



Newsletter

Number 7: October, 2003

TABLE OF CONTENTS

TABLE OF CONTENTS	1
EDITORS NOTES	1
WORLD EVENTS/INFORMATION	1
POLICY/REGULATORY ISSUES SUBTASK	3
ETHANOL SUBTASK	5
FUTURE WORKSHOPS/SYMPOSIA	5
CONTACT INFORMATION	7

EDITORS NOTES

D. J. Gregg

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This is the second last newsletter of Task 39 with the next and final issue expected to come out in early January. We are planning to continue the work associated with Task 39 into the next triennium and a proposal from Canada (University of British Columbia) will be tabled at the next Executive Committee Meeting (ExCo 52) in Campinas, Brazil on 29-30, 2003. I have included a short excerpt from the proposal for your interest.

“The primary emphasis of this “Liquid Biofuels from Biomass” Task will be ethanol and will build upon the previous IEA Bioenergy work in this area. Progress in the development and commercialisation of other fuels (biodiesel, methanol, DME and biomass-based hydrogen) will also be covered, although the major focus will be ethanol and to a lesser degree biodiesel. The main goal of this Task is to encourage coordinated policy and technical networks that will assist participants in their efforts to develop an ethanol from lignocellulosics (bioethanol) infrastructure and industry. Prior work in these areas tended to address the development/commercialisation issues from either a policy or technical viewpoint. We believe there is a real need and benefit to reviewing these issues from a combined approach. For example, activities such as lifecycle analysis provide opportunities for both comparative technical assessment and support for policy development. The success of one of recent workshops within the current Task 39 was, in large part, a direct result of providing a forum for these types of discussions.

There will be continued efforts in the individual areas of policy and technical RD&D efforts that will feed into the joint meetings and discussions. Policy, legislative/regulative, and market issues used to encourage growth of ethanol in certain IEA Bioenergy countries or regions will be examined to assist participants in building the infrastructure for this fuel. The Task will also catalyze and coordinate technical RD&D efforts to assist participants in the development of advanced, lower cost ethanol technologies. This effort will continue to expand the technical information exchange network developed by IEA Bioenergy over several years. In conducting its work the Task will establish a comprehensive web site to assist information exchange among participants and prepare and distribute regular newsletters on the various aspects of lignocellulosic ethanol.

Stakeholders in the fuel ethanol area, including industrial interests, trade groups, universities, government and others will be included in all aspects of the Task. We will also closely coordinate our efforts with other IEA Bioenergy Tasks, other IEA Agreements, and other groups with related interests, as appropriate.”

WORLD EVENTS/INFORMATION

OCTOBER

Abengoa Bioenergy Announces Groundbreaking For Starch and Biomass Conversion Pilot Plant

<http://www.bbiethanol.com/news/view.cgi?article=873>

India: First Ethanol-producing Unit Kicks Off in State

<http://www.biobased.org/list2.php?storyid=4793>

Washington, D.C.: Energy Bill May Jumpstart Ethanol Use

<http://www.biobased.org/list2.php?storyid=4790>

Brazil: Farmers Hope to Steer Motorists Toward Oil-Free Biodiesel

<http://www.biobased.org/list2.php?storyid=4786>

North Queensland: Ethanol Producing Technique to Be Focus of Departmental Report

<http://www.biobased.org/list2.php?storyid=4783>

EU roadmap towards a European Partnership for a Sustainable Hydrogen Economy

http://www.europa.eu.int/rapid/start/cgi/questen.ksh?_action.gettxt=pt&doc=IP03/1229%7C0%7CRAPIID&lg=EN&display=

Question and Answers on the regulation of GMOs in the EU

http://www.europa.eu.int/rapid/start/cgi/questen.ksh?_action.gettxt=pt&doc=MEMO/03/196%7C0%7CRAPIID&lg=EN

