



BC Bioenergy Network

*PARTNERING FOR
A GREENER FUTURE*



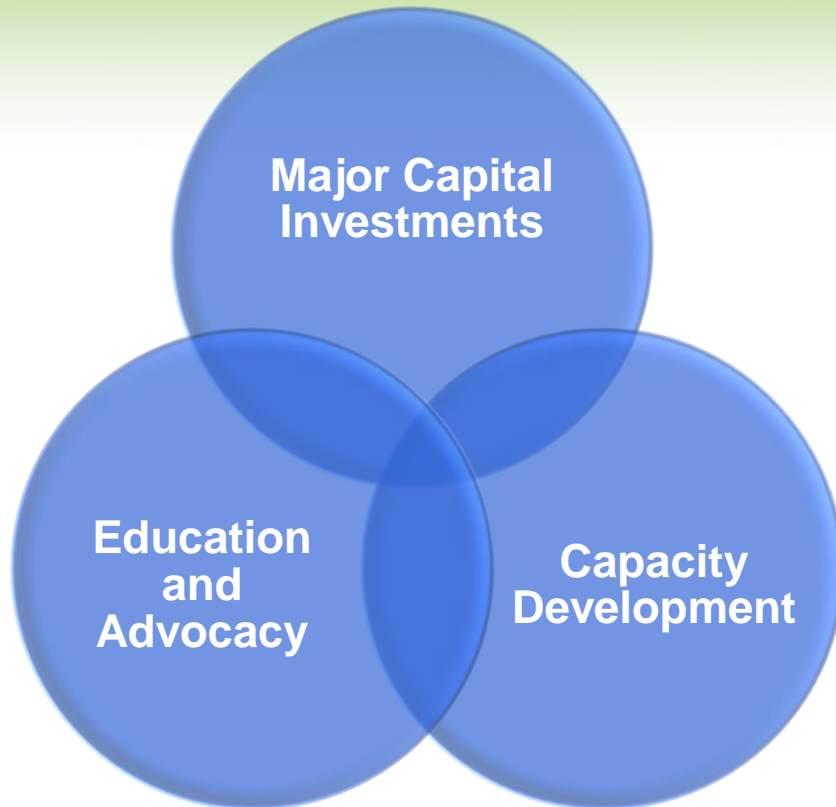
Biogas: Surprising New Opportunities and Approaches

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Pacific Rim Bio

**October 10,
2012**

What We Do



Innovation
Partnering
Competitiveness
**Environmental
Benefits**

Tech Spotlight on Bioenergy in BC

Building the next generation of innovation



Our Results

- 19 Technology Development & Demonstration Projects
- 10 Capacity Building Projects
- \$15.9 million planned/committed

