



ONTARIO BIOAUTO COUNCIL

Green Chemistry Innovation Panel
Blue Water Conference
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What Is Driving Green Chemistry?

- Advances in Science & Technology
 - e.g. biotechnology and catalysis > less energy intensive, fewer unit operations, fewer waste /toxic side streams
- Improved Economics
 - e.g. energy, water, waste reduction > cost savings
- Public Investments in Green Chemistry Infrastructure
 - e.g. EPA Green Chemistry Awards, Green Centre Canada, etc.
- Concept of A “Social License”
 - a social responsibility to protect community & environment
- Regulations
 - e.g. new regulations (public disclosure, action plans)

Current Cutting Edge Innovations

- Alternatives to Phthalate Plasticizers
 - e.g. non-toxic, bio-based, castor and soy-based additives
- Non-Toxic Solvents
 - e.g. bio-based succinic acid
- Non-Toxic Nano Materials
 - e.g. nan cellulose crystals from the forest sector
- Less Toxic Frac Fluids
 - e.g. use of food grade lubricants and surfactants
- Reuse of CO₂ & CO
 - e.g. as new feedstocks for valuable polymers

Role of Universities

- Basic & Applied R&D
- Training HQP
- Support for Entrepreneurs & SMEs – funding, specialized services, infrastructure, expertise
- One Window Industry Access to Lab Innovations – through university / industry networks
- Initial Scale Up of Lab Chemical Processes
- Support for Science-Based Public Policy

Joint Research Opportunities

- Feedstock Development & Logistics
 - e.g. crop residues, energy crops
- Conversion Technologies
 - e.g. less costly, and more efficient conversion technologies for forest nanomaterials
- Funding Scale Up & First Commercial Plant
 - true for almost all biochemical plants
- Product Development & Prototyping
- SME / MNE / University & Government Research Partnerships

Needed Changes in Public Policy

- Greater Focus on Commercialization
 - e.g. supply chain networking, scale up, first commercial plant, new product development and testing
- Stable Long Term Funding
 - Commercialization in capital intensive resource and chemical sectors takes time; not like smart phone industry
 - Need 10-20 year time horizon
- Science-Based Policy Development
- Alignment of Policy & Priorities Across Government
 - e.g. energy, innovation, resource, economic development, and environmental policies and priorities need to work together and not at cross purposes