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To Whom This May Concern,

Re: Response to BC Feed In Tariff Regulation Consultation Paper

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The Agrienergy Producers' Association of Ontario (APAO) has prepared the following submission in response to British Columbia's request for comments on a Feed in Tariff Regulation in that province. APAO is a not for profit, member-driven organization that represents the development and advancement of biofuel, specifically biogas but also biomethane, as a renewable energy source in Ontario.

This response has been organized to address, where possible, the formulated discussion questions in the consultation paper under FIT Program Rules (Section 3.3) as well as provide suggestions for improvements from the Ontario FIT experience for biogas.

#### **Project Size**

*Is the proposed limit of five megawatts of nameplate capacity appropriate given the objectives set out for a FIT? If not, what would be an appropriate size limit for projects under a FIT?*

The majority of biogas projects in Ontario have fallen in the range of 250kW to 500kW, with some exceptions of up to 2.5MW. One area of significant potential for biogas development is in the agricultural sector whereby farm businesses can complement their existing operations with appropriately sized biogas systems. Although very much dependent on the available organic inputs, these biogas systems could range from less than 100kW to upwards of 1MW. Other larger biogas applications include more centralized, commercial plants or municipal wastewater facilities. These projects, if considered eligible, would likely not exceed 5MW.

## **Project Location**

*Is the planned availability of a FIT to emerging technologies in all areas of the province served by BC Hydro appropriate given the objectives of the Regulation?*

The opportunity to participate under FIT in Ontario was not limited to one distribution company, but rather open to all local distribution companies (LDC's) allowing the potential for development across the province. Biogas developments from agricultural operations will be coincident with where these operations are located. In Ontario, this is generally the rural parts of the province whereby only a small number of local distribution companies (LDC's) serve this large rural, geographical area. Experience has shown that the majority of biogas projects have or are being constructed with one LDC, namely Hydro One Networks Inc.; however, other biogas systems associated with agricultural operations and greenhouses have also connected to other LDC's given that the Ontario FIT was not restricted to one electricity distributor.

An inclusive approach of LDC's to the Ontario FIT has also prompted a broader perspective of infrastructure improvements and planning with respect to connecting renewable regardless of LDC. In some cases, this assessment process has shown to be limiting for biogas development. On the other hand, input from a collective of LDC's is important to establish priority connections province-wide for future biogas development.

In summary, biogas development will be coincident with existing agricultural activity, especially in the rural areas. The availability of a FIT should be considered through a means that would serve the greatest diversity of technologies and the areas from which they would be supported.

## **Eligible Generation Technologies - Emerging Technologies (Biogas)**

*Are the criteria used for identifying emerging technologies appropriate? What changes to them are necessary?*

Yes. Biogas-based electricity generation using anaerobic digestion should be considered an eligible emerging technology under FIT. As noted, the benefits imparted by biogas technology are significant and worthy of consideration and eligibility under a FIT. The environmental benefits that are realized as a result of anaerobic digestion of organic residuals include: removal of odour-causing compounds (methane), reduction of greenhouse gases (GHG), diversion of waste streams to fuel, reduction of pathogens, weed seed and pest larvae and enhancement of nutrient sources. These benefits in turn protect our water sources, improve the air, and enrich our land.

Beyond the environment, biogas-based electricity generation can provide benefits to the electricity sector given that biogas technology is a consistent, reliable, energy source. Its synchronous generation has the potential to be dispatchable to address peak energy demands and can integrate into existing electrical infrastructure. Biogas-based electricity generation also has the potential to improve power quality and grid stability.

Furthermore, there is ample opportunity to extract waste heat from the biogas system for other applications. In addition to heat, there are other innovative technologies that can be contemplated for use of digestate, carbon dioxide, etc.

All such benefits can be realized from biogas technology whether it be applied to agricultural sources, landfills or municipal wastewater. By including these other applications, the opportunity for development in both rural and urban centres is possible.

#### **Eligible Generation Technologies - Proven Technologies (Biogas)**

*In what regions of the province should proven technologies be considered for inclusion in a FIT? Why?*

Biogas technology has been implemented successfully around the world in both rural and urban applications (agriculture, wastewater treatment, landfill). Where organic materials can be collected and processed by way of anaerobic digestion and the resulting biogas captured to fuel an engine to create electricity, biogas technology can be considered. Biogas is the reliable renewable which is not dependent on natural forces to generate electricity, but rather the availability of organic materials.

Biogas development can be adapted to supply a self-sustained electricity source to complement on-site operations, to generate excess electricity to support neighbouring communities or adjacent energy loads, and to provide a reliable, renewable consistent energy source. Biogas technologies can be scaled to accommodate a variety of factors including: available inputs, site location, energy output, as well as low temperature heat sinks. Biogas can be considered as smaller, independent developments or larger, communal cooperatives. Biogas technology can be designed to support remote communities and offset fossil fuel dependence where organic residuals can be easily sourced; thereby providing a means of self-sufficient electricity generation.