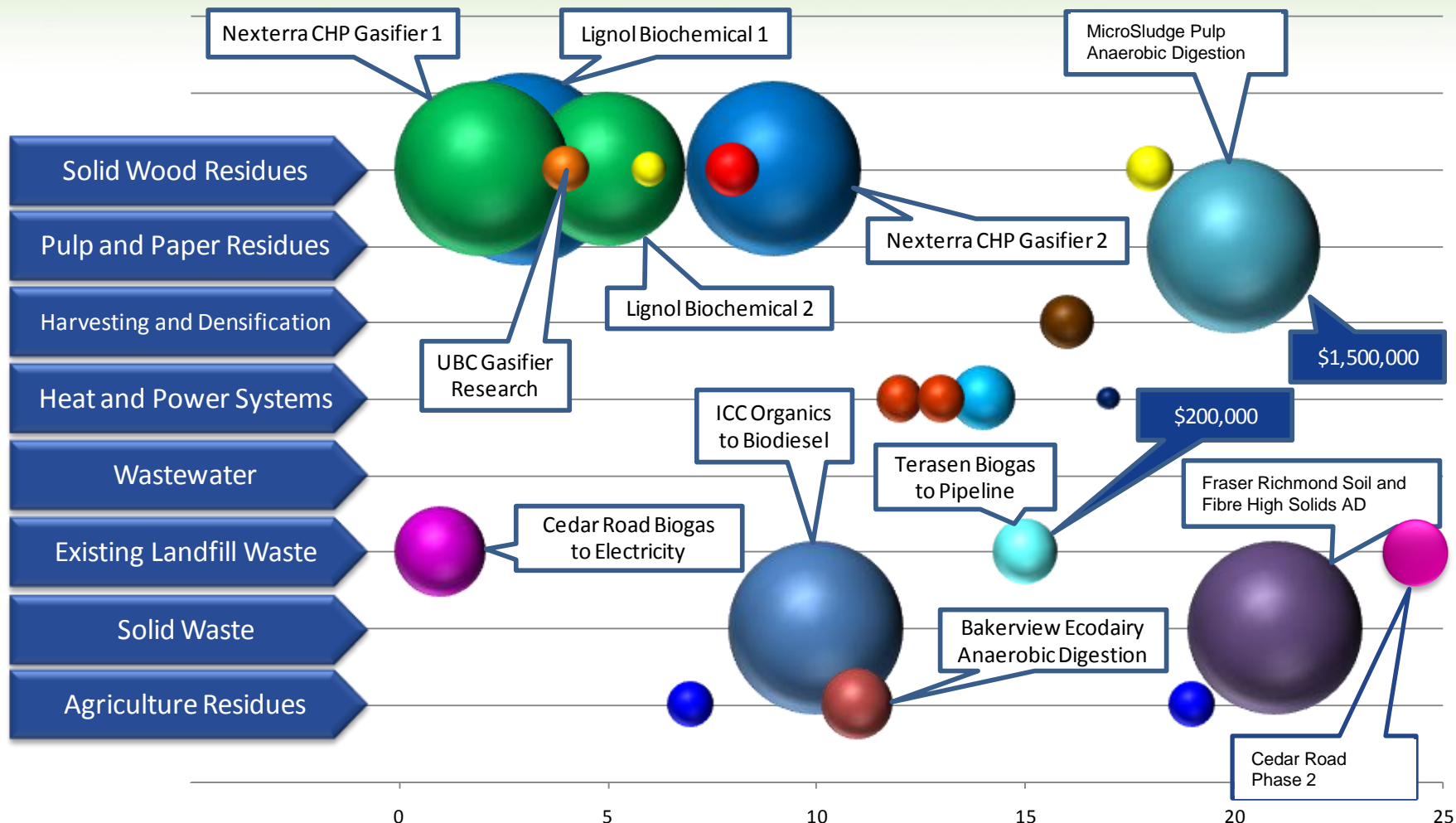


Total Value of Projects
\$116.1 million
(as of September 25, 2012)

Technology Development and Demonstration

Large Projects - Categorized by Primary Value Stream Over Time

Investment Size Equals Size of Bubble



Utilize Waste Streams to Displace Fossil Fuels

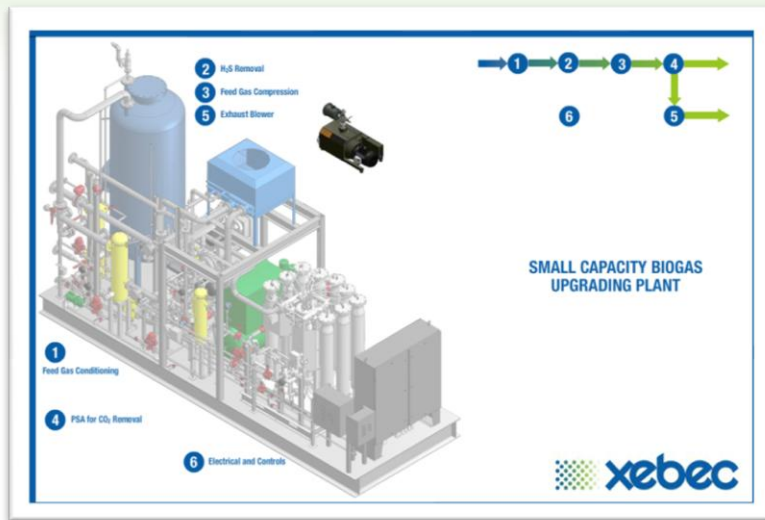
Cedar Road Bioenergy Landfill Gas Utilization to Electricity Phase 1 moving to Phase 2



- Electricity for 1200 homes through BC Hydro Standing Offer Program
- Platform for medium sized municipalities to utilize technology
- Platform to harvest more energy for hot water applications (DE)
- Phase 2 storage will optimize economics, to satisfy peak needs at higher rates

Utilize Waste Streams to Displace Fossil Fuels

Fortis Landfill Gas Utilization Columbia Shuswap Regional District to Pipeline



Utilization of existing waste streams (solid wood residues, pulp and paper sludge, forest residuals, municipal biosolids and gases and agricultural animal and crop waste) holds the highest immediate potential for bioenergy development.

Utilize Agricultural Wastes to Produce on Farm Energy Systems

Small but Important

- Scalable and cost effective system using Avatar (Vermont) AD technology
- Integrates into farms from 100-400 cows
- 7-10 year ROI for farming families
- Generates heat and power
- Off sets beddings costs
- Increases the fertilizer value of the manure and saleable liquid fertilizer
- Ensures ongoing farm sustainability



Promote Biochemical Production Demonstration Projects for Biomethane, Ethanol, Biodiesel and High Value Chemicals

A Pulp and Paper Industry Opportunity, with Application at Metro Vancouver's Lulu Island Waste Water Treatment Facility

Paradigm Technology at Catalyst Pulp and Paper



Lulu Island WWTP

- Fully transportable demonstration plant using microsludge technology to turn WAS into biogas and biochemicals
- Early results showing 2 X gas output through pre-processing, significantly thickening waste activated sludge which permits lower capital costs for digestors
- Platform to evaluate other potential improvements

Promote Biochemical Production Demonstration Projects for Biomethane, Ethanol, Biodiesel and High Value Chemicals

Richmond Soil and Fibre Next Generation High Solids Anaerobic Digestion to Electricity

Under Construction
2011-2012

Harvest Power



Conversion of biomass residuals into transportation grade fuels/specialty chemicals is one of the highest value applications for bioenergy.

Conclusion

- Continued commitment and resources are needed
- Partnering is essential: development, financing, markets
- A race for clean sustainable prosperity!



Thank you



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