

Organic Waste to Watts – The Lethbridge Biogas Story

**2016 RCA Conference
'League of Extraordinary Recyclers –
Knocking out Waste'
September 29, 2016**

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Lethbridge Biogas LP**



Lethbridge Biogas



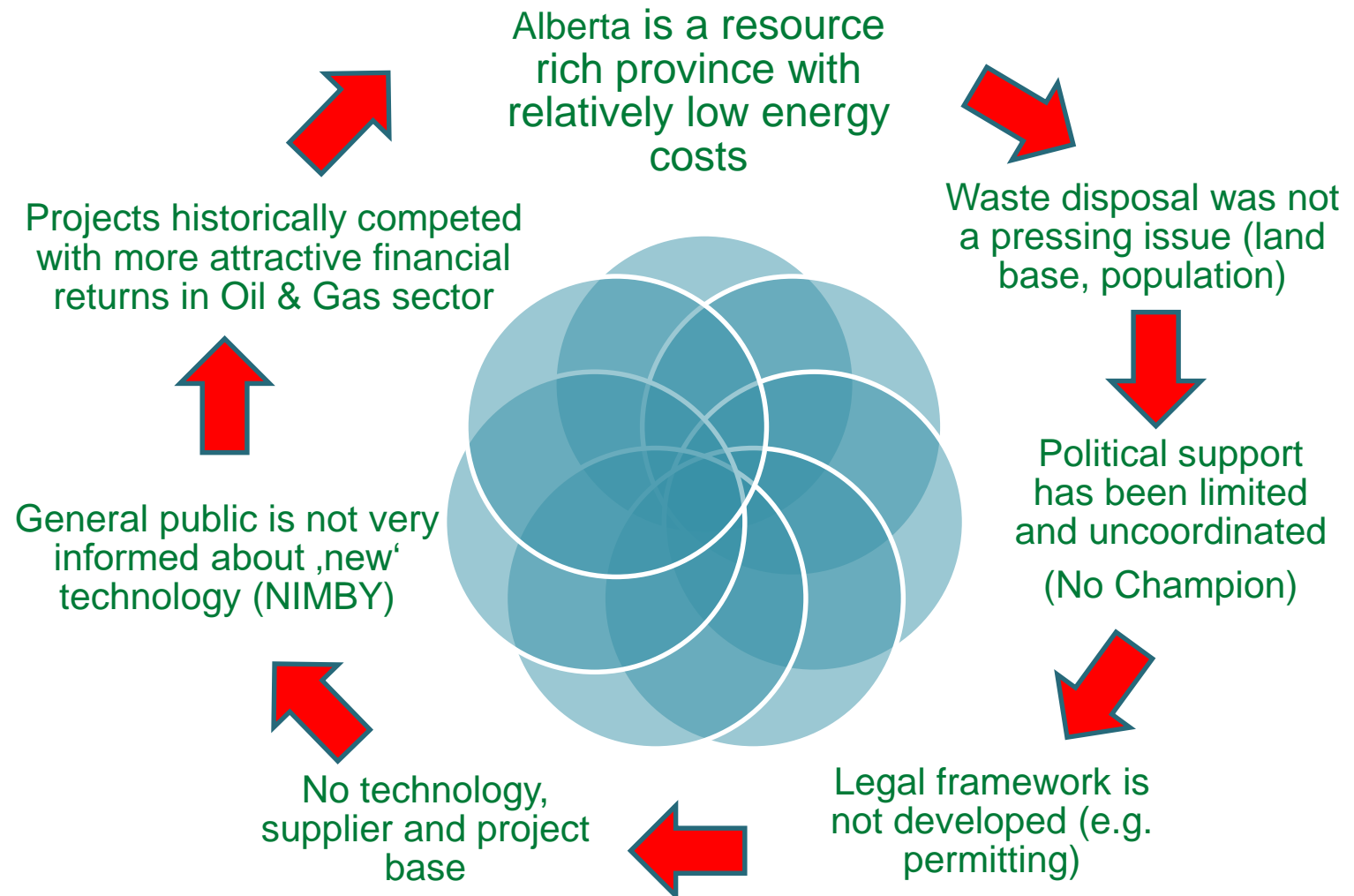
Limited partnership between ECB Enviro North America & PlanET Biogas operating a \$30M, 2.85 MW_{el} large scale biogas/cogeneration facility in Lethbridge, Alberta since 12/2013 (10 year development process) – Private Venture, no municipal involvement



