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**Feed-In Tariff (FIT)  
Two-Year Program Review  
APAO Input - Biogas in Ontario**

The following comments and recommendations are provided to you and the Ontario Power Authority by the Agrienergy Producers' Association of Ontario (APAO) in order that changes can be made to enable the growth and development of a biogas sector in Ontario. Biogas is a renewable energy technology that is on the verge of major growth given the right environment created by government and its agencies. It is an important energy source in parts of Europe and within the right regulatory environment, can contribute many benefits to Ontario's economy. The Ontario government has made a significant investment in the biogas industry, and private entities have also invested significant resources in Ontario. It would be wise to make that initial investment successful and work to overcome the initial hurdles that are inevitable with ground-breaking legislation like the Green Energy Act.

APAO members agree that the following key FIT changes would provide a positive environment to facilitate the growth of the biogas sector:

**1) Priority Access to the Electrical Grid is Required to Achieve Future Grid Management Capability**

Biogas generates reliable, flexible, dispatchable power 24/7 that has the ability to accommodate intermittent renewable power supply through means of gas storage and flexible power. To realize this as a long-term solution for grid management, priority access for biogas is required to the electrical grid; 20% of remaining renewable capacity within the LTEP needs to be allocated to biogas; peak premiums need to be further studied; and, measures of accountability, transparency and cost effectiveness need to be upheld with electricity utilities, most notably Hydro One Networks Inc.

**2) Priority Ranking and Processing of Biogas FIT Applications**

Given the small percentage of existing biogas applications to the FIT program and the relative growth potential for biogas in Ontario, biogas applicants should be given priority ranking and biogas-specific case managers assigned to expedite processing and award of contracts for biogas projects.

**3) Reasonable Economics for Biogas**

Biogas projects need to be priced factoring in the unique complexity and operation/maintenance demands of this technology and an investment incentive that is comparable with other renewable technologies. CPI must increase to minimum of 50% in order to address true operating costs in Ontario for biogas. Similar to the Community "Adder" which should remain eligible for biogas, an Innovation "Adder" of 5¢/kWh is proposed to acknowledge additional capital investment to advance the technology or innovation elements of biogas systems.

**4) Improvements to Renewable Environmental Approval (REA) Process**

Biogas projects require a streamlined, timely and cost effective approach to attaining environmental approvals that are coordinated with the overall development of a renewable energy project. Consideration

of existing nutrient management regulations and alternative means of expedited environmental approvals is needed for all biogas applicants. Specific reporting requirements need to be removed where other legislation adequately addresses the same concerns. Ministry of Environment should accept reports stamped by professional engineers thereby allowing its focus on procedure and timeliness of approvals. Alternatively, MOE includes a biogas energy expert internally who understands biogas technology and its environmental contributions.

#### **5) Development of a Government-wide Biogas Strategy**

Biogas is directed by policy, regulation and programs that span three provincial ministries including Energy, Agriculture, and Environment, and where opportunities expand for municipal biogas, with Municipal Affairs. Biogas needs a cross ministerial strategy to develop well coordinated, consistent and easily implemented rules to realize the biogas potential in Ontario.

The following sections provide additional detail supporting the above noted points and are reflective of immediate changes to the existing OPA FIT program, interrelated policy and programs, and longer term considerations for sustainability of the biogas sector. Supplementary materials are available upon request.

### **1. Grid Connection and Management**

Biogas generates reliable, flexible power 24/7. It can also help manage the intermittent characteristics of other renewable forms of green energy (i.e. solar and wind) by reducing biogas generation during peak periods and storing gas for up to 4 hour periods, or more if designed accordingly. Biogas is a synchronous form of electricity generation which provides controlled power factor and improved power quality. Biogas is quickly dispatchable and capable of contributing maximum flexibility to assist the Independent Electrical System Operator (IESO) with management of the electrical grid. This unique aspect of biogas should be recognized as a way to address surplus baseload generation in Ontario and for which additional study and research should be completed jointly with our association.