DuPont and National Renewable Energy Laboratory Launch Project to Develop World's First Integrated "Bio-Refinery"

http://www1.dupont.com/NASApp/dupontglobal.com/index.jsp?page=/content/US/en_US/news/releases/2003/mr10_06_03a.html

160,000 Said Dying Yearly from Global Warming

<http://www.planetark.org/dailynewstory.cfm?newsid=22420&newsdate=01-Oct-2003>

SEPTEMBER

Biodiesel Earns High Marks at 2003 Michelin Challenge Bibendum

http://www.biodiesel.org/resources/pressreleases/gen/20030929_michelin_challenge.pdf

MBTE Fight Stalls Lawmakers' Ethanol Deal

<http://www.bbiethanol.com/news/view.cgi?article=863>

Monsanto Teams Up With Industry Leaders To Provide A Major Boost To Ethanol and Corn Growers

<http://www.bbiethanol.com/news/view.cgi?article=862>

Spokesman: Future of ethanol promising

<http://www.bbiethanol.com/news/view.cgi?article=857>

N.D. soybean group mulls biodiesel plant

<http://www.bbiethanol.com/news/view.cgi?article=856>

Safe management of GMOs: the Cartagena Protocol on Biosafety becomes law

http://www.europa.eu.int/rapid/start/cgi/questen.ksh?_action.gettxt=pt&doc=IP03/1236%7C0%7CRAPIID&lg=EN&display=

Approval in New Zealand for the use of ethanol petrol blends

<http://www.bbiethanol.com/news/view.cgi?article=851>

AUGUST

Biodiesel plant proposed for Del.

<http://www.bbiethanol.com/news/view.cgi?article=846>

Anti-ethanol claims have run out of gas

<http://www.bbiethanol.com/news/view.cgi?article=840>

BBI International Brings Industry Leaders together at Colorado's Broadmoor Hotel

<http://www.bbiethanol.com/news/view.cgi?article=839>

It's a great, big ethanol party on the prairie

<http://www.bbiethanol.com/news/view.cgi?article=836>

Ethanol industry welcomes C\$100 million from Ottawa

<http://www.bbiethanol.com/news/view.cgi?article=834>

\$800m ethanol plan moves ahead

<http://www.bbiethanol.com/news/view.cgi?article=832>

Refiner says waiver won't end Calif. ethanol use

<http://www.bbiethanol.com/news/view.cgi?article=831>

JULY

SD Group Proposes Biomass to Ethanol Plant for Wyoming

<http://www.bbiethanol.com/news/view.cgi?article=821>

U.S. Ethanol Industry Produces All-time Monthly Record in June

<http://www.bbiethanol.com/news/view.cgi?article=817>

Kyoto protocol

http://www.europa.eu.int/rapid/start/cgi/questen.ksh?_action.gettxt=pt&doc=MEMO/03/154%7C0%7CRAPIID&lg=EN&display=

US Corn Use for Ethanol to Rise 18 Percent in 2003/2004

<http://www.bbiethanol.com/news/view.cgi?article=814>

Six-state E85 ethanol fuel use promotion launched

<http://www.bbiethanol.com/news/view.cgi?article=813>

Forum to consider ethanol benefits (Australia)

<http://www.bbiethanol.com/news/view.cgi?article=807>

Ethanol Blends Consistently Cheaper than MTBE Blends in California Gasoline Market

<http://www.bbiethanol.com/news/view.cgi?article=806>

Background Info: CPS' Use of Clean, Biomass-derived Ethanol

<http://www.bbiethanol.com/news/view.cgi?article=805>

Greenhouse gas emissions trading: Commissioner Wallström hails final agreement on climate change breakthrough

http://www.europa.eu.int/rapid/start/cgi/questen.ksh?_action.gettxt=pt&doc=IP03/931%7C0%7CAGED&lg=EN&display=

