



THE UNIVERSITY OF
WINNIPEG

iisd International Institute for Sustainable Development
Institut international du développement durable

IISDREPORT

TomorrowNow Manitoba: Dialogues toward strengthening Manitoba's bioeconomy

January 2014



© 2014 The International Institute for Sustainable Development
Published by the International Institute for Sustainable Development.

International Institute for Sustainable Development

The International Institute for Sustainable Development (IISD) contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change and energy, and management of natural and social capital, as well as the enabling role of communication technologies in these areas. We report on international negotiations and disseminate knowledge gained through collaborative projects, resulting in more rigorous research, capacity building in developing countries, better networks spanning the North and the South, and better global connections among researchers, practitioners, citizens and policy-makers.

IISD's vision is better living for all—sustainably; its mission is to champion innovation, enabling societies to live sustainably. IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the International Development Research Centre (IDRC), from the Danish Ministry of Foreign Affairs and from the Province of Manitoba. The Institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations and the private sector.

Head Office

161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba, Canada R3B 0Y4
Tel: +1 (204) 958-7700 | Fax: +1 (204) 958-7710 | Website: www.iisd.org

TomorrowNow: Manitoba's Green Economy Plan: Positioning Manitoba to thrive in a green

January 2014



Table of Contents

Background	1
Green Economy Policy Drivers, Enabling Conditions and Identified Actions	1
Key Messages from the Policy Dialogue Session	1
Introduction	3
Presentations.....	3
Discussion Questions	5
What are the opportunities associated with a stronger bioproducts sector in Manitoba?.....	5
What are the barriers/challenges to achieving these opportunities?	6
What actions can government take to address/remove these barriers/challenges?	7
Closing Remarks	8
Appendix A: Identified Barriers and Actions	10
Appendix B: Agenda	11



TomorrowNow: Manitoba's Green Plan: Positioning Manitoba's Bioproducts Sector as a Leader in the Green Economy

December 3, 2013 ~ Winnipeg, Manitoba ~ University of Winnipeg, Manitoba Boardroom

Background

In 2012 the Government of Manitoba released its sustainable development plan, *TomorrowNow: Manitoba's Green Plan*.¹ Among its commitments is the creation of a green economy action plan and an update to the province's climate change action plan. In order to meet these commitments, the International Institute for Sustainable Development (IISD), along with the University of Winnipeg, is assisting the province in addressing the need to transition to a green economy and low-carbon development framework for Manitoba by identifying the necessary actions to accomplish this task. The work will be done through a series of research activities and public policy dialogues with stakeholders, which are being led by the project partners. The second such consultation was held on December 3, 2013, and facilitated an open dialogue with stakeholders on how Manitoba can grow its bioeconomy and bioproducts sectors. This report outlines what was discussed including some of the key areas for future action.

Green Economy Policy Drivers, Enabling Conditions and Identified Actions

Manitoba's bioeconomy policy dialogue was the second consultation in a series of sessions that examine what Manitobans consider important for the province's first green economy action plan and its next climate change action plan. The objective of this policy dialogue was to provide an opportunity to:

- Discuss ways to address barriers to greater bioenergy implementation in Manitoba.
- Identify opportunities for the development of a broader bioeconomy sector in Manitoba for higher-value bioproducts.
- Have an open discussion on specific policy tools and actions that the government can undertake to enable the green transition.

Key Messages from the Policy Dialogue Session

- The bioeconomy plays an important role within TomorrowNow's upcoming green economy action plan, as well as in its new climate change plan.
- Within Canada, the bioeconomy industry is worth approximately CAD\$80 billion; it is the second largest bioeconomy in the world per capita. This sector is growing faster than any other, up 12 per cent between 2007 and 2011.

¹ Full text of the plan can be found here: <http://www.gov.mb.ca/conservation/tomorrownowgreenplan/pdf/tomorrownowBook.pdf>



- Manitoba is rich in biomass, and capitalizing on these resources is a highly attractive opportunity for sustainable economic development. Manitoba's advantages in developing bioproducts include its proximity to markets that encourage bioethanol use and its easy access to multiple biomass sources through agriculture and forestry residue, cattails and prairie grass sources.
- Barriers to strengthening Manitoba's bioeconomy include static policy, price competition from fossil fuels and natural gas, the cost of transportation, limited skilled labour and access to capital.
- To overcome the barriers, a strong vision based on Manitoba's strengths, commitment and resourcing are required to drive research, development, job creation, and supply and demand, and ultimately feed into the province's low-carbon development goals.
- Manitoba must develop the necessary indicators, actions and policies to enact measurable changes that are required to transition to a green economy focus in the bioproducts sector. The resulting recommendations will be brought forward to leaders in government, business and civil society sectors as part of the overall TomorrowNow green economy action plan.



