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Note from the Series Editor

This timeline outlines important events related to bioenergy policy and regulation in Canada and the United States with an emphasis on biofuels and developments since 2000. For the purposes of this timeline, Bioenergy refers to various forms of renewable energy produced from biomass, such as biofuels, biopower and bioheat. For background purposes, the research team has also chosen to include broader developments in energy policy as well as significant events outside of Canada where deemed appropriate. Please help us keep this timeline accurate and up-to-date by providing comments to issp@uottawa.ca

Marc Saner
Director, ISSP

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Timeline - Bioenergy Policy and Regulation (Canada and the United States)

Event	Who	When	Description
Early vehicles use a wide variety of biofuels	Various	Early 1900s	Early vehicles are powered by a diversity of fuels such as ethanol, diesel, butanol, peanut oil, fuels obtained through pyrolysis or gasification, etc. Many of these become obsolete with the increasing availability of inexpensive gasoline.
Use of “gasohol” as a vehicle fuel in the United States	United States	1920s-1940s	Wide usage of ethanol/gasoline fuel blends in the United States (particularly Midwestern states). Following the end of the Second World War, demand for ethanol/gasoline blends falls due to low price and high availability of petroleum fuel. Gasoline/ethanol blends become virtually unavailable commercially in the United States until the late 1970s.
Phasing out of leaded gasoline	Canada and United States	1970s-1980s	Canada and the United States adopt regulations phasing out the use of leaded gasoline and requiring new cars to have engines capable of burning unleaded fuel. The phasing out of tetraethyl lead as a gasoline additive increases the attractiveness of substitutes, such as ethanol, that can be used to enhance octane rating/prevent engine knock.
Solar Energy Research, Development, and Demonstration Act (United States)	U.S. Federal Government	1974	The U.S. <i>Solar Energy Research, Development, and Demonstration Act</i> is passed into law. The Act establishes the Solar Energy Research Institute (now called the National Renewable Energy Laboratory). The latter broadens its research mandate over time to include other alternative energy sources such as wind, biomass and biofuels.
Program of Energy Research & Development (PERD)	Department of Energy, Mines and Resources (Canada)	1974-	PERD is introduced to increase R&D conducted by science-based government departments on all aspects of energy supply and use (except nuclear). Today, PERD funds 40% of all non-nuclear energy R&D conducted by federal and provincial governments.
Renewed commercial marketing of ethanol-gasoline blended fuel in the United States	Amoco	1979	The Amoco Oil Company is the first to renew commercial marketing of ethanol-gasoline blended fuel in the United States, initiating the renewed wide-scale commercialization of renewable fuels.

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Event	Who	When	Description
Energy Research and Development in Agriculture and Food (ERDAF)	Interdepartmental Program on Energy R&D (Energy, Mines and Resources / Agriculture Canada)	1981-1986	The ERDAF program is introduced to provide financial support for projects addressing renewable energy and liquid biofuels. About half of the projects it supports relate to renewable energy, and \$4 million out of an estimated \$15 million in total funding goes towards liquid biofuels research.
U.S. Clean Air Act	U.S. Federal Government	1990	The U.S. <i>Clean Air Act</i> mandates the sale of oxygenated fuel (such as ethanol blended gasoline or gasoline containing MTBE) in areas having high airborne carbon monoxide concentrations.
Excise tax exemption for fuel ethanol in Canada	Government of Canada	1992	The Government of Canada grants a federal fuel excise tax exemption of \$0.10/litre on ethanol. The exemption also applies to the ethanol portion of blended gasoline.
Creation of the Renewable Energy Production Incentive Program (REPI)	U.S. Federal Government	1992	The U.S. Energy Policy Act of 1992 creates the Renewable Energy Production Incentive Program to provide financial incentive payments to producers of electricity from renewable sources.
Alternative Fuels Act receives royal assent	Government of Canada	1995	The federal <i>Alternative Fuels Act</i> mandates that 75% of all vehicles operated by federal departments, agencies and crown corporations must be capable of burning alternative motor fuels where cost effective and operationally feasible beginning in 2004. Eligible fuels specified in the Act include: ethanol, methanol, propane gas, natural gas, hydrogen and electricity.
Accelerated capital cost allowance rate for equipment capable of producing renewable energy	Government of Canada	1996	Introduction of an accelerated capital cost allowance rate of 30% for renewable energy production equipment (meeting requirements under class 43.1, income tax regulations, schedule II). Such equipment includes electricity generation equipment fuelled by waste, heat recovery systems, and others.
Mass production of vehicles capable of operating on 85% ethanol fuel begins	Large U.S. auto manufacturers	1997	Large U.S. auto manufacturers begin mass producing flexible-fuel vehicles capable of burning 85% ethanol (E85) fuel as well as regular gasoline, increasing potential demand from consumers for ethanol fuel. However, limited commercial availability of E85 fuel means that most of these vehicles continue to be fuelled by conventional gasoline.
Canada signs the Kyoto Protocol	Government of Canada	1997	Canada signs the Kyoto Protocol, committing itself to reducing its greenhouse gas emissions to 6% below 1990 levels by 2012.