With respect to connecting biogas projects to the electrical grid, the biogas sector has experienced significant delays, costly estimates, and technical issues. Given the rural positioning of most biogas projects at the distribution system level, Hydro One Network Inc. (HONI) is the predominant utility for which planning, design and implementation is required for biogas projects. Member experiences relayed to APAO with respect to grid connections revealed:

- unreasonable delays
- lack of accountability
- excessively high cost estimates for connection of biogas generation projects
- continuous rule changes
- poor communication in all aspects of development and operations (i.e. planned outages)
- lack of willingness to embrace distributed renewable energy

Further to the direct experience in dealing with HONI, the OPA has set out a process to systematically expand and upgrade the existing infrastructure for grid connections, namely the Economic Connection Test (ECT). Many biogas projects have been impacted by the ECT and the onerous connection process to local distribution companies. The impact is significant enough to result in financial distress for several current project owners and developers as well as dissuade interest in future biogas development.

APAO participates actively in committees and advisory panels with HONI to provide input on challenges and recommendations on grid interconnection. APAO is also conducting joint research to address technical solutions that are cost effective for biogas project connections. Although efforts continue to be made, the willingness to embrace renewable generation by HONI is lacking. Measures of accountability, transparency and cost efficiencies within HONI require the attention of the Ministry together with the Ontario Energy Board.

**Actions:**

- *The APAO asks that priority access be made available for biogas to the electrical grid; that 20% of remaining renewable capacity be allocated to biogas; and, that further study be completed through APAO to establish a framework for integrating peak power options to address surplus baseload generation.*
- *Priority investment should be allocated to infrastructure upgrades at the distribution level where biogas projects exist.*
- *Clarity is required on the timelines, protocols and schedule for the ECT process.*
- *The Ministry together with the OEB to work with Hydro One to overcome regulatory, infrastructure, and technical challenges and create processes that uphold measures of accountability, transparency and cost efficiencies.*

## **2. FIT Program - Essential and Immediate Changes**

The following provisions of the FIT program including the processing of applications, Rules, Standard Definitions and Contract require amendment as they pertain to biogas projects.

### **Ranking and Processing of Biogas Applications**

The OPA is attempting to process in excess of 25,000 FIT applications. These are currently being reviewed together on a time stamped, first come, first served basis, regardless of the source of the power generation. Of the roughly 25,000 applications, fewer than 200 are for biogas projects. These biogas applications have difficulty getting the attention they deserve.

**Action:** *Because biogas applications make up a very small percentage of successful FIT applicants and given the relative growth potential of the sector, measures need to be taken to streamline the priority and processing of biogas applicants. This may be best managed through biogas specific case managers or alternative means.*

### **Environmental Attributes**

The OPA retains the rights to all environmental attributes. The environmental benefits imparted by biogas technology include: enrichment of the nutrient value to soil, protection of surface and groundwater sources, and reduction in greenhouse gas emissions to the atmosphere by capture of methane (21 times more potent than CO<sub>2</sub> as a greenhouse gas). Such environmental contributions distinguish biogas from other renewable energy technologies. Other renewable energy sources displace coal, and so the environmental attributes that are associated with them are much lower in value than biogas, which displaces coal, but also captures methane.

**Action:** *Environmental Attributes (specifically methane destruction credits) should remain with the biogas proponent.*



### Station Service Load Definition

OPA has defined Station Service Load as “the Electricity used for excitation and on-site maintenance and operation of power generation facilities, including auxiliary facilities, but excludes energy consumed in association with activities which could be ceased or moved to other locations without impeding the normal and safe operation of the Facility”.

In addition to the electricity used as part of the generating unit, biogas systems require additional electricity for use of pumps, motors, mixers, compressors, etc. These are integral parts of the overall system which could amount to upwards of 10% of the total generation. In many instances, biogas generating units have the capacity to generate above the nameplated value, thus able to provide electricity to offset electrical demands of the biogas system.

Further to above, biogas systems require additional energy to create the fuel (biogas). These energy needs can result in classification of a biogas project site as a “demand customer” resulting in significant demand charges. Recognition of these operational characteristics for biogas was provided for under the RESOP program whereby demand and transmission charges were not applied.

**Action:** *Revise the definition of Station Service Load to exclude the electrical demands of the biogas system and allow the generating unit to exceed the nameplate capacity to provide these energy needs. Furthermore, ensure that demand charges are not applied to biogas systems.*

### Incremental Project Definition

The OPA needs to provide clarity on the definition of incremental projects specifically for biogas with respect to price and sizing for additional developments on existing anaerobic digestion facilities.