TomorrowNow: Manitoba's Green Plan: Positioning Manitoba's Bioproducts Sector as a Leader in the Green Economy

December 3, 2013 ~ Winnipeg, Manitoba ~ University of Winnipeg, Manitoba Boardroom

Introduction

Approximately 50 participants gathered in Winnipeg and remotely connected from Mississauga, Ontario, and Edmonton, Alberta, on December 3, 2013 for the policy dialogue session TomorrowNow: Manitoba's Green Plan; Positioning Manitoba's Bioproducts Sector as a Leader in the Green Economy. The session was hosted by the International Institute for Sustainable Development (IISD), in collaboration with the University of Winnipeg and the Government of Manitoba. The consultation session aimed to:

- Discuss ways to address barriers to greater bioenergy implementation in Manitoba.
- Identify opportunities for the development of a broader bioeconomy sector in Manitoba for higher-value bioproducts.
- Have an open discussion on specific policy tools and actions that the government can undertake to stimulate the bioproducts sector and to enable a green economy.

Scott Vaughan, president and CEO of IISD, welcomed those present. He thanked the Government of Manitoba for giving IISD the opportunity to facilitate the consultation process and thanked the University of Winnipeg for hosting the session and providing access to their Cisco system to connect virtually across provinces. He expressed his enthusiasm in hearing how the green economy, action on climate change and the bioeconomy can work together in an innovative agenda for the Province of Manitoba to create new green jobs, as well as to develop policy recommendations that will strengthen a sustainable green economy for Manitoba.

Terry Duguid, director of the Northern Sustainability Prosperity Initiative at the University of Winnipeg, introduced the guest speakers whose presentations corresponded to the first part of the event. Guest speakers included:

- Brian Edwards, director of Sales and Marketing and director of Chemicals and Fluoroproducts and Titanium Technologies Business in Canada, DuPont Canada
- Matthew McCandless, Bioeconomy team leader, International Institute for Sustainable Development
- Susan Wood-Bohm, executive director, Biological GHG Management Program, Alberta Innovates Bio Solutions

Presentations

The following is a synopsis of the three presentations during the TomorrowNow: Manitoba's Green Plan session.

Brian Edwards is the director of Sales & Marketing for DuPont Canada. He is also the director of DuPont Chemicals & Fluoroproducts and Titanium Technologies Business in Canada. Mr. Edwards related business investment for bioenergy and DuPont's work in the field to the goals the provinces sets out in *TomorrowNow: Manitoba's Green Plan*. DuPont



is a science-based company that focuses on sustainability and innovation. They seek market-driven solutions for global issues such as the dependency on fossil fuels, feeding the world and developing environmentally safe products. Through investment in bioactives, biomaterials and biorefineries, DuPont seeks to establish methods that focus on products created through natural materials as opposed to products reliant on fossil fuels.

Mr. Edwards noted the advantages Manitoba holds as the potential for greater bioeconomy investment is debated. Manitoba is a stable province with proximity to markets that could be encouraged to use bioethanol. There is access to multiple sources of biomaterials, including: agricultural residue, forestry residue, cattails and prairie grass. There are available and technically capable workers, stable governments, and access to partners and associates. There is a rural economy open to external private investment. Highlighting these advantages, Mr. Edwards noted several conditions that have led to DuPont investing elsewhere, including: proximity to markets and stable access to raw materials, available work force to meet technology requirements, favourable community acceptance of the process and company, and potential leverage from other manufacturers, successful partners or associates. He also highlighted the importance of having a compelling business case for investment. Based on the conditions, Mr. Edwards suggested that Manitoba introduce elements from this model in order to build its own bioeconomy sector.