Event	Who	When	Description
Phasing out of gasoline additive MTBE (Methyl Tertiary Butyl Ether)	Various U.S. states	2000s	Due to controversy over the presence of MTBE in ground water and its related health effects, various U.S. states ban the use of this gasoline additive in their respective jurisdictions. The U.S. EPA also recommends phasing out its use. As MTBE was used to reduce carbon monoxide emissions, improve the octane rating of fuel, and prevent engine knocking, the attractiveness of substitutes such as ethanol is increased. MTBE was never used extensively in Canada. For example, see: Environment Canada, Use and Releases of MTBE in Canada .
Launch of Biomass for Energy Program	Natural Resources Canada/ Canadian Forestry Service	2000	The Biomass for Energy program is introduced to support research and development on the use of biomass as a source of alternative energy. Goals include: identifying new and existing supplies of biomass for energy production; developing new biomass production, collection, harvesting, storage and transportation methods; as well as to demonstrate the sustainability of increased biomass supply for energy production. Eligible research must focus on biomass from the agricultural or forestry sectors.
Release of the Government of Canada's Action Plan 2000 on Climate Change	Government of Canada	2000	The Government of Canada launches the Action Plan 2000 on Climate Change, with the key goal of achieving a reduction in greenhouse gas emissions of 65 megatons per year in the period 2008-2012. The plan targets transportation, energy, industrial, forestry, agricultural and technology sectors. Measures to increase the energy efficiency of buildings and to fund projects to help developing countries reduce emissions are also included. A major commitment relating to the transportation sector is to increase Canada's ethanol production capacity by 750 million litres, later forming the basis for Natural Resources Canada's Future Fuels initiative.
U.S. Biomass Research and Development Act	U.S. Federal Government	2000	The U.S. Biomass Research and Development Act becomes law. The Act creates the Biomass Research and Development Board, a U.S. Federal Government agency whose responsibility is to coordinate federal research and development initiatives related to biomass, biofuels and bioproducts.
Manitoba grants a \$0.025/L provincial fuel tax reduction for gasoline containing 10% ethanol	Government of Manitoba	April 21, 2001	In its 2001 budget , the government of Manitoba grants a 2.5 cent reduction in provincial fuel taxes for gasoline containing 10% ethanol.

Event	Who	When	Description
Increased and increasing rate of biofuels R&D and patents	Various	2002-	From approximately 2002-on, biofuels research advances at an accelerating pace and an increasing number of patents are granted. Research and patents include: alternatives to ethanol (butanol, DMF, etc), the use of new microbial platforms (engineering E. coli, etc), and potential development of (heretofore undeveloped) plant species.
2002 US Farm Bill introduces a number of renewable energy initiatives	U.S. Federal Government	May 13, 2002	Title IX of the 2002 U.S. Farm Bill introduces a number of initiatives that support the development of bioenergy in a rural and farm setting. See this report for more information on these initiatives.
Biodiesel exempt from fuel excise tax in 2002 Ontario provincial budget	Government of Ontario	June 2002	Ontario exempts biodiesel from the provincial diesel fuel excise tax of \$0.143/L.
Saskatchewan enacts an ethanol fuel grant regulation	Government of Saskatchewan	October 24, 2002	Saskatchewan establishes grants for distributors of ethanol-blended fuel. The grant amount is equivalent to the amount of provincial fuel tax paid on the ethanol portion of blended fuel.
Canada ratifies the Kyoto Protocol	Government of Canada	December 2002	The Liberal government of PM Jean Chrétien ratifies the Kyoto Protocol, thereby making Kyoto commitments binding. This increases the attractiveness of cleaner burning fuels, such as ethanol, as a means of meeting Kyoto emissions-reduction targets.
Canadian federal Budget 2003	Government of Canada	February 18, 2003	The 2003 Canadian federal budget introduces a federal fuel excise tax exemption of \$0.04/litre for bio-diesel, including the bio-diesel portion of blended diesel fuel and the ethanol / methanol portion of blended diesel fuel. Prior to this, the excise tax exemption had applied only to the ethanol/methanol portion of blended gasoline.
Announcement of the Ethanol Expansion Program	Government of Canada	August 12, 2003	Prime Minister Jean Chrétien unveils \$1.3 B of spending towards meeting Kyoto Protocol objectives. Spending includes \$100 M in commitments to expand domestic ethanol production. The announcement also states the government's intention to consider mandating a minimum bio-fuel content for all gasoline sold in Canada.
Innovation Roadmap on Bio-based Products	Industry Canada & Network	2004	Industry Canada publishes a "technology roadmap" presenting a strategic plan for innovation in the fields of bio-based feedstocks, fuels and industrial products. The Roadmap is developed in collaboration with a network of business people, academics, government personnel and consultants chaired by Rick Smith of Dow AgroSciences Canada.

