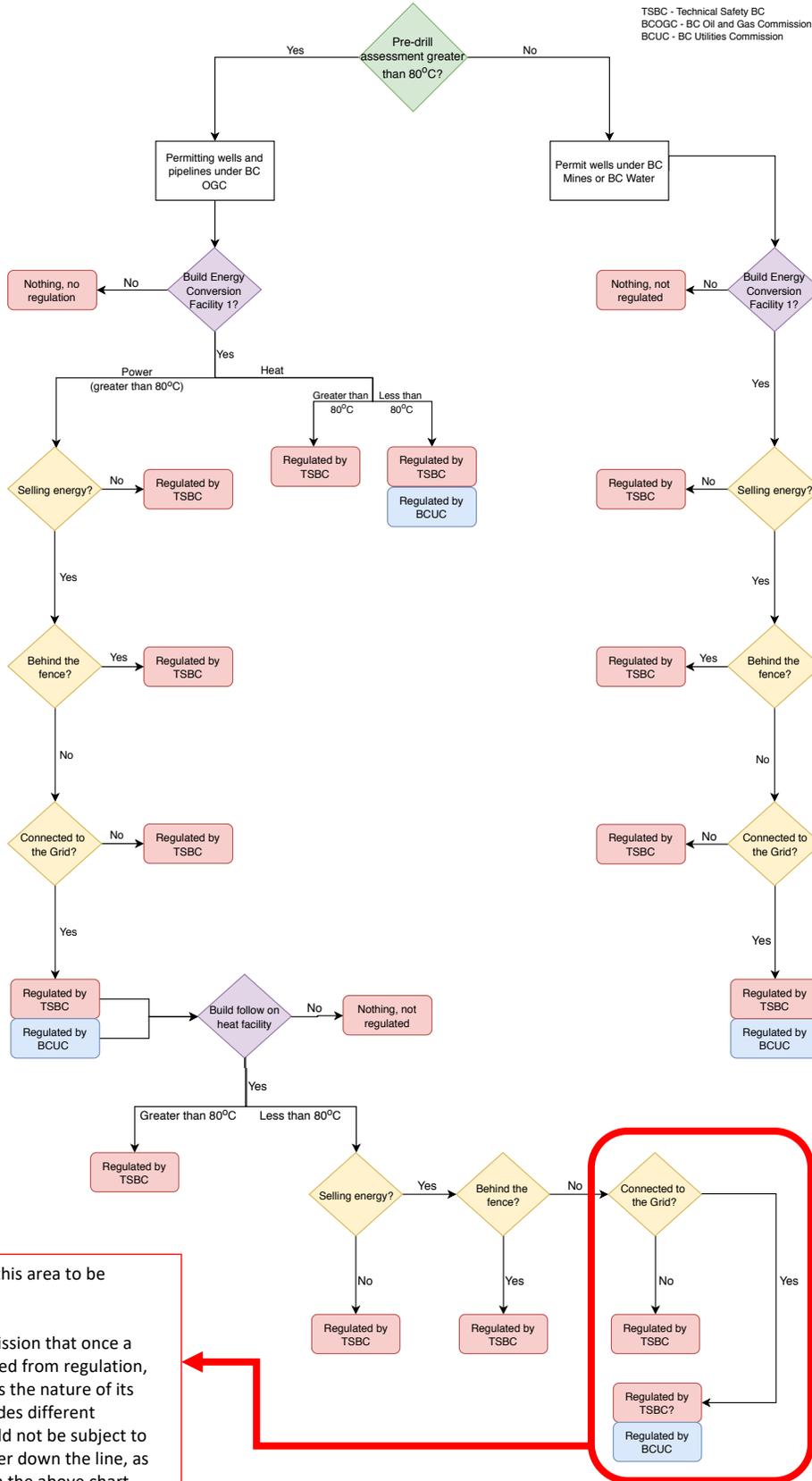
Appendix A – Regulatory Flowcharts

Regulatory Flowchart for Heat/Power Utilities



BCUC Municipal Energy Utilities Inquiry Borealis GeoPower Inc. – Intervener Submission

TSBC - Technical Safety BC
BCOGC - BC Oil and Gas Commission
BCUC - BC Utilities Commission



BGP would like this area to be examined.

It is BGP's submission that once a utility is exempted from regulation, unless it changes the nature of its utility and provides different services, it should not be subject to regulation further down the line, as demonstrated in the above chart.