Matthew McCandless, Bioeconomy team leader, IISD, provided a presentation on the state of the bioeconomy in Manitoba. Mr. McCandless noted that the bioeconomy industry is worth approximately CAD\$80 billion in Canada; it is the world's the second largest bioeconomy per capita. This sector is growing faster than any other, up 12 per cent between 2007 and 2011. Manitoba produces around 5.8 million tonnes of cellulosic biomass per year from agriculture; additionally 8.3 million tonnes is potentially available from cattail and wetland grass harvests. Harvesting these unconventional crops has a number of co-benefits, including not competing with valuable food crops and reducing the amount of nitrogen and phosphorous in water systems. Canadian production of biofuel (ethanol and biodiesel), however, has not met total national demand. According to the Canadian Renewable Fuels Association, Canadian production in 2012 only accounted for 1,823 million litres of ethanol, short of the 2,200 million litre demand. To meet the demand, Canadian fuel blenders import the remainder of needed biofuels from the United States.

There is a considerable amount of public support through subsidies, research and development grants, business planning grants, feasibility research, plant construction grants and low-interest loans, production tax exemptions, and purchaser subsidies, among other initiatives. Mr. McCandless suggested that investment in biorefining can result in multiple co-benefits, including: reduced greenhouse gas emissions, improved water quality, technological innovation, boosted rural economies and reduced energy imports. Manitoba has the feedstocks needed in abundance, and recommends that government aimed at capturing the opportunities need to be sustainable and realistic.

Susan Wood-Bohm is the executive director of the Biological GHG Management Program with Alberta Innovates Bio Solutions (AI Bio). Dr. Wood-Bohm gave a presentation on the projects and investments that AI Bio has partnered in. The presentation highlighted the initiatives to drive innovation, funding for research, policy tools, and challenges and barriers in developing a bioeconomy. Dr. Wood-Bohm indicated that a flourishing bioeconomy will provide value-added products and processes for the agricultural and forestry industry, the innovation and commercialization of bioenergy and technologies, advanced biomaterials and biochemicals, and the value-generating potential of environmental systems and sustainable resource development. She noted that some of the important technological developments occurring in Alberta are also applicable to Manitoba, such as the development of fibre conversion technologies, the development of nanocrystalline cellulose, other high-value-added biomaterials, industrial biorefining, and water management and purification.



Dr. Wood-Bohm also spoke to the ongoing use of willows for bioenergy in Alberta, which draws parallels to Manitoba’s work on cattails. AI Bio partnered with Silvacom Ltd and Green Analytics Corp. to develop the BioResource Information Management System (BRIMS), which is an integrated system for managing biomass information inventories. This type of data base is needed to encourage innovation and guide policy and investment decisions by business and government. AI Bio also provides funding for a number of partner organizations, such as the Bioconversions Network run through the University of Alberta, the Alberta Biomaterial Development Centre and the National Institute for Nanotechnology. Dr. Wood-Bohm noted that these organizations provide potential resources for Manitoba to model or partner with. To conclude, the presentation highlighted some of the policies and programs in Alberta that support bioeconomy development, such as Alberta Sustainable Resource Development (AESRD), Alberta Energy, Alberta Agriculture and Rural Development (AARD), Climate Change and Emissions Management Corporation (CCEMC), and Alberta Enterprise and Advanced Education (AEAE). These organizations provide potential models for Manitoba to learn from. Alberta is aligning strongly with its main economic drivers and building on its existing strengths, and Dr. Wood-Bohm recommended that Manitoba do the same.

Discussion Questions

The second half of the meeting focused on an open discussion of the following questions:

- What are the opportunities associated with a stronger bioproducts sector in Manitoba?
- What are the barriers/challenges to achieving these opportunities?
- What actions can government take to address/remove these barriers/challenges?

The discussion portion of the event was rich in identifying of opportunities, recommending how to remove barriers and sharing insights on what actions the Government of Manitoba should take to foment and strengthen Manitoba’s bioeconomy (a table illustrating discussion points are in Appendix A). The information below is a summary of the presented recommendations.

What are the opportunities associated with a stronger bioproducts sector in Manitoba?

Manitoba is rich in biomass, and capitalizing on these resources is a highly attractive opportunity for sustainable economic development. Many participants highlighted that Manitoba is already producing biomass energy generation, and there is a strong opportunity to expand this sector. Advanced biomaterials were also identified as an opportunity for Manitoba, tapping into Manitoba’s expertise in solid fuels, agricultural residues and conversion technology. Market opportunities lie not only at home, but also internationally in demand for green building materials.