Event	Who	When	Description
Ontario announces a provincial renewable fuels standard	Government of Ontario	November 2004	Ontario Premier Dalton McGuinty announces plans to implement regulations requiring an average 5% ethanol content in gasoline sold in the province beginning January 1, 2007.
Release of a Canadian Bioproducts Primer	Pollution Probe and BIOCAP	November 2004	Pollution Probe and BIOCAP, two Canadian NGOs, publish the report Primer on Bioproducts covering all types of bioproducts including biofuels.
Introduction of a refundable variable tax credit for ethanol production in the Quebec 2005-2006 provincial budget	Government of Quebec	April 1, 2005	Quebec introduces a variable refundable tax credit for the production of ethanol. The maximum value of the credit is \$0.185/L.
Announcement of the Ontario Ethanol Growth Fund	Government of Ontario	June 17, 2005	Premier Dalton McGuinty announces the creation of the Ontario Ethanol Growth Fund, which includes 4 initiatives: <ul style="list-style-type: none"> • Capital assistance for the construction or expansion of ethanol production facilities in Ontario. This comes in the form of loan guarantees or grants not exceeding \$0.10/L of plant capacity. • Operating grants to help producers manage market fluctuations. The maximum amount for operating grants is \$0.11/L for ethanol produced in any given year. Operating grants are available from 2007 to 2017. • Assistance for independent fuel blenders meet requirements under Ontario's new renewable fuels standard. • A research and development fund to assist farmers and businesses undertake research in the ethanol manufacturing sector. These initiatives replace the provincial fuel tax exemption for ethanol.
U.S. Energy Policy Act signed into law	U.S. Federal Government	August 8, 2005	The U.S. <i>Energy Policy Act</i> becomes law. The latter sets a minimum threshold for the amount of renewable fuel to be mixed with gasoline sold in the United States annually by 2012 and creates cellulosic ethanol production subsidies.
U.S. Safe Accountable Flexible Efficient Transportation Equity Act - a Legacy for Users (SAFETELU) Act establishes the Alternative Fuel Mixture Tax Credit	U.S. Federal Government	August 10, 2005	U.S. President George W. Bush signs the SAFETELU Act into law. Among its many provisions, the bill authorizes a temporary tax credit for production, use, and/or sale of certain alternative fuel mixtures (set to expire December 31, 2009). U.S. paper producers later qualify for the credit by mixing small amounts of diesel fuel with black liquor, a by-product of the pulp making process that can be burned in paper mills to generate heat and power. The credit forms the basis for large "black liquor" subsidies to U.S. paper companies.

Event	Who	When	Description
Saskatchewan implements mandatory minimum renewable fuel content regulations	Government of Saskatchewan	November 2005	Saskatchewan introduces regulations requiring a minimum 1% average ethanol content in fuel from November 2005 to January 14, 2007. The minimum average ethanol content is set to increase to 7.5% on January 15, 2007.
Stephen Harper announces that a Conservative government would require 5% renewable fuel content in gasoline by 2010	Stephen Harper, leader of the Conservative Party of Canada	December 21, 2005	Conservative Party leader Stephen Harper announces his party's commitment to enhancing the renewable fuel content of Canadian gasoline, citing benefits to consumers, farmers, and the environment. He promises that if elected, his party will implement regulations requiring 5% renewable fuel content (which he specifies as ethanol and biodiesel) by 2010.
"Twenty in Ten" challenge posed by U.S. President George W. Bush during State of the Union Address	U.S. President George W. Bush	January 31, 2006	During his State of the Union Address, U.S. President George W. Bush urges Congress to pass legislation requiring Americans to decrease their gasoline usage by 20% over the period 2007-2017 ("twenty in ten"). This goal is to be achieved by requiring a minimum of 35 billion gallons of renewable fuels in use by 2017, as well as increased fuel efficiency standards for vehicles. The speech also highlights biofuels such as ethanol produced from cellulosic biomass as playing a key role in meeting the proposed renewable fuels standard.
Introduction of a fuel tax refund on pure biodiesel fuel in the Quebec 2006-2007 provincial budget	Government of Quebec	March 23, 2006	The 2006 Quebec budget announces that purchasers of biodiesel are eligible to apply for a refund of provincial fuel excise taxes. The refund is available only to users having purchased large quantities of biodiesel.
Release of Quebec's Energy Strategy	Government of Quebec	May 4, 2006	Quebec releases its Energy Strategy for 2006-2015, which establishes a 5% target for renewable content in fuel sold in the province by 2012.
Meeting of Federal and provincial energy ministers	Federal and provincial ministers responsible for renewable fuels	May 23, 2006	Federal and provincial ministers responsible for renewable fuels set broad parameters for a national renewable fuels strategy. These are: 1) emphasis on ethanol and biodiesel; 2) a preference for tax measures to ensure competitiveness in biofuel production; 3) ensuring opportunities for primary agricultural producers to participate in the renewable fuels industry; and 4) continued investment in new technologies such as cellulosic ethanol.