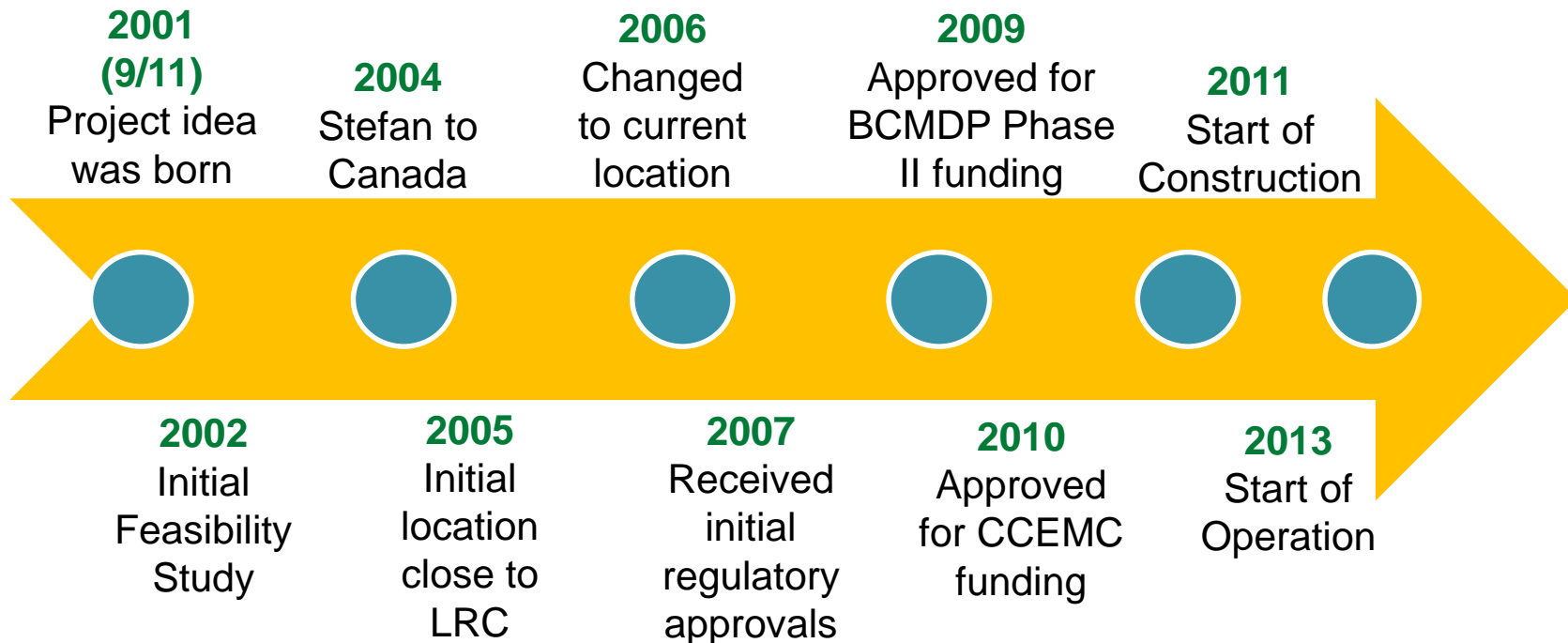
Project Information

- LB website: <http://www.lethbridgebiogas.ca>
- CCEMC Video & Green Energy Futures Video @ LB website
- Alberta Energy Success Stories
- Alberta Emission Offset Registry
- PlanET website: <http://en.planet-biogas.com>