With the introduction of the coal ban, a window of opportunity has been created for the province to pave its path toward cleaner fuels and provide an opening to replace fossil feedstock with a bio-based feedstock. Under this direction, the use of biorefineries will be a major element in the expansion of the province’s bioeconomy. Manitoba’s leading biorefinery is located in Minnedosa and, echoing Mr. McCandles’s point, investments in expanding the province’s biorefinery capabilities can support the province’s efforts in reducing GHG emissions, improve water quality, support technological innovation, boost rural economies and reduce energy imports.

- Opportunities:
- Biomass energy generation
 - Advanced biomaterials
 - Green fund



Creation of a green fund, similar to Alberta’s Climate Change and Emissions Management Fund,² was identified as a good jumpstart to supporting and financing the necessary research and development for a Manitoban biomass economy. Manitoba’s biomass economy can be fuelled through carbon, phosphorus pricing and/or water quality trading, which can finance green research and development initiatives in the province.

What are the barriers/challenges to achieving these opportunities?

Participants noted that there are several barriers within the entire supply chain that limit the expansion of a bioeconomy in Manitoba. A concern was raised that effective policy implementation is a key to ensuring biomass innovation. As an example, the introduction of the coal ban and tax reform was an opportunity for increasing the use of renewable energy sources, but a more comprehensive implementation plan could have cemented opportunities for biomass conversion and limit the use of natural gas as the primary alternative to coal. Competition from low fossil fuel and natural gas prices lessen the appeal for consumers to switch to renewable alternatives, particularly as these two commodities do not integrate externalities in their prices at this time. Stronger incentives for biomass, or disincentives for fossil fuels (the coal tax is a starting point) are required to level the playing field and grow the opportunities for biomass.

At the production level, one barrier noted was a commercialization gap: biomass industries are in need of assistance to introduce their products to the market. Currently, there is the well-established Composites Innovation Centre that handles some work in biocomposite initiatives in the province; however, the province lacks a matured biomass commercialization presence. Moreover, incubator services that can facilitate and strengthen the commercialization of biomass products are centred in urban areas, while biomass producers are located in rural areas. Jointly, transporting inputs from rural areas to be processed at urban centres escalate the cost of transportation.

For example, Mr. McCandless noted that transportation costs make up 35 to 50 per cent of the total production costs in biofuel, ultimately affecting the marketability of biofuel when compared with subsidized fossil fuels and natural gas.

At the demand level, local demand alone was considered not big enough to create a sustainable biomass industry, and public perception of biomass use contributes to its low demand as an energy source. For example, one participant noted that some perceive that straw as a heat source is more flammable than natural gas, while the opposite is true. Additionally, consumers are influenced by economics (i.e., price), and despite their interest in purchasing environmental products, prices influence their purchasing power and their preference is for lower-priced products, such as natural gas and fossil fuel.

Other aspects that create barriers to Manitoba’s bioeconomy include funding for research and development, and, in the opinion of some, the need for a stronger provincial vision, commitment and resourcing to grow the sector. Limited supply of skilled labour was a concern of the participants, who noted that, as the bioeconomy job market grows, there will be higher demand for skilled labour. Since that resource is currently minimal, investments will be

- Static regulations
- Subsidization of fossil fuels and natural gas supply
- Commercialization gap
- Incubator services urban centered
- High transportation costs
- Low local demand
- Lack of skilled labour
- Limited access to capital

Barriers/challenges:

² Participants recognized that the scale of such a fund would likely not approach Alberta’s fund, given the heavy contribution from the oil and gas sector, but saw the funding mechanism as one to draw lessons from in terms of spurring technological advancement.



required for training and education. Related, it was noted that the oil and gas industry is presently a more appealing job sector for current and future skilled labour. Access to capital was also raised as a concern, including public, private and institutional financial capital, which correlates to limited marketing opportunities. A stronger consideration of the bioeconomy in the province's economic development plans (i.e., the provincial vision) was seen as essential to growing the sector.

What actions can government take to address/remove these barriers/challenges?