Event	Who	When	Description
Announcement of Biofuels Opportunities for Producers Initiative (BOPI)	Government of Canada	July 2006	Agriculture minister Chuck Strahl announces the creation of the Biofuels Opportunities for Producers Initiative, designed to help agricultural producers take advantage of economic opportunities in the biofuels industry. BOPI is given \$10 M in funding for the 2006/07 fiscal year. This initiative falls under Agriculture and Agri-Food Canada's Advancing Canadian Agriculture and Agri-Food (ACAAF) Program.
Launch of Agricultural Cooperative Development Initiative (ag-CDI)	Agricultural and Agri-Food Canada / Canadian Co-operative Association / Conseil Canadien de la cooperation	October 2006	Agriculture and Agri-Food Canada launches the ag-CDI program to provide financial support for the establishment of biofuel and other agricultural co-operatives. \$3.25 M in funding is used to provide technical assistance and educational opportunities over 3 years.
Announcement of the Alberta Bioenergy Strategy	Government of Alberta	October 2006	The Alberta government announces a provincial bioenergy strategy and releases a Nine-Point Bioenergy Plan . Main initiatives include: <ul style="list-style-type: none"> • A commercialization/market development program to develop market opportunities and assist in the commercialization of bioenergy technologies. • A bioenergy infrastructure development grant program to assist in the development of bioenergy distribution infrastructure in the province. • A renewable energy producer credit program to support production of biofuels. This initiative replaces the provincial fuel tax exemption for ethanol. • Priority bioenergy areas identified include biodiesel, biogas (methane), and ethanol.
Canadian Clean Air Act introduced in the House of Commons	Government of Canada	October 19, 2006	The <i>Clean Air Act</i> is tabled in Parliament and given a first reading. The Bill is intended to enable the implementation of stricter federal regulations on air pollutants and greenhouse gases, having potential consequences on the use of biofuels for transportation. After considerable public controversy, the bill dies on the order paper at the close of the parliamentary session. Pieces of the bill are later reintroduced as separate legislation (see below).

Event	Who	When	Description
Formal announcement of the government's intent to mandate minimum renewable content in fuels in Canada Announcement of the Agricultural Bioproducts Innovation Program and Capital Formation Assistance program (later renamed ecoABC)	Government of Canada	December 20, 2006	Rona Ambrose, Minister of the Environment and Chuck Strahl, Minister of Agriculture reconfirm their government's plan to mandate renewable content in Canadian fuels. This plan will require an annual average of 5% renewable fuel content in gasoline by 2010, and 2% renewable content in diesel and heating oil by 2012. \$345 M is also announced to create two new federal biofuel initiatives: \$145 M to fund biofuels research under the Agricultural Bioproducts Innovation Program, and \$200 M for the Capital Formation Assistance Program – later renamed ecoAGRICULTURE Biofuels Capital (ecoABC) Initiative – to provide incentives for the development of biofuel production capacity.
Regulatory Notice of intent appears in Canada Gazette Part I	Government of Canada - Environment Canada	December 30, 2006	A regulatory notice of intent appears in the Canada Gazette Part I (December 30, 2006, p.4526) signalling the Federal Government's intent to adopt new regulations requiring renewable content in fuels. The notice emphasizes the use of ethanol (grain-based and cellulosic) and biodiesel to meet renewable fuel regulatory requirements.
California announces a Low Carbon Fuel Standard	Governor Arnold Schwarzenegger	January 2007	California announces it will establish a Low Carbon Fuel Standard (LCFS) with the goal of reducing life cycle greenhouse-gas emission intensity of transportation fuels by 10% during the period 2010 to 2020. Under the LCFS, transportation fuel providers will be required to ensure that, on average, fuel sold in California meets a declining standard for greenhouse gas emissions as measured by gram of CO ₂ per unit of energy sold.
Announcement of the ecoENERGY for Renewable Power Initiative	Government of Canada	January 19, 2007	PM Stephen Harper announces \$1.48 billion to provide a \$0.01 per kilowatt-hour incentive for production of electrical power produced from renewable sources (including biomass). To be eligible, projects must be constructed between April 1, 2007 and March 31, 2011. Incentives may be received for up to 10 years.
Announcement of ecoENERGY technology initiative	Government of Canada	January, 19, 2007	Natural Resources Minister Gary Lunn announces the creation of the ecoENERGY technology initiative , which provides \$230 M in funding for R&D on next-generation renewable energy technologies, including biomass.