**Action:** *Each project segment should be priced according to its size.*

### Future Contract Related Products Definition

The OPA published guidelines clarifying the provision of Future Contract Related Products (RCRP) in April, 2011 based on consultation with the biogas industry stakeholders. These guidelines provide important clarification to the definition, but are not captured contractually in agreements set forth with biogas applicants.

**Action:** *Include the guidelines for Future Contract Related Products in the FIT Standard Definitions.*

### Schedule 1, Exhibit G - Form of Independent Engineer Certificate re: Commercial Operation

At the end of project implementation, the OPA requires metering verification by an independent engineer, not previously involved with the project. This provision adds unnecessary cost and duplication, especially for projects that are 500kW and less.

**Action:** *For smaller projects (<500kW), a Professional Engineer engaged in the project be considered as the independent engineer to satisfy this OPA prescribed exhibit.*

### 3. Reasonable Economics for Biogas

Biogas projects need to be priced factoring in the unique complexity and operation/maintenance demands of this technology and an investment incentive that is comparable with other renewable technologies. The following describes reasonable economic parameters that will support further biogas development.

#### Consumer Price Index (CPI)

CPI is set currently at 20% for all renewable technologies under this program. It is our understanding that this inflationary factor was set relative to wind projects using an 80-20% formula (capital vs. operating costs). Biogas systems in comparison to wind are more complex. Biogas systems are comprised of a greater number of components and processes (pumps, mixers, pipes) necessary to collect, store, transport, and treat organics to create biogas. Feedstock must be managed and moved, grown, and/or delivered. These many moving parts and operational considerations incur greater wear requiring more ongoing maintenance than other renewable technologies like wind.

In keeping with OPA's principle of setting prices based on a fair return on equity (ROE) of 11% per annum, the APAO contends that no biogas project is capable of attaining such a target based on existing prices. APAO presented calculations to OPA staff on December 7<sup>th</sup>, 2011 illustrating an example of a 499kW biogas project at 16.4¢/kWh, with an average capital investment of \$2,495,000, average capacity factor of 89% and annual operating costs of approximately \$300,000<sup>1</sup>. The calculated ROE for such a project with a 60:40 debt to equity ratio is 6%. If CPI were raised to 50% with all other variables remaining equal, then an 11% ROE is achieved at the current FIT price of 16.4¢/kWh (note with community adder). A copy of the spreadsheet has been submitted to the OPA and with this submission and presented in Appendix A.

Based on these calculations, a CPI rate of 20% is not adequate to support the life cycle costs of biogas projects, thereby creating an unsustainable framework for existing and new biogas projects over the 20 year term of a contract.

**Action:** *APAO believes a more realistic CPI factor, reflective of true operating costs in Ontario, is 50%. This factor should be amended for all biogas contracts in order to sustain the operation of existing and future projects.*

#### Pricing, Size Tranches and "Adders"

##### Pricing and Size Tranches

The OPA has set out five size tranches for biogas ranging in price from 19.5¢/kWh for a project ≤100kW to 10.4¢/kWh for a project > 10MW. The APAO solicited financial and development input from its members building biogas systems to give perspective to the current biogas experience in Ontario. Based on this study and other market opportunities, the following key elements relating to price and size for biogas development are presented:

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<sup>1</sup> Given the relatively young industry in Ontario, biogas projects have yet to go through a replacement cycle to adequately reflect true operation and maintenance costs. As a result, the APAO extrapolated operating costs from the Renewable Natural Gas (RNG) submission currently tabled with the Ontario Energy Board (EB-2011-0242 and EB-2011-0283).

#### Biogas Projects Sized $>100\text{kW} \leq 500\text{kW}$

- the majority of biogas projects built in Ontario to date are sized between 250kW and 500kW
- the average capital investment is approximately \$5000/kW for a 500kW sized project

#### Biogas Projects Sized $\leq 100\text{kW}$

- limited growth has occurred in the smallest size tranches to date
- small-medium sized farms represent a large market opportunity for biogas development (i.e. approximately 3,500 farms milking less than 100 cows)

#### Biogas Projects Sized $>500\text{kW} \leq 10\text{MW}$

- limited growth has occurred in this size tranches to date
- the largest biogas project in operation is sized at just over 1MW
- biogas opportunities have yet to be developed fully for
  - municipalities, specifically landfills or wastewater treatment systems
  - commercial use, for example food processing facilities

As the majority of biogas projects in Ontario are in the 500kW range, pricing for other size tranches cannot be demonstrated in a similar calculation. Project economics can however be extrapolated for other size tranches based on the 499kW example. These have been simulated in the same spreadsheet model referred to above and result in pricing of 26.5¢/kWh for projects  $< 100\text{kW}$ ; 22.0¢/kWh for projects  $>100\text{kW} \leq 250\text{kW}$ ; and, 16.0¢/kWh for projects  $>500\text{kW} \leq 5\text{MW}$ .