In addition to identifying the opportunities and challenges, participants also highlighted actions that the Government of Manitoba can take to nurture the province's bioeconomy. At the government level, the formation of a civil service group—for example, a task force or standing group—was suggested to review regulations that are no longer suitable or that hinder the bioeconomy. The group would also remove barriers to investing in bioproduct opportunities by addressing those barriers through regulatory streamlining. Introduction of carbon or phosphorus pricing (building on the coal tax) and/or water quality trading was also suggested, as it can encapsulate the cost of externalities associated with emissions in fossil fuels and natural gas, as well as any pollutants that harm the water quality and health of Lake Winnipeg. As noted previously, offset protocols could also generate funds that could feed into a green fund that can in turn funnel capital to investments in research and development and in the commercialization of biomass products.

It was noted that the window for offset system development has been opened through the coal ban and tax (and impending federal sector-by-sector greenhouse gas regulation). By connecting offset protocols with current legislation, we can harmonize policies that promote green growth in a low-carbon economy, including growth in biomass products, and provide a transparent full-cost accounting to both government and end-users. Also, following two important commitments under TomorrowNow, the bioeconomy is an important element for both the green economy action plan and the new climate change plan to transition Manitoba to a low-carbon future.

To boost biomass production, we must create a favourable business environment for growing the bioproducts sector. Investment in biomaterial (e.g., flax and hemp fibres, and biocomposites) in areas in which the province already demonstrates comparative advantage (such as the agriculture, automotive, aerospace and transport industries) can foment a more general favourable business environment. This will promote economic viability for producers, thus generating a strong supply chain from the beginning. Other jurisdictions are already taking advantage of their low-hanging fruits, and Manitoba should be no exception. Also, investments in incubators that feed rural needs are important, as they will help rural producers and suppliers to commercialize their biomass products in the market. Additionally, investment and organization in training programs can create the skilled labour force needed for the growing bioeconomy sector. Lastly, developing an inventory of forestry biomass supply can help business have a bigger picture of current Manitoba biomass supply and take advantage of the market opportunities in biofuels, biomaterials and biochemicals within the province.

- Regulatory streamlining/"green tape" review
- Full cost accounting
- Carbon/phosphorus/ water quality pricing
- Comprehensive Manitoba-wide biomass inventory
- Firm link between green economy, bioeconomy and climate change plan
- Procurement targets for renewable energy
- Training programs
- Job creation
- Sustainable supply chain development
- Clear bioeconomy vision, commitment and resources
- Indicators for short-, medium- and long-term outcomes

Actions:



Participants also weighed in on what could boost demand for bioproducts. Locally, bioenergy is a good starting point. As one of the biggest energy end-users, the Government of Manitoba can establish energy procurement targets that require a certain percentage of their energy supply to come from biomass. Doing so not only increases the demand for bioenergy but also sets an example for renewable procurement targets that others can follow. Manitoba Hydro is another powerful player that can guide users toward bioenergy supply, and it was suggested that it could be done within a two-fold approach. First, for the biggest consumers, Manitoba Hydro could introduce a surcharge that represents full-cost accounting on fossil fuel energy supply. This surcharge could be revenue neutral and pooled in a green fund that helps to ensure biomass supply becomes more viable as an alternative option for energy use.³ Second, Manitoba Hydro can assist in the supply of biomass energy for users that formerly depended on coal-generated energy and currently have no access to a natural gas supply, but are well positioned in proximity to nearby biomass producers. Internationally, producers and suppliers have an opportunity to tap into the international demand for biomass inputs (e.g., for green buildings). In addition, Manitoba's revenue on energy exports may increase when biomass supplants hydroelectricity locally and the hydroelectricity saved could be exported.

Participants emphasized that the most important elements in building a green economy are to have a clear vision, to be able to measure outcomes and to consider long-term improvements. There is an active biomass community that has a vision for clean energy use in Manitoba. The Government of Manitoba can work with groups like 50 by '30 and other stakeholders to undertake an economic analysis of feasible elements within the vision to make it a viable development path for the province. In addition, it was recommended that the province aim for a sustainable value chain, whether it is a focus on energy, raw material, biochemical or other products. Similar to the October 4 green economy consultation, the bioeconomy participants highlighted the need for a strong vision driving research, development, job creation, supply and demand, and ultimately feeds into the province's low-carbon development goals. To support the drive of the bioeconomy and its role in the green economy, commercial support and venture capital are needed, as is the expansion of incubators to rural areas to facilitate sustainable practices in small to medium-sized businesses. Big players, such as Manitoba Hydro, also need to be on board. Ultimately, a commitment to local markets is necessary to create the foundation for green thinking in everyday economic activities, including the use of bioenergy and replacing finite resource-based products with that of biomaterials.