Event	Who	When	Description
Launch of Agri-Opportunities Program	Agriculture and Agri-Food Canada	Jan-Feb, 2007	Agriculture and Agri-Food Canada launches the Agri-Opportunities Program, which provides repayable contributions of up to \$10 million for projects whose goal is to commercialize new agricultural products, processes or services not currently available in Canada. The total amount of funding allotted to the program is \$134 million over 5 years. Projects related to the production of fuels from agricultural biomass are eligible for contributions under this program.
Announcement of Forest Industry Long-Term Competitiveness Initiative	Natural Resources Canada	February 8, 2007	Natural Resources Minister Gary Lunn announces the Forest Industry Long-Term Competitiveness Initiative. This initiative includes \$60 M for consolidating existing forest research institutes (the Forest Engineering Research Institute of Canada; Forintek Canada Corp.; and the Pulp and Paper Research Institute of Canada) to form FPInnovations. Funding is also to be used for R&D on forest biomass technology, as well as forest biotechnology and nanotechnology.
Release of BC Energy Plan	Government of British Columbia	February 27, 2007	The BC government releases its Energy Plan. Major biofuel-related initiatives include: <ul style="list-style-type: none"> • A commitment that BC Hydro will issue a call for proposals for electricity generation projects using sawmill residues, logging debris and pine beetle-killed timber as energy sources. • The enactment of regulations requiring an average 5% renewable fuel content in diesel by 2010. • A commitment to shortly release a more comprehensive bioenergy strategy.
Additional funding for the Biofuels Opportunities for Producers Initiative (BOPI)	Government of Canada	March 3, 2007	Agriculture minister Chuck Strahl announces an additional \$10 million in funding for the Biofuels Opportunities for Producers Initiative (See July 2006 above).
Canadian federal Budget 2007	Government of Canada	March 19, 2007	The 2007 federal budget establishes a commitment to provide production incentives worth \$1.5 B over nine years for renewable fuels such as ethanol and biodiesel. This funding later forms the basis for the ecoEnergy for Biofuels program (ecoEBF). The budget also provides \$500 million for investment in large-scale facilities to produce “next-generation” biofuels such as ethanol produced from agricultural and wood waste. In conjunction with the establishment of production incentives for alternative fuels, excise tax exemptions for ethanol and biodiesel are eliminated as of April 1, 2008.

Event	Who	When	Description
Official launch of the ecoAgriculture Biofuels Capital initiative (ecoABC)	Government of Canada	April 23, 2007	The Government of Canada officially launches the ecoAgriculture Biofuels Capital (ecoABC) initiative originally announced in 2006. The initiative provides repayable contributions to farmers for capital investment in biofuels projects
Ontario and BC adopt a Low Carbon Fuel Standard	Governments of Ontario and British Columbia	May 2007	In separate agreements with California Governor Arnold Schwarzenegger, Ontario Premier Dalton McGuinty and BC Premier Gordon Campbell commit to adopting a Low Carbon Fuel Standard matching the goals for reducing intensity of greenhouse gas emissions set by California.
Quebec Government announces financial support for two new cellulosic ethanol demonstration plants and the creation of a research chair on cellulosic ethanol production	Government of Quebec	June 7, 2007	Quebec Premier Jean Charest announces financial support for two new cellulosic ethanol demonstration plants to be located in Westbury and Bromptonville, Quebec. He also announces the creation of a provincially-funded research chair on cellulosic ethanol production at the University of Sherbrooke to support the establishment of the two cellulosic ethanol demonstration plants.
Announcement of Saskatchewan Biofuels Investment Opportunity (SaskBIO) program	Government of Saskatchewan	June 12, 2007	Saskatchewan Premier Lorne Calvert announces a 4-year \$80 million initiative providing repayable contributions of up to \$10 million per project for the construction or expansion of ethanol and biodiesel production facilities in the province. The initiative also includes \$2 million for biofuels and bioproducts research and development.
Launch of ecoENERGY for Biofuels Initiative	Government of Canada	July 5, 2007	Prime Minister Stephen Harper announces the launch of the ecoENERGY Biofuels Initiative. Overseen by Natural Resources Canada, the program is intended to implement the \$1.5 billion commitment made in Budget 2007 regarding production incentives for renewable alternatives to gasoline and diesel. The program provides incentives in the form of per litre subsidies over a nine-year period, with a maximum of 7 years per facility. Incentives provided are up to \$0.10/L for renewable alternatives to gasoline and \$0.20 for renewable alternatives to diesel for the first 3 years of the program and are slated to decline thereafter.