Greenhouse gas emissions trading

http://www.europa.eu.int/rapid/start/cgi/questen.ksh?_action.gettxt=pt&doc=PRES/03/194%7C0%7CAGED&lg=EN&display=

Expand ethanol's energy role

<http://www.bbiethanol.com/news/view.cgi?article=804>

JUNE

Connecticut and New York set MTBE Bans at Year End

<http://www.bbiethanol.com/news/view.cgi?article=802>

EU research project proves that personal choice can dramatically improve urban air quality

http://www.europa.eu.int/rapid/start/cgi/guesten.ksh?p_action=gettext&doc=IP030912%7C09%7CAGED&lg=EN&display=

Chaff recommended as ethanol ingredient

<http://www.bbiethanol.com/news/view.cgi?article=801>

The EU joins forces with international partners on re-search to 'clean up' fossil fuels

http://www.europa.eu.int/rapid/start/cgi/guesten.ksh?p_action=gettext&doc=IP030829%7C09%7CAGED&lg=EN&display=

Corn Growers, Ethanol Leaders Discuss Cooperation

<http://www.bbiethanol.com/news/view.cgi?article=799>

DuPont Receives U.S. EPA's Presidential Green Chemistry Award for New Innovation: *Clothing from Cornfields: Bio-Based Process Uses Renewable Resources Instead of Petrochemicals*

http://www.dupont.com/NASApp/dupontglobal/corp/index.jsp?page=content/US/en_US/news/releases/2003/m06_24_03a.html

Sorghum Seeking Bigger Share of Ethanol Pie

<http://www.bbiethanol.com/news/view.cgi?article=798>

EU unveils vision for the energy source of the 21st century: hydrogen and fuel cell technology

http://www.europa.eu.int/rapid/start/cgi/guesten.ksh?p_action=gettext&doc=IP030848%7C09%7CAGED&lg=EN&display=

Fuel cells agreement: EU and US forge links to provide sustainable energy sources for the future

http://www.europa.eu.int/rapid/start/cgi/guesten.ksh?p_action=gettext&doc=IP030846%7C09%7CAGED&lg=EN&display=

The Hydrogen economy A bridge to sustainable energy" - Brussels, 16-17 June 2003

http://www.europa.eu.int/rapid/start/cgi/guesten.ksh?p_action=gettext&doc=MEMO03/132%7C09%7CAGED&lg=EN&display=

Blagojevich Signs Bills To Help Ethanol Industry

<http://www.bbiethanol.com/news/view.cgi?article=794>

Voice of the Southern: Ethanol Measure a First Step in Energy Self-reliance

<http://www.bbiethanol.com/news/view.cgi?article=793>

Ethanol soars on refinery demand

<http://www.bbiethanol.com/news/view.cgi?article=792>

Senate gives ethanol a boost for use with gasoline

<http://www.bbiethanol.com/news/view.cgi?article=790>

Oklahoma Sorghum Officials Cheer Ethanol Legislation and Urge Governor's Signature

<http://www.bbiethanol.com/news/view.cgi?article=786>

MAY

Sugar industry backs ethanol trial

<http://www.bbiethanol.com/news/view.cgi?article=780>

California: Ethanol Transition Went Well

<http://www.bbiethanol.com/news/view.cgi?article=779>

Ontario: Ethanol Plant Could be Coming

<http://www.bbiethanol.com/news/view.cgi?article=778>

Margot Wallström " Implementing the Kyoto Protocol: Where do we stand today? " Centre for European Studies & Conferences (CEPS) - 1st Brussels Climate Change Conference Brussels, 20 May 2003

http://www.europa.eu.int/rapid/start/cgi/guesten.ksh?p_action=gettext&doc=SPEECH03/260%7C09%7CAGED&lg=EN&display=

India mulls ethanol production from sugarcane

<http://www.bbiethanol.com/news/view.cgi?article=777>

Straw-ethanol prototype plant plans an upgrade

<http://www.bbiethanol.com/news/view.cgi?article=776>

Ethanol Industry Tells New York State Senate That Gasoline System Can Be Ready for Year End MTBE Ban