Closing Remarks

Juliane Schaible, senior economic development consultant, Climate Change Branch of the Government of Manitoba, provided the closing remarks for the event. She reiterated that the bioeconomy is part of TomorrowNow's plan for the green economy action plan and climate change plan. She noted that, during the course of the last months, a number of one-on-one meetings and small groups—such as the December 3 gathering—have been conducted with business representatives, labour, civil society, municipalities and environmental groups to identify how Manitoba can move towards a green economy. The meetings have focused on identifying where the opportunities are and how to best access them. She also highlighted that the participation of leaders and the public is paramount to building and strengthening Manitoba's green economy.

³ A number of participants recognized that low energy prices are identified as an advantage point for outside investments in Manitoba, but unless energy prices reflect market values and realize the carbon content for fossil fuels, biomass prices will not be able to compete. On the other hand, it was noted that the Manitoba government, and Manitoba Hydro can find innovative ways to incentivize bioenergy, and also find ways to attract business investment in the province, while realizing the full carbon content cost of fossil fuels.



Ms. Schaible indicated that there are no real barriers for Manitoba's green economy, as the province already has what it needs to start. What is now needed is to pinpoint the key drivers (economic, social, environmental) within existing opportunities to move towards green, low-carbon development. Ms. Schaible informed the group that, in partnership with the University of Winnipeg and its Environment, Resource and Development Economics Master's program, an economic assessment will be conducted to scan what has been done in other jurisdictions on green economy indicators and what will work within a Manitoban context. The study will measure indicators for quantifiable changes for business-as-usual and green economy scenarios. The results will be brought forward to leaders in government, business and civil society in the hope of providing sufficient evidence as to the benefits of moving toward a more sustainable pathway for Manitoba. She thanked everyone for their attendance and encouraged those present to forward any other information on opportunities or barriers not yet identified during the session.



Appendix

Appendix A: Identified Barriers and Actions

The participants noted that opportunities for Manitoba lie in the province’s richness in biomass, biomass energy generation, production of advanced biomaterials and the creation of a green fund. They concluded that a clear biomass vision, commitment and resources can lead to the sustainable value chain needed for Manitoba’s bioeconomy. Below is a table that illustrates the challenges and corresponding actions identified during the session, grouped under government, supply or demand levels.

AREA OF FOCUS	BARRIERS	ACTIONS
Government level	Static regulations	Regulatory streamlining/“green tape” review
		Create firm link between green economy, bioeconomy and climate change plan
	Coal ban and tax implementation problems with incenting biomass	Harmonize existing policy toward the use of renewable energy use
	Subsidization of fossil fuels and natural gas supply	Full cost accounting
		Carbon pricing
		Phosphorus pricing
	Low cost energy prices	Water quality trading
		Targeted carbon tax on natural gas high end-users where alternatives are planned for bioenergy
		Identify companies that will pay a premium for renewable fuels
		Capitalize on areas that lack hydro or natural gas energy options and introduce bioenergy use
Target zero growth on hydro and natural gas energy without capping economic growth		
No indicators for measurement	Procurement targets for renewable energy	
Supply level	Need a broader biomass market	Identify indicators that can be measured for short-, medium- and long-term outcomes
	Commercialization gap	Market opportunity within electrically heated areas
		Focus on comparative advantage areas
		Focus on low-hanging fruits
		Identify producers with their economic benefit within the bioeconomy
	Limited access to capital	Comprehensive Manitoba-wide biomass inventory, including agriculture, forestry and cattails
		Use of business accelerators that connect business and environment; government can assist in building funding/financing relationships
	Infrastructure gap	Increase capacity in biorefineries
High transportation costs	Identify right suppliers and right timing and locate infrastructure near supply	
Lack of skilled labour force	Training and workforce development initiatives, including the use of existing public mechanisms	
Urban-focused incubators	Rural-focused incubators to support coordination of bioeconomy activity outside the City of Winnipeg	
Low local demand	Focus beyond the local market	
Demand level	No existing public energy procurement targets	Business model for Manitoba
		Procurement targets that include renewable energy percentages to drive local demand and set examples
	Public perception of hazards (e.g. fire) using bioenergy (e.g. straw)	Develop protocols on biomass use and containment of risks
	Better education and learning efforts for the public	