Event	Who	When	Description
Announcement of NextGen Biofuels Fund	Government of Canada	September 12, 2007	Following from Budget 2007 commitments, Sustainable Development Technology Canada receives \$500 M for the creation of a NextGen Biofuels Fund. The Fund provides financial support for large-scale demonstration facilities producing second-generation biofuels. Eligibility is based on whether a facility is the first of its kind in Canada, type of feedstock used, technology/process, sustainability, and future potential. This new fund complements the existing \$550 M SD Tech Fund managed by Sustainable Development Technology Canada.
Manitoba introduces ethanol production incentives	Government of Manitoba	December 12, 2007	Provincial regulations creating production subsidies for ethanol come into effect. Subsidies are approximately \$0.20/L for 2008 and 2009, \$0.15/L for 2010-2012, and \$0.10/L for 2013-2015.
Signing into law of U.S. Energy Independence and Security Act of 2007	U.S. Federal Government	December 19, 2007	The U.S. <i>Energy Independence and Security Act of 2007</i> responds to proposals made by President George W. Bush in his January 31, 2006 State of the Union Address. Biofuel-related provisions of the Act include: <ul style="list-style-type: none"> • Minimum annual level of renewable fuel that must be used in transportation fuel in the United States is set at 36 B gallons by 2022. • Of the 36 B gallons that must be used annually by 2022, 21 B must be produced using sources other than corn starch (i.e. must be comprised of cellulosic ethanol or other biofuels). • Eligible biofuels must meet minimum life cycle greenhouse gas reductions requirements as compared to crude oil-derived fuels. • Authorization is provided for \$27 M in grants for biofuel R&D. • The U.S. Department of Energy is directed to establish grant programs for the establishment or conversion of infrastructure for the use of renewable fuels, including 85% ethanol (E85) fuel.
Manitoba ethanol fuel content mandate comes into effect	Government of Manitoba	January 1 st , 2008	Provincial regulations requiring that gasoline sold in Manitoba contain an average of 5% ethanol for the first quarter of 2008 and 8.5% thereafter come into effect.

Event	Who	When	Description
Release of the BC Bioenergy Strategy	Government of BC	January 31, 2008	<p>Premier Gordon Campbell launches the BC Bioenergy Strategy. Among the initiatives announced are:</p> <ul style="list-style-type: none"> • \$25 M to create the BC Bioenergy Network - an investment fund for bioenergy projects and research. • Research areas to be supported by the BC Bioenergy Network include: wood gasification, cellulosic ethanol, enzymes for bioenergy production, biodiesel production from algae, energy crop production, and refining of biochemicals. Funds may also be used to support pilot and demonstration projects. • \$10 M to increase biodiesel production capacity. • An inventory of biomass resources in the province to assess the total amount of biomass available and consolidate information on biomass resources in order to assist the development of bioenergy projects. • Promote wood pellet production and assist in the development of market opportunities. • Develop regulations to eliminate “beehive burners” (wood waste burners) in order to encourage the use of wood waste for more valuable bioenergy projects. • Review of boiler and pressure vessel regulations to facilitate development of bioenergy innovations and projects.
British Columbia Budget 2008	Government of BC	February 19, 2008	The 2008 BC budget classifies biodiesel and ethanol as alternative motor fuels, exempting them from provincial fuel taxes.
Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act becomes law	Government of British Columbia	April 2008	This Act promotes the use of renewable fuel in transportation fuel blends by setting new requirements. It will reduce the carbon intensity of transportation fuels and thereby allow BC to meet the commitment of adopting a Low Carbon Fuel Standard that is similar to California’s. The Act also provided authority for the Renewable and Low Carbon Fuel Requirements Regulation .
2008 U.S. Farm Bill renews/expands renewable energy initiatives introduced in 2002 Farm Bill	U.S. Federal Government	June 18, 2008	Title IX of the 2008 U.S. Farm Bill renews and expands many of the renewable energy initiatives introduced in the 2002 Farm Bill. (See here for a summary of renewable energy provisions in this bill)

Event	Who	When	Description
Renewable Fuels Bill receives Royal assent	Government of Canada	June 26, 2008	A renewable fuels bill amending the 1999 <i>Canadian Environmental Protection Act</i> receives Royal Assent. This follows up on the Harper government's promise to mandate minimum renewable fuels content in transportation fuels and heating oil. These provisions had previously been included in a revised version of bill C-30 (known as the <i>Clean Air Act</i>) but were reintroduced separately after the initial bill died on the order paper.
New Brunswick issues the Crown Land Forest Biomass Harvesting Policy	Government of New Brunswick	November 4, 2008	New Brunswick becomes the first province to issue a biomass policy providing for the harvesting of biomass from crown-owned forest lands. The policy allows for the harvesting of biomass (such as tree branches, tops, twigs and other woody biomass) present on forest floors for the purposes of bioenergy production.
Launch of the Clean Energy Fund	Government of Canada	January 2009	The Clean Energy Fund was announced in 2009 Canada's Economic Action Plan. The fund provides nearly \$795 million to support research and development, as well as demonstration projects to help create a suite of clean energy technologies. Click and see the bioenergy projects funded through this initiative.
Launch of the Green Infrastructure Fund	Government of Canada	January 2009	Canada's Economic Action Plan 2009 provides \$1 billion over five years for the Green Infrastructure Fund, which aims to improve sustainability and the quality of the environment. The projects are evaluated based on their basic eligibility, benefits, financial and legal requirements. Some bioenergy projects are funded through this program. Click and see the full list of funded projects.
Passage of the <i>American Recovery and Reinvestment Act</i> (ARRA)	U.S. Federal Government	February 17, 2009	The Act supports a variety of alternative fuel and advanced vehicle technologies through measures including grant programs, tax credits and R&D funding. \$800 M was provided for projects related to biomass and \$300 million was allocated to retrofit diesel vehicle fleets with cleaner burning engines in support of the <i>Diesel Emission Reduction Act</i> .
Release of NRTEE Report: "Achieving 2050: A Carbon Pricing Policy for Canada"	National Roundtable on the Environment and the Economy (NRTEE)	April 16, 2009	Report: Achieving 2050: A Carbon Pricing Policy for Canada .
Release of the report " Biofuels – At What Cost? Government support for ethanol and biodiesel in Canada "	Global Subsidies Initiative (GSI) / International Institute for Sustainable Development (IISD)	April 2009	The Global Subsidies Initiative and the International Institute for Sustainable Development release a report examining federal and provincial government subsidies for biofuels production in Canada.