Alberta Challenges

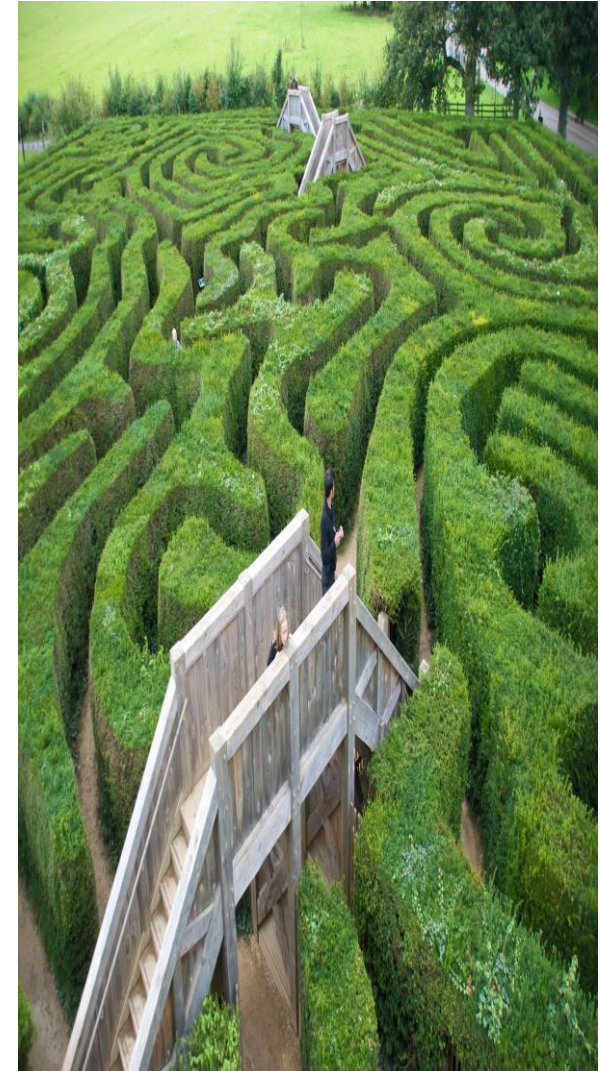


Overnight Success



Regulatory Maze

- Municipal Development Permit
- Interconnection Agreement, Remote Tripping Agreement & Electric Service Agreement with distribution/transmission utility
- Power Plant Approval & Connection Order from Alberta Utilities Commission (AUC)
- Construction/operating approval from Alberta Environment & Parks (AEP)
- Authorization for digestate storage & application from Natural Resources Conservation Board (NRCB)
- Municipal Building Permits (civil, mechanical, electrical)
- Future: Permit(s) to handle & process Specified Risk Material from Canadian Food Inspection Agency (CFIA)




Roadblocks

**Burning deceased animal matter... Toxic sour gas emissions...
Heavy tanker traffic... Industrial Noise...**

HERE?!

Residents of Lethbridge and the County east of Lethbridge are affected.



Does this look like the environment to process pig/dairy manure, burn liquefied roadkill and animal parts and create toxic methane and sour gas emissions?

Please support our community and stand with us in making our concerns known.

Public Hearing:

Thursday, January 19th – County of Lethbridge Admin Building – 2PM

Project Developer - ECB Enviro North America Inc. Open House:

Wednesday, January 25th – 526 Mayor Magrath Dr S. Travel Lodge – 1PM - 8PM

Additional meetings to be announced. For more information visit www.lcpag.org or call 320-8127.