<http://www.bbiethanol.com/news/view.cgi?article=774>

Senate Energy Committee Passes Biodiesel Amendment

<http://www.bbiethanol.com/news/view.cgi?article=762>

POLICY/REGULATORY ISSUES SUBTASK

Don Stevens

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One activity of this Subtask has been the cataloguing of roadmaps and strategic plans of participants for implementing liquid biofuels. In this issue we have included a short article from one of the participants in this exercise.

LIQUID FUELS FROM WOOD: NORTH AMERICA IMPACT OF NON-TECHNICAL BARRIERS ON IMPLEMENTATION

Warren Mabee

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In the past, it has been felt that the primary barriers to successful commercialization of ethanol from lignocellulosics were technical. The focus of most research was therefore directed at improving the pretreatment, hydrolysis, and fermentation of lignocellulosics, and at better integrating the process. While research is still essential in all of these areas, there is a growing awareness that strategic policy decisions can also play a role in the success of the industry. In Brazil, for instance, political choices have played the single most significant role in the rise, fall, and rebirth of the ethanol industry. In recognition of the importance of policy to the growth of the ethanol industry, we have undertaken to conduct a policy review that complements and enhances the IEA's program of fundamental technical research. In our upcoming report, we attempt to describe a roadmap that describes some political strategies that decision-makers may employ in order to support and promote the lignocellulosic-to-ethanol industry in the future.

An economical technology for bioconversion of lignocellulosic biomass, such as forest and agricultural residues, will greatly extend the potential of the ethanol industry to become a substantial contributor to the fuel and energy requirements of North America and Europe. The successful development of this technology will require the continued efforts of a range of participants in the areas of research, government, and industry, and an extended degree of cooperation between these parties. A greater chance of success in commercialization may be realized by linking participants with complementary characteristics.

Government participants view ethanol technology as a tool to achieve priorities in the areas of economics, the environment, or security. The participation of government in the commercialization process is essential to facilitate the growth of the industry. Reflecting these priorities are the policies of the state, province or nation in which the organization is based; these policies are instrumental in creating an atmosphere in which the industry can survive and thrive. To a large extent, the future of the liquid fuel from lignocellulosics industry is dependent upon national and supra-national priorities in the realms of economics, the environment, and security. To meet priorities in these areas, governments will continue to develop policy, which in turn may support the ethanol industry. The industry's challenge is to clearly describe the potential benefits of lignocellulosic-to-ethanol technology within the context of national priorities, and to explore the opportunities that these priorities may provide the industry.

The ability of ethanol to contribute positively to the environmental performance of a country makes the nascent industry a valuable tool for policymakers, and connects the potential performance of the industry to the influence of environmental policy. The issue of climate change has be-

come a major concern for all people, but the sectors most closely linked to ethanol production – including energy producers, farmers, and foresters – will feel the impact of this issue more closely. Climate change is the driver behind many new policies that influence the actions taken by these sectors. Perhaps the best-known of these is the Kyoto Protocol, which has been ratified by many European nations and by Canada in North America. The Clean Skies Initiative in the U.S. is another example of these policies. Because the use of ethanol has the potential of reducing net greenhouse gas emissions significantly over petroleum products, an expansion of ethanol production may become a significant part of national climate change strategies. Indeed, Canada has recently announced a commitment of \$100 million over five years to boost ethanol production, and an additional \$30 million to fund research into biofuels. These funds represent a significant portion of the overall Canadian budget for meeting Kyoto Protocol requirements, and hints that the Canadian political perspective on ethanol is indeed predominantly environmental.