Biogas technology has been a significant contributor in other jurisdictions to regional economics by way of the investments made in job creation, technology, research and development. Innovation opportunities are also made possible by augmenting biogas systems to utilize outputs and create new products.

Biogas technology can be adapted to suit many applications and demands and should be considered suitable for all regions of the province.

### **Price/Rate of Return**

*Is the target range for project rate of return appropriate? If not, what rate should be available?*

The Ontario experience strived to achieve an 11% return on investment (ROI) for all technologies. Based on the consideration of capital investment, approvals, operation and maintenance costs, the established price ranges for biogas are not adequate to support a biogas project over twenty years. Unlike other technologies, biogas technology must first manage the fuel source (organic residuals) by way of transporting, storing, mixing, and pumping it in order to create biogas. This demands significant infrastructure like pumps, mixers, augers, and storage vessels. In turn, the engine that consumes the biogas as fuel also requires routine maintenance and overhaul given that it operates continuously 24/7. At a minimum, any pricing structure for biogas technology needs to factor in a CPI adjustment that addresses the relative on-going investment.

Most of the initial biogas developments under the Ontario FIT had received additional funding support. This coupled with the set price ranges for biogas, enabled initial projects to move forward financially. Now that such funds have been fully allocated, there has been limited uptake to biogas developments.

Based on these experiences, it is expected that a BC FIT offer of five to ten percent return will not attract venture capital or even conventional financing to support biogas developments. Understanding the importance of actual capital investment, and on-going operation and maintenance costs, APAO is currently sourcing this data to substantiate reasonable price ranges for biogas. In general, the price should be no less than five cents more per category.

*Is it preferable for a FIT to offer a higher rate of return available to fewer projects or a lower rate of return available to more projects?*

It is recommended that prices be set to allow for sustainable growth of an industry. Pricing should be established to provide a stable market for long term sales of renewable energy at a rate of return that makes projects economically feasible. No sector benefits from developing only a few token projects on the basis that the industry does not survive from the lack of necessary support (technical, financial, etc.). Conversely, development in a broad sense will not occur unless prices are set high enough to encourage interest, investment and overall financial viability of a project.

### **Contract Term**

*Is a five year contract term under a FIT sufficient to attract investment in projects using emerging renewable energy technologies? If not, what term should be available?*

Ontario has committed to energy procurement of renewables in 20 year term contracts. This surety is an important factor in securing financing for the project, managing unexpected challenges with proven or emerging technologies, and forecasting business results.

A five year term in comparison is not likely to instil confidence or assurance of the commitment to renewable energy nor ensure viability of biogas projects. Consideration of a review period for the overall program would be a means of assessing changes that may be necessary to sustain a FIT.

### **Maximum FIT Budget**

*Is a maximum budget of \$25 million of annual incremental costs above prevailing energy prices sufficient for a FIT to achieve the objectives set by the Ministry?*

This question must be set in the context of targets that the province would like to achieve. Without targets for amount of generation, it is difficult to advise on a budget.

### **FIT Project Intake Process**

*Is the award of electricity purchase agreements under a FIT on a first come, first served basis the most effective method given the size and objectives of a FIT in British Columbia?*

*Would a system by which particular technologies or sectors were allocated a portion of the FIT be more effective in achieving the Province's objectives? How should such an allocation be determined?*

A FIT program should be developed such that biogas technology is allocated priority access to the program where a project meets eligibility criteria (i.e. approvals, environment, financing) and is deemed to be ready for construction. In this manner, a project is supported through the process and in turn able to contribute to fulfilling these objectives.

Based on the Ontario experience, one of the greatest obstacles for biogas development has been connection to the electrical grid. This includes available capacity, meeting technical requirements in an economical manner, as well as the process for connection (impact assessment, cost connection estimates, etc.). Given these obstacles, the opportunity for continued biogas development is limited without dedicated priority for biogas.

**Multiple FIT Programs**

*What factors should be taken into account in considering the creation of additional FIT Programs?*

So long as the framework for biogas technology with respect to price and priority are established in an educated, transparent and reasonable manner, no additional program considerations are necessary.

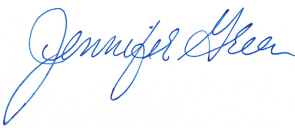
**Additional Comments - Environmental Attributes**

The APAO strongly encourages that under a BC FIT the treatment of all environmental attributes resulting from biogas technology be owned by the project proponent. For biogas, the process of anaerobic digestion, and therefore, the destruction of methane, is being done at the site of generation. As a result, it is the biogas proponent that is capturing the methane to convert into a renewable energy source which in turn is decreasing the GHG emissions.

**Summary**

In closing, APAO appreciates the opportunity to offer stakeholder input to the development of the BC FIT program. Biogas development is capable of contributing to each of the six energy objectives as set out by the provinces' Clean Energy Act as has been further described herein. Should you require additional information or input to your consultations on biogas, please feel free to contact us.

Sincerely,



Jennifer Green  
Executive Coordinator on behalf of the APAO Board of Directors