Community
Preservation
Action
Group

CPAG

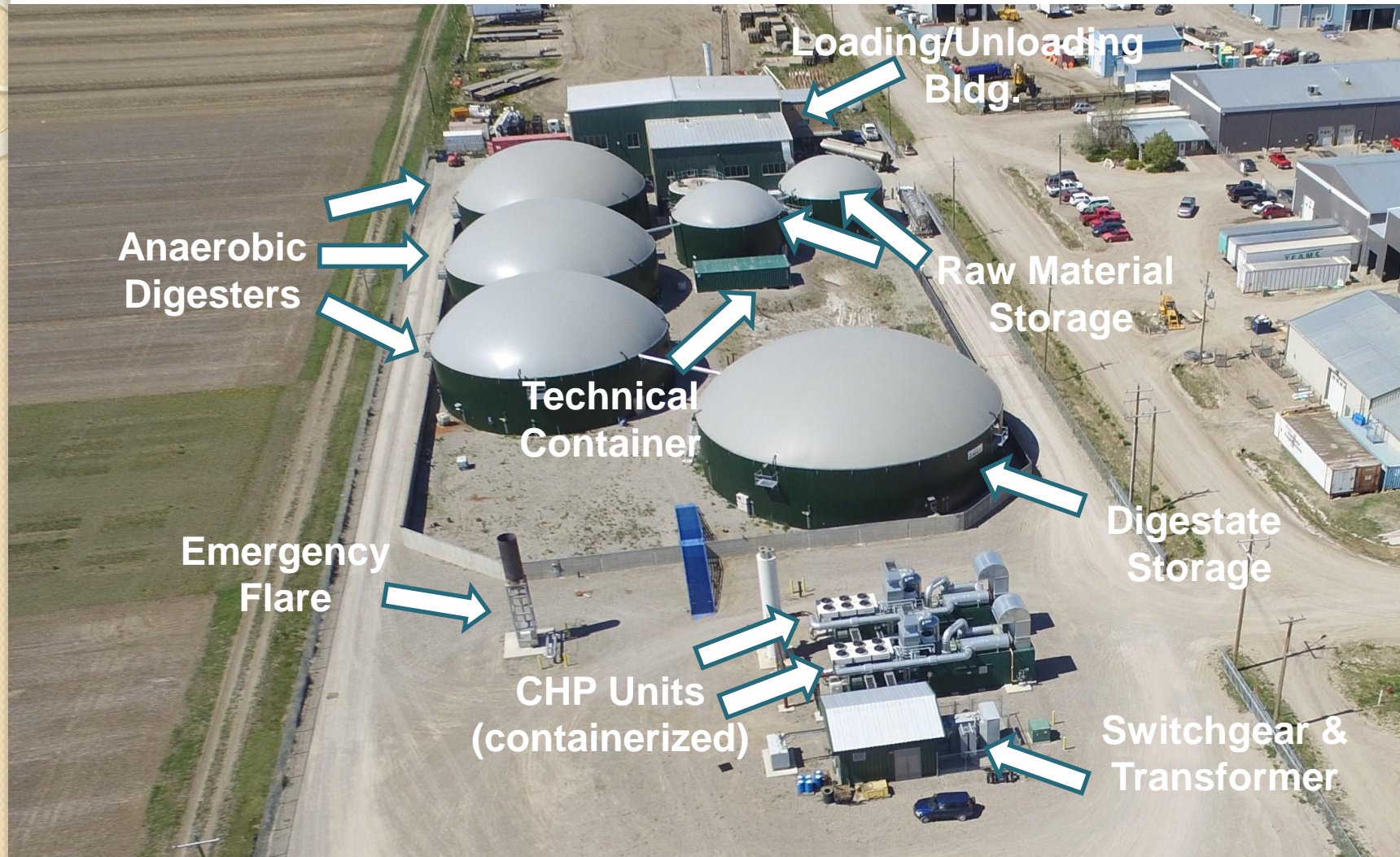
Decade in Summary



- Visits to 50+ biogas plants in 10 countries (Germany, Austria, Japan, Czech Republic, United Kingdom, Canada, Denmark, Sweden, Portugal, Holland)
- >15,000 hours of work with >50,000 pieces of paper & 4 color printers used
- >\$2,000,000 invested for project development & preliminary engineering
- >\$5,000,000 in federal/provincial grants lost with grant agreements signed due to various delays (SRM/ECO Energy)
- 4 potential investment partners:
 - 4 technical process reviews, 4 in depth due diligence processes, 4 sets of legal reviews with partnership agreements developed
- In 2011 received final investor commitment 7 days before \$8.2M CCEMC grant would have expired ...



End Result



Organic Recipe

Type	Projected Quantity 2016 (t/year)	Biogas yield (m ³ /tonne)
Livestock Manures (hog, dairy, poultry)	~37,500	20 – 40 (low)
Food Processing Residues (hog, beef, poultry, canola, grain, potato & cheese processing, grocery stores)	~37,500	40 – 650 (medium to very high)
Total	75,000	100 - 150 (avg.)