Another point of view realizes that ethanol production can be a tool for economic development, which in turn may or may not be utilized to bring about social change. This perspective targets employment and economic diversification. Social diversification can be engineered, predominantly in rural areas. Local level governments are more likely to utilize ethanol production facilities in this manner. For example, the government of Minnesota has instituted incentives for the construction of ethanol production facilities that are smaller than 15 million tons per year. By instituting this cap on plant size, the government has spurred the creation of multiple mills where a single facility might otherwise have been built. Major political support has come from elected state and federal government officials, who have a mandate to support their electorate and thus have crafted incentives to develop the industry in agricultural regions. As a result, major centres of biofuel production have developed in the Midwest, with the majority of production centred in Illinois, Minnesota, Nebraska and South Dakota. Since 1976, over 70 new ethanol production facilities have been built in the U.S., with thirteen additional plants slated to open in the next two years. When one considers increased employment on the farm and the secondary jobs created to provide equipment and services for these operations, this can be translated into an estimated 200,000 new jobs and \$500 million in annual tax receipts. This has led to the creation of both direct and indirect employment, and has had the added benefit of improving ethanol technology significantly. The U.S. perspective on ethanol would seem to be predominantly economic and social.

Finally, ethanol production can be viewed as a tool for increasing energy security. This outlook reflects the need to

provide a renewable energy source to replace existing fuels, as the existing reserves of fossil oil are being consumed at an increasing rate, and the discovery of new reserves is in decline. It also recognizes that ethanol may be an important tool in reducing reliance upon foreign-owned oil supplies, which are subject to political uncertainty. Many pundits have argued that access to oil reserves played a role in the conflict and destruction currently seen the Middle East, particularly in countries such as Iraq. The European Union has overtly embraced the security doctrine by including it as a major point in their Directive on the promotion of the use of biofuels for transport.

In the final report, the use of policy to support the ethanol industry in the short term will be explored, and best practices will be identified from a review of North American and European strategies for developing this industry. In addition, medium- and long-term strategies for the success of the industry will be suggested. A draft of this report will be submitted to IEA Bioenergy in October, and the final version will be presented at the Task 39 meeting in Copenhagen on November 19, 2003.

ETHANOL SUBTASK

Jack Saddler

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The last meeting in this Task will be held in Copenhagen, Denmark on November 19-21, 2003 and will involve both policy and technical issues of fuel ethanol commercialization. This type of meeting was very successful last year in York with a well-balanced mixture of research, commercial and government representation and combined policy and technical topic areas. Technically driven policy has been emphasized in the "Liquid Biofuels from Biomass" proposal for continuation of Task 39 initiatives. We believe meetings of this type will provide a valuable mechanism for evaluating and providing impetus for effective policy. This meeting also provides an opportunity to review and compare North American and European viewpoints and progress, including the VIEWLS effort currently underway in the European Union. (<http://www.novem.nl/default.asp?menuId=10&documentId=33285>)

CURRENT STATE OF FUEL ETHANOL COMMERCIALISATION

Setting the Scene – Policy/Technical Review

- Warren Mabee (UBC - *A Roadmap for Ethanol Commercialization*)
- Kyriakos Maniatis (EU - *EU Perspective on Ethanol*)
- Eric van den Heuvel (Novem - *VIEWLS: How to get to Clear Views on Clear Fuels?*)

Techno-Policy Bridges

- Lars Vallander (*Policy initiatives in Sweden*)
- Jan Lindstedt (*Bioalcohol Fuel Foundation - Technical initiatives linked to policy in Sweden*)
- Bill Cruickshank (NRCan - *Technical and Policy initiatives in Canada*)
- Don Erbach (USDA - *Policy initiatives in USA*)
- Mark Finkelstein (NREL - *Technical initiatives linked to policy in USA*)
- Shiro Saka (*Kyoto University - Policy & Technical initiatives linked to policy in Japan*)
- Eric van den Heuvel (*Ethanol and the biofuels introduction in the Netherlands*)