Event	Who	When	Description
EU adopts Renewable Energy Directive	European Council	April 6, 2009	The European Council gives final approval to a Renewable Energy Directive proposing a target of 20% renewable energy for European Union countries by 2020. The 20% target represents an average of total energy production and no specific sectoral targets are set except for the transportation sector. With regard to transportation, the Directive sets a target of 10% biofuel content in transportation fuel by 2020.
Adoption of California's Low Carbon Fuel Standard	State of California Air Resources Board	April 23, 2009	The Air Resources Board adopts a regulation that implements Governor Schwarzenegger's Low Carbon Fuel Standard calling for the reduction of greenhouse gas emissions from California's transportation fuels by ten percent by 2020. Corn-based ethanol does not meet the standards set under the regulation due to concerns it causes changes in land use that offset its potential emissions-reduction benefits.
Announcement of a Biofuels Interagency Working Group	U.S. President Barack Obama	May 6, 2009	President Barack Obama announces the creation of a Biofuels Interagency Working Group. The latter will bring together a number of U.S. federal government departments and agencies in order to coordinate existing policies and identify new policies to increase the use of biofuels.
Announcement of Pulp and Paper Green Transformation Program	Government of Canada	June 17, 2009	Natural Resources minister Lisa Raitt announces the creation of the Pulp and Paper Green Transformation Program in response to massive U.S. government subsidies for "black liquor". Black liquor is a paper production by-product that can be used in onsite energy generation in paper mills. The program provides a subsidy of \$0.16 per litre of black liquor up to a maximum program total of \$1 B.
Launch of the Ontario Feed-in-tariff program	Government of Ontario	September 2009	The Ontario Power Authority has developed the Feed-In Tariff (FIT) Program to encourage greater use of renewable energy sources for electricity generating projects. OPA offers long-term contracts to renewable energy producers, based on the cost of generation for each technology. The FIT program is considered as a cornerstone of the province's <i>Green Energy Act</i> and it is North America's first comprehensive feed-in tariff program for renewable energy.
Implementation of the Manitoba Biodiesel Mandate	Government of Manitoba	November 2009	Manitoba is the first province in Canada to implement a law requiring biodiesel content in fuel. This Mandate requires a minimum 2% renewable content in diesel fuel sold in the province.
Changes to the ecoENERGY for Biofuels program	Government of Canada	December 2009	Natural Resource Canada implemented changes to the ecoENERGY for Biofuels Program, including new eligibility criteria, to ensure more predictable and stable payments to producers and select projects with a better chance of successful sustainable long-term development of the biofuels industry. Click link to view more updates of the program.