County of Lethbridge
(‘Feedlot Alley’)

Business Model

Revenues from:

- ❑ **Sale of low-carbon electricity into Alberta Power Pool** (market price currently at historic lows <\$20/MWh)
- ❑ **Tipping fees for disposal of** (industrial & residential) **organics**
- ❑ **Project creates marketable GHG offsets within the Alberta Offset System** (\$30/tCO₂e in 2018)
- ❑ **Temporary support through Alberta Energy's Bioenergy Producer Credit Program** (\$60/MWh, expired 03/2016)
- ❑ **Future?**



Local Sustainability



- ❑ Delivered green, renewable, non-intermittent electricity (2015 ~12,300 MWh)
- ❑ Diverted organics from regional landfill(s) (2015 ~6,000t)
- ❑ Delivered a more balanced, less invasive organic based soil amendment to the ag-community in the Oldman watershed (2015 ~62,000t)



- ❑ Created 7-8 full-time jobs & 2-3 part-time jobs in new industry
- ❑ Contributed to diversification of the economy in a rural area
- ❑ Contributed significantly to municipal tax revenue from property taxes
- ❑ Re-circulate \$1.1-1.5M annually to local business for services & supplies

Alberta Status Quo

Alberta Biogas* Producers

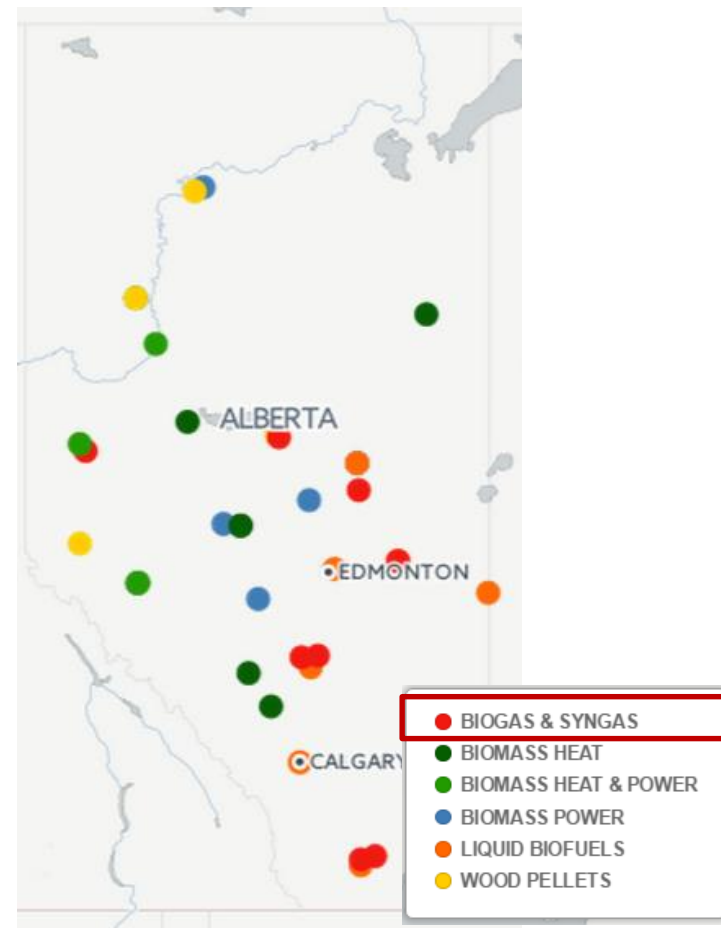
Industrial Sources

- Westfraser (9.1 MW; operating)
- Millar Western (6.0 MW; operating)
- Permolex (TBD; development)

Ag-based Plants:

- Lethbridge Biogas (2.85 MW; operating)
- GrowTec (0.63 MW; operating)
- Growing Power (2.4 MW; standby)
- Renew Bioenergy (2.0 MW; development)
- Biorefinex (1.4 MW; development)

*No municipal WWT, landfill gas or internal gas/heat use projects in industrial food processing included