THE UNIVERSITY OF
WINNIPEG

iisd International Institute for Sustainable Development
Institut international du développement durable

Appendix B: Agenda

(see following document)

AGENDA

December 3, 2013 ~ Winnipeg, Manitoba

University of Winnipeg, Manitoba Boardroom (Room 2M70),
2nd floor, Manitoba Hall, 515 Portage Avenue

TomorrowNow: Manitoba's Green Plan

Positioning Manitoba's Bioproducts Sector as a Leader in the Green Economy

- 12:30 p.m. **Registration**
Coffee, juice, light snack
- 1:00 p.m. **Welcoming Remarks**
Scott Vaughan, President and CEO, International Institute for Sustainable Development
- 1:10 p.m. **Business Investment for Bioenergy**
Brian Edwards, Director of Sales and Marketing and Director of Chemicals and Fluoroproducts and Titanium Technologies Businesses in Canada, DuPont Canada
- 1:30 p.m. **State of the Bioeconomy in Manitoba**
Matthew McCandless, Bioeconomy Team Leader, International Institute for Sustainable Development
- 1:50 p.m. **The Alberta Perspective on the Bioeconomy**
Susan Wood-Bohm, Executive Director, Biological GHG Management Program, Alberta Innovates Bio Solutions
- 2:10 p.m. **Break**
- 2:30 p.m. **Discussion Session: Expanding the Bioeconomy Sector in Manitoba**
Facilitator: Terry Duguid, Director, Northern Sustainability Prosperity Initiative, University of Winnipeg
- A facilitated discussion will take place with the broader audience, who will be invited to provide input and engage in discussion on the opportunities and challenges inherent in the expansion of the bioeconomy sector in Manitoba. Discussion will be stimulated by a series of questions, (see next page), that will seek to draw out viewpoints on the actions and policies required to stimulate opportunities, investment, and entrenchment of the bioeconomy sector in Manitoba
- 4:00 p.m. **Summation of Key Messages and Closing Comments**
Juliane Schaible, Senior Economic Development Consultant, Climate Change Branch, Manitoba Conservation and Water Stewardship

AGENDA

December 3, 2013 ~ Winnipeg, Manitoba

University of Winnipeg, Manitoba Boardroom (Room 2M70),
2nd floor, Manitoba Hall, 515 Portage Avenue

TomorrowNow: Manitoba's Green Plan

Positioning Manitoba's Bioproducts Sector as a Leader in the Green Economy

The objective of this policy dialogue session is to provide an opportunity to:

- discuss ways to address barriers to greater bioeconomy success in Manitoba
- identify opportunities for the development of a broader bioeconomy sector in Manitoba
- discuss specific policy tools and actions that the government and the private sector can undertake to enable a transition to sustainability

We expect continued engagement with stakeholders throughout the coming year to test research findings and review policy options to develop a Green Economy and Green Jobs Action Plan. The desire for this session is to provide a path forward for the broader analysis and policy development required. An essential aspect is ensuring the outcomes will result in actions required to spur investment and growth in Manitoba's bioeconomy. To see that we are on the right pathway, we will be looking to engage discussion on the following topics:

- What information do decision-makers need to properly take advantage of opportunities to expand the bioeconomy sector in Manitoba? What type of analysis (economic, social, and environmental) should the government undertake to enable its competitive growth within Manitoba?
- What specific actions can government take to enable privately-driven transition within the economy to more sustainable practices? Relatedly, what barriers exist, and how can they be overcome?
- How do you want to be involved throughout this process, and more generally, how should the facilitators of this process (The University of Winnipeg, IISD, Manitoba government) engage more broadly to ensure that the bioeconomy plan reflects the desires, viewpoints and inputs of Manitobans?



THE UNIVERSITY OF
WINNIPEG

iisd International
Institute for
Sustainable
Development Institut
international du
développement
durable

Published by the International Institute for Sustainable Development.

International Institute for Sustainable Development

Head Office

161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba, Canada R3B 0Y4

Tel: +1 (204) 958-7700 | Fax: +1 (204) 958-7710 | Website: www.iisd.org