Technical Initiatives

- Guido Zacchi (LU - *Overview of research & PDU*)
- Anne Belinda Thomsen (RISO - *Wet oxidation*)
- Folke Tjerneld (LU - *Enzymatic hydrolysis*)
- Claus Felby (KVL - *Overview of research group work*)
- Liisa Viikari (VTT - *Enzymes for efficient enzymatic hydrolysis*)
- Lars Rohold (*Green Farm Energy*)
- Birgitte Ahring (DTU - *Pentose fermentation by thermophilic bacteria*)
- Lisbeth Olsson (DTU - *Metabolic engineering of redox metabolism*)
- Bärbel Hahn-Hägerdal (LU - *Molecular methods to enhance Pentose fermentation*)
- Merja Penttilä (VTT - *improved transport of pentoses*)

Commercialization of Lignocellulosics to Ethanol

- Gary Punter/Tony Sidwell (*British Sugar – Commercialization*)
- Kendall Pye (*Lignol – Commercialization of the Lignol Biorefining Technology*)
- Francisco Ronda (*Abengoa - Commercialization*)
- Joergen Krag-Jensen (*Genencor - Commercialization*)
- Joel Cherry (*Novozymes - Commercialization*)

Dinner Speaker

- Don O'Connor ((S&T)² Consultants Inc. – *Challenges of Commercializing Biofuels*)

FUTURE WORKSHOPS/SYMPOSIA

IEA Task 39 'Liquid Biofuels' - Bioethanol Workshop

November 19-21, 2003

Copenhagen, Denmark

<mailto:laurier@interchange.ubc.ca>

<mailto:lo@biocentrum.dtu.dk>

4th European Motor Biofuels Forum

November 24-26, 2003

Hotel park inn Berlin-Alexanderplatz

Berlin, Germany

<http://www.europoint-by.com/events/biofuels2003/index.htm>

Australia Bioenergy Conference

December 8-10, 2003

Sydney, Australia

<mailto:sschuck@bigpond.net.au>
<http://www.bioenergyaustralia.org/>

ETHANOL

World Summit on Ethanol for Transportation

November 24-26, 2003

Quebec City, Quebec, Canada

<http://www.bbiethanol.com/wset/index.html>

20th Annual International Fuel Ethanol Workshop & Trade Show

"Where Practical Application & Research Meet to Design the Ethanol Plant of the Future"

Monona Terrace Convention Center

June 22-25, 2004

Madison, Wisconsin, USA

<http://www.bbiethanol.com/few/>

POLICY/REGULATORY ISSUES

February 16-18, 2004

9th Annual National Ethanol Conference: "Policy & Marketing"

Miami, Florida, USA

Fontainebleau Hilton Resort

<http://www.ethanolrfa.org/nec.shtml>

CONTACT INFORMATION

Please find information below for both the IEA Bioenergy contacts and IEA Bioenergy Task 39 contacts. Additional information is available at <http://www.iea.org> and <http://www.ieabioenergy.com>.

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IEA MEMBERSHIP

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Australia	✓ Bio-	✓	
Austria	✓	✓	✓
Belgium	✓ ✓ Bio-	✓	
Brazil		✓	
Canada	✓	✓	✓
Croatia		✓	
Czech Rep.	✓		
Denmark	✓	✓	✓
European Comm.	✓	✓	✓
Finland	✓	✓	✓
France	✓ Bio-	✓	
Germany	✓		
Greece	✓		
Hungary	✓		
Ireland	✓	✓	✓
Italy	✓	✓	
Japan	✓ Bio-	✓	
Korea	✓		
Luxembourg	✓		
Netherlands	✓	✓	✓
New Zealand	✓ Bio-	✓	
Norway	✓ Bio-	✓	
Portugal	✓		
Spain	✓		
Sweden	✓	✓	✓
Switzerland	✓	✓	
Turkey	✓		
UK	✓	✓	✓
USA	✓	✓	✓
Total	27	20	10