In addition to the calculation on ROE above for a 500kW size project, other processes, namely environmental approvals through REA, have substantially increased total project cost of larger biogas projects (i.e.  $> 1\text{MW}$ ). This additional cost makes it more challenging for these larger sized systems to attain an equitable ROE. An adjustment to the price or size tranches is suggested to address the reality in additional costs for larger projects. Furthermore, given the limited development in the larger size category, it is recommended that projects larger than 5MW be excluded from the FIT program and considered under separate contract forms with OPA.

APAO is aware of no more than 30 biogas projects in any stage of planning, design, construction or operation in Ontario today. The small number of biogas installations in the province is a further indication that pricing must be addressed to encourage greater uptake of this renewable technology.

#### **“Adders”**

Another option to ensure fairer pricing for biogas is to incorporate key “adders” into the program as has been done in Germany where biogas contributes substantially to their renewable energy economy. These adders would recognize additional benefits that align with the Green Energy and Green Economy Act and other government programs and initiatives.

In addition to the community adder (as revised) which should be maintained for biogas, APAO proposes an Innovation Adder be provided to incent opportunities such as thermal use, emissions control, manure management, water quality, and feedstock alternatives. This would encourage new innovations in Ontario for biogas, generate local manufacturing, create jobs, and foster cutting edge research to maintain Ontario as a leader. It is proposed that a 5 ¢/kWh adder be attributed to biogas projects that invest additional capital to advance the technology or innovation elements of biogas systems. Details about this “Adder”, how it would work, and precedents in other jurisdictions to be provided by the APAO upon request.

## Summary Pricing, Size Tranches, and “Adders”

The following summarizes the actions from above:

### Action:

- Provide an increase in CPI to 50% to enable existing and future biogas systems to achieve 11% ROE.
- Revise the pricing and size tranches as follows:

Size	Revised Price (¢/kWh)	CPI (%)
≤100kW	26.5	50
>100kW ≤ 250kW	22.0	50
>250kW ≤500kW	16.4	50
>500kW ≤5MW	16.0	50

- Include “adders” for biogas including Community projects (price as revised) and Innovation (5 ¢/kWh).

## 4. Renewable Energy Approval (REA)

Biogas systems are unique given their size and nature from other renewable technology forms and are challenged by a one-size fits all approval process. The slow and onerous REA process is one of the main reasons biogas development is stalled in Ontario. The fundamental purpose of the REA is to ensure protection to the environment from renewable energy projects following a process that is cost effective and timely, while maintaining the public interest. Biogas projects uphold this premise and provide environmental benefits that extend to source water protection, greenhouse gas reduction, odour management, nutrient recycling, and waste reduction. Biogas is able to help the government reach climate change targets, protect our water supplies, improve our nutrient management and extend the lifespan of existing landfill facilities. Biogas systems are also commonly integrated with existing farms creating complementary, sustainable, and efficient operations while benefiting the environment.

APAO has and continues to work with the Ministry of Environment (MOE), Ministry of Agriculture, Food and Rural Affairs (OMAFRA), and Ministry of Energy through the Renewable Energy Facilitation Office (REFO) to address the hurdles related to REA approvals for biogas. APAO has summarized below specific recommendations to the REA for Class 2 and Class 3 anaerobic digesters that will improve the current process. It is important to note that any changes implemented to the REA must be done in a manner that recognizes the impact for biogas among other renewable technologies and allows for equitable growth of biogas across the sector (i.e. agricultural, municipal and commercial applications for biogas).

### Approval Timelines, Cost, and Biogas Expertise

REA was introduced with the intent of streamlining the approvals process, yet not one biogas project has received a REA approval in the two-year timeframe of this program. The previous Certificate of Approval process and current Nutrient Management approval process offer(ed) much more reasonable requirements and therefore a more timely and cost effective approval process for biogas projects. Members have also experienced a lack of coordination of REA with the FIT program and local distribution company connection timeframes presenting significant delays and financial risk to project developers. Furthermore, there remains a lack of

knowledge on biogas within the government as evidenced in the type of questions received back in application review.