Event	Who	When	Description
US federal Renewable Fuel Standard (RFS2) rules finalized	U.S. Government	March 2010	A finalized set of rules for RFS2 are published in the US Federal Register that came into effect on July 1, 2010. Several changes have been applied intending to boost biofuel production. RFS2 was introduced under the 2007 Energy Independence and Security Act (EISA). RFS2 replaced RFS1, which was originally established by the Energy Policy Act of 2005.
Amendment of Clean air Act – passed the Algae-based Renewable Fuel Promotion Act	US Government	September 2010	The US House of Representatives passed the Algae-based Renewable Fuel Promotion Act of 2010 . This Act expanded the definition of cellulosic biofuel to include algae-based biofuel, which allows algae biofuel projects to access the Cellulosic Biofuels Producer Tax Credit program.
Canada Renewable Fuels Regulations	Government of Canada	September 2010	Renewable Fuels Regulations are published in the September 1, 2010 edition of the Canada Gazette, Part II. These new regulations introduce the following requirements for fuels: <ul style="list-style-type: none"> • A minimum average of 5% renewable content by volume in produced or imported gasoline starting on December 15, 2010; • A minimum average of 2% renewable content by volume in produced or imported diesel fuel and heating distillate oil starting on July 1, 2011.
Release of the National Renewable Diesel Demonstration Initiative (NRDDI) final report	Government of Canada	October 2010	The purpose of the initiative was to assess the performance of renewable diesel fuels under Canadian conditions prior to the coming into effect of Renewable Fuels Regulations that requires a minimum 2% renewable content in diesel fuel produced and sold in Canada.
The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 passed into law	U.S. Government	December 2010	Enacted on December 17, 2010, the Act extended several initiatives until December 31, 2011 and reinstated several alternative fuel tax credits including the qualified alternative fuel vehicle fueling property tax credit, the volumetric ethanol excise tax credit (VEETC), and the ethanol and biodiesel producer tax credits. The Act also reinstates measures such as alternative fuel and alternative fuel mixture excise tax credits and biodiesel mixture excise tax credit.
Saskatchewan launched the Renewable Diesel Program	Government of Saskatchewan	March 2011	There are two components of the program: <ul style="list-style-type: none"> • A 2% renewable diesel mandate starts from July 1, 2012; • An incentive grant of 13 cents per litre for producers of eligible renewable diesel fuel in the province (effective from April 1, 2011 to March 31, 2016).
Alberta Implemented the Renewable Fuels Standard Regulation	Government of Alberta	April 2011	Starting on April 1, 2011, the Alberta Renewable Fuels Standard requires an average of 2% renewable content in diesel fuel and 5% renewable ethanol in gasoline sold in Alberta.

Event	Who	When	Description
The amendments to the <i>Renewable Fuels Regulations</i>	Government of Canada- Environment Canada	July 2011	The Regulations Amending the Renewable Fuels Regulations published in the Canada Gazette, Part II on July 20, 2011, set the effective date of July 1, 2011 for the 2% renewable content requirement in diesel fuel and home heating oil. The amendment also includes a permanent exemption of heating oil from the requirements for Newfoundland and Labrador, the Northwest Territories, Yukon, Nunavut and part of Quebec that is located north of latitude 60°N.
British Columbia Carbon tax rate reaches maximum level of \$30/tonne	Government of British Columbia	July 2012	The British Columbia carbon tax was introduced by BC to assist in meeting its goal of reducing greenhouse gas emissions by 33 per cent below 2007 levels by 2020. In July 2012, the tax reached its maximum level of \$30/tonne of carbon dioxide equivalent (CO ₂ e) emissions. The tax was originally introduced on July 1 st , 2008 with a rate of \$10 per tonne set to increase by \$5 per year until it meets the maximum.
The amendments to the Renewable Fuels Regulations	Government of Canada	December 2012	The Honourable Peter Kent, Minister of the Environment, proposes amendments to renewable fuel regulations. The Regulations Amending the Renewable Fuels Regulations, 2013 include a permanent nationwide exemption from the 2% renewable content requirement for home heating oil, as well as a six-month extension to the exemption from the 2% renewable content requirement in diesel fuel for the Maritimes (Nova Scotia, New Brunswick and Prince Edward Island).
American Taxpayer Relief Act of 2012 passed into law	U.S. Government	January 2013	This Act extends and reinstates several measures in support of alternative energy production. This includes production tax credits for alternative energy such as biomass and energy derived from municipal waste. It also extends other expired tax credits, such as those for the production of cellulosic ethanol and biodiesel. Click here for an overview of energy related provisions.
Repeal of the biodiesel tax exemption	Government of Ontario	May 2013	Finance Minister Charles Sousa announced in the provincial budget (released on May 2) that Ontario intended to repeal its existing biodiesel tax exemption of 14.3 cents per litre by April 1, 2014. This move was prompted by the federal government's renewable content requirements for diesel fuel that came into effect on July 2011. See details in the 2013 Ontario budget .

Event	Who	When	Description
Investing in Algal technology to reduce GHG emissions in the oil sands	Government of Canada and industry partners	May 2013	The Honourable Gary Goodyear, Minister of State for Science and Technology, announced the Algal Carbon Conversion Pilot Project in Alberta. This project is intended to demonstrate technology that will reduce industrial GHG emissions by converting CO ₂ into commercial products such as biofuels, livestock feed and fertilizer. The project aims to establish a demonstration-scale algal biorefinery at Canadian Natural's Primrose South oil sands site, near Bonnyville, Alberta. Project costs (\$19 million over three years) are shared between the National Research Council (50%), Canadian Natural Resources Limited (33%) and Pond Biofuels (17%).
Release of the report: "Fueling the Future: Atlantic Canada's Bioenergy Opportunities Project"	ACBC in partnership with BioAtlantech New Brunswick	August 2013	The Atlantic Council for Bioenergy Co-operative (ACBC) released its full report on Atlantic Canada's bioenergy future. The report suggests that bioindustry could stimulate significant growth in Atlantic Canada's economy. Click here to read the summary of report.

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