Source: Alberta Bioenergy Producers Group, 2015

Political Context

NDP Climate Leadership Plan

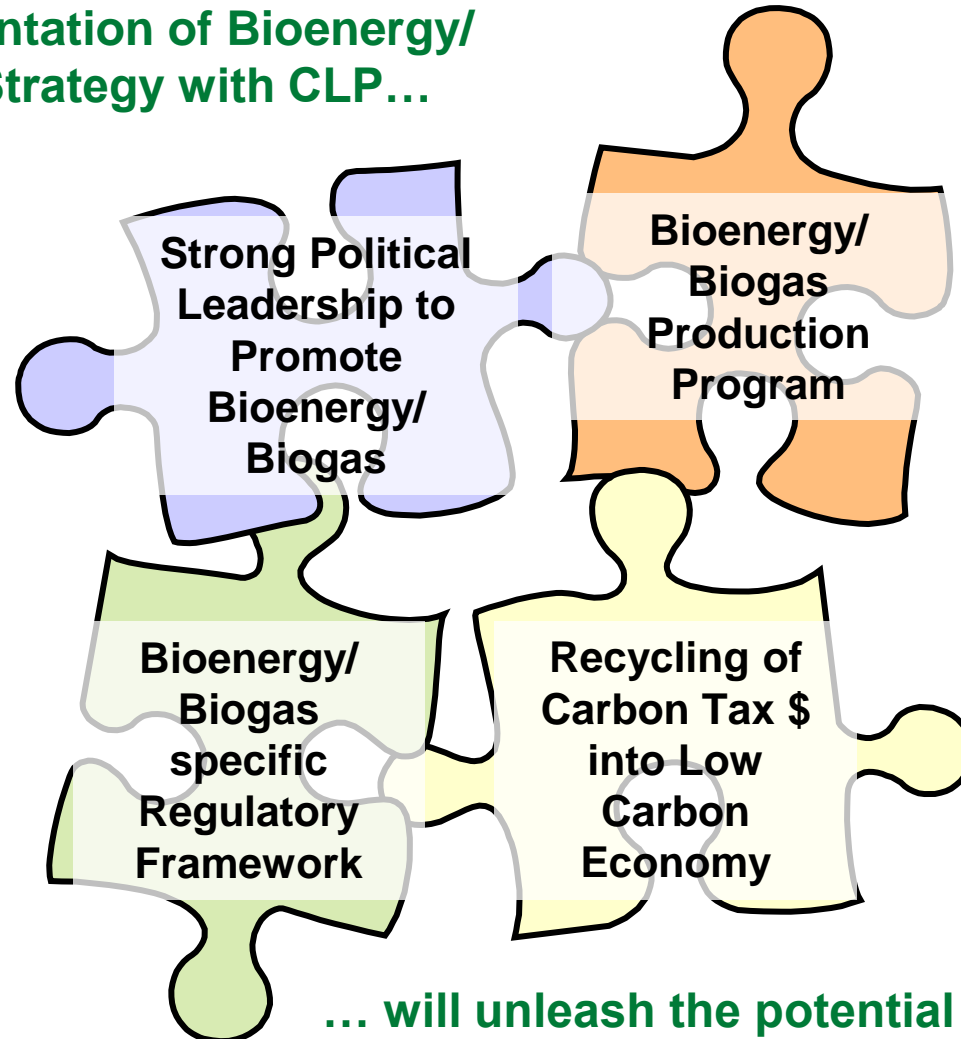
- ❑ Phase out of coal and 30% target for renewables by 2030
- ❑ PPA debate – 30% of generating capacity currently controlled by Gov't (Balancing Pool)
- ❑ AESO Renewable Electricity Program to be launched in Q4/2016 (not technology specific)
- ❑ Micro-Generation regulation under review
- ❑ New Bioenergy program options under review
- ❑ Carbon Tax implementation on Jan. 1, 2017

2016

- ❑ Historical low power prices
- ❑ High degree of market uncertainty
- ❑ Worst operating conditions since deregulation of Alberta's power generation market
- ❑ Plant closures in Alberta's Bioenergy industry

Alberta Vision

Implementation of Bioenergy/ Biogas Strategy with CLP...



... will unleash the potential to multiply the
biogas concept in many other locations.

Thank You!



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