To address timely REA approvals, guaranteed service dates must be respected and conditions set similar to other project developments (i.e. liquidated damages, or automatic approvals if timing exceeded) that hold the government and its agencies accountable to deliver timely approvals to project developers. To further address efficiencies in the process, MOE could implement a pre-consultation option to assess site specific requirements that may differ from normal reporting requirements. It is also suggested that the MOE opt for provision of stamped reports by professional engineers thereby removing the obligation of detailed internal technical review and focussing on management of the process and timely delivery of approvals. This option would also ensure technical sign off of projects by individuals with biogas experience reducing the review period to a minimum of one exchange of questions with the project developer.

### Thresholds

Currently REA is triggered when off-farm materials brought into an anaerobic digester exceed 25%. This threshold is problematic and hinders the economic viability of several biogas projects that have multiple environmental benefits that are widely accepted by the public. APAO is working with MOE and OMAFRA to increase this threshold acknowledging the management of nutrients governed by the Nutrient Management Act. The proposed registry approach seems reasonable, pending disclosure of the details.

### Reporting Requirements

The REA process presents onerous and duplicating requirements with existing regulations, namely Nutrient Management, for biogas projects. The following table summarizes the rationale and recommended changes to reporting requirements under REA for biogas projects. Where reference to other required reports is absent, these reports would be reasonable to maintain as requirements of the REA process.

REA Requirement	Class 2 AD's	Class 3 AD's
a) Construction Plan Report	- eliminate on basis of similarities to other on-farm construction and overlap with NMA; incorporate reasonable elements into Project Description Report	- eliminate given its similarity to other manufacturing facilities that as a benchmark would not require this type of reporting
b) Consultation Report	- one public meeting with invitation to all stakeholders with reasonable notification period; municipalities already engaged through bldg permit process; establish time periods for obtaining lists of contacts and response from aboriginal groups	- one public meeting with invitation to all stakeholders with reasonable notification period; municipalities already engaged through bldg permit process; establish time periods for obtaining lists of contacts and response from aboriginal groups
c) Decommissioning Plan Report	- reduce the scope of report detail to recognize the provisions covered by Financial Assurance	- reduce the scope of report detail to recognize the provisions covered by Financial Assurance

	requirements and components are integral to farm operations	requirements
d) Design and Operations Report	- AD process related detail is contained in the Project Description Report; eliminate given duplication in NMA; maintain an operations manual on site	- reduce detailed information on AD process as it is detailed in Project Description Report; set annual volume caps and on-site storage
e) Effluent Management Report	- eliminate as effluent is value added nutrient and managed under the NMA, sewage is not managed in farm based AD's	- eliminate where other jurisdictions address management provisions as nutrient (NMA, CFIA)
f) Water Assessment Report	- AD process improves the baseline of water quality given treatment of pathogens; setback distance requirements adhered to by NMA; on this basis the report should be removed	- eliminate given all municipal setback distances for manufacturing facilities are respected and treatment of materials mitigates adverse impact to water quality
g) Natural Heritage Assessment Report	- as this is not a requirement for NMA approved AD's operating under the same process with no greater impact and setback distances are respected, the report should be removed	- using other industrial developments as a baseline that do not require such a report, the report should be removed
h) ESDM Report	- N/A	- minimize details where possible; assess specific detailed requirements factoring in cost (i.e. shrouded flare vs candle stick flare)
i) Archeological Report	- N/A	- using other industrial developments as a baseline that do not require such a report, the report should be removed
j) Miscellaneous Items	-	- Eliminate secondary containment requirements for transformers given the size and nature of projects (i.e. no large TS)

The changes as described above are needed before any future biogas project will consider a REA approach to satisfy the environmental approvals requirement.

**Actions:**

- *REA approval times/guarantee service dates need to be respected by MOE and compensation paid to project developers if timelines are exceeded either in the form of liquidated damages or automatic approvals.*
- *Provision of stamped reports by professional engineers with experience related to biogas and anaerobic digestion to eliminate demands of internal technical reviews, defining the role of MOE to ensuring proper*

*procedures are maintained and intervene only in case of arising concerns of stakeholders during the consultation process.*

- *Work with MOE and OMAFRA to address the current 50% threshold for off-farm materials and acknowledge the management of nutrients governed by the Nutrient Management Act. APAO supports the proposed registry approach subject to definition of final details.*
- *Reporting requirements as noted in the table above need to be removed.*

## **5. Government-wide Biogas Strategy**

Biogas provides an economical and environmentally sustainable form of renewable energy in Ontario and has the potential to contribute to a much larger, more sustainable energy equation in Ontario. This potential is described in greater detail in a report entitled “Growing and Sustaining the Ontario Biogas Industry” (Appendix B) authored by APAO from which key points have been extracted as follows:

- Biogas generates reliable, flexible, dispatchable power 24/7 and can produce an estimated 250MW of electrical power in Ontario, enough to power approximately 150,000 to 200,000 average Ontario households.
- Organic waste streams originating from agricultural, food and municipal sectors in Ontario can supply 400 to 500 anaerobic digesters.
- Biogas can create 2,500 jobs and leverage \$1 to \$1.5 billion dollars in Ontario’s manufacturing sector.
- Biogas can integrate rural and urban energy needs in a sustainable manner.
- Biogas can be a multi-type energy source: converted to electricity, captured as heat, injected to pipeline (biomethane), compressed as transportation fuel
- Biogas builds the Agriculture/Food sector – treating livestock manure from farms, heating greenhouses, managing organics and effluent from food processing and commercial facilities, earning revenue from the energy produced;
- Biogas builds the Municipal sector – addresses waste challenges, and provides revenue for energy generated. Biogas can be generated from landfills, wastewater treatment facilities, and from source separated organics.
- Biogas offers valuable nutrient recycling by processing organics through anaerobic digestion, transforming wastes into fertilizer, and reducing commercial fertilizer costs.
- Biogas can help achieve climate change targets by reducing an estimated 3 million tonnes of CO<sub>2e</sub> annually.

Electricity is but one form of energy that can be made available from biogas. As a versatile fuel supply, biogas can be considered a gas with multiple applications including:

- Renewable Natural Gas (RNG) - biomethane is pipeline quality natural gas derived from anaerobic digestion that can be injected into existing pipeline infrastructure and delivered anywhere the network serves
- Compressed Natural Gas (CNG) - a gaseous fuel serving transportation needs for vehicles or shipping fleets
- Stationary Heating Fuel - a fossil fuel replacement for stationary heating demands such as buildings or commercial/industrial processes.

All existing biogas developments have been focused on electricity generation given the FIT framework established for the electricity market in Ontario. APAO is encouraged and supportive of the recent RNG submission to OEB by Union and Enbridge Gas as it will provide an alternative for biogas developments that complements the electricity market.

In addition to multiple energy supplies, biogas can also be applied in a variety of settings. While the majority of biogas installations currently in the province have been developed in conjunction with agricultural operations, there remains an untapped opportunity to create biogas from organic materials captured from municipal, commercial, industrial and institutional settings.

Biogas has been successfully implemented in other jurisdictions, specifically Germany where over 7,000 biogas facilities produce over 2,700MW of power. In Germany, biogas has contributed over \$1 billion into the economy, created over 46,300 jobs and is on target to generate 17% of its total power from biogas (Appendix C). Germany has a similar agricultural base to Ontario; it also has proven technology, experience and a policy framework that could be replicated here.

Based on limited biogas development to date in Ontario and projected growth opportunities, biogas requires the right government policy and programs to create a strong biogas industry. Biogas will thrive under an integrated government-wide strategy that acknowledges the value, potential and framework necessary to support a biogas sector.

**Action:** *APAO proposes that a cross Ministry strategy be established with four Ministries directly responsible for biogas policy: Energy, Agriculture, Environment and Municipal Affairs. It is proposed that Energy lead so that government policy related to biogas is well coordinated and consistent and becomes a larger priority.*

## Summary

We look forward to working with you to resolve the hurdles that we have experienced to date. We are confident that the government will commit to investing in biogas, given its cost effectiveness and range of benefits outlined above. With so much potential in Ontario, and success in Europe to draw from, we are optimistic about the future of biogas in Ontario.

Sincerely,



Dan Jones  
President, Agrienergy Producers' Association of Ontario



## Appendix A

### Biogas Financial Models



## Appendix B

### Growing and Sustaining the Ontario Biogas Industry



## Appendix C

German Biogas Association

Biogas Report and Statistics - 2011