Nations Bolster Industry Ties in Quebec City

People from around the world gather for World Summit on Ethanol for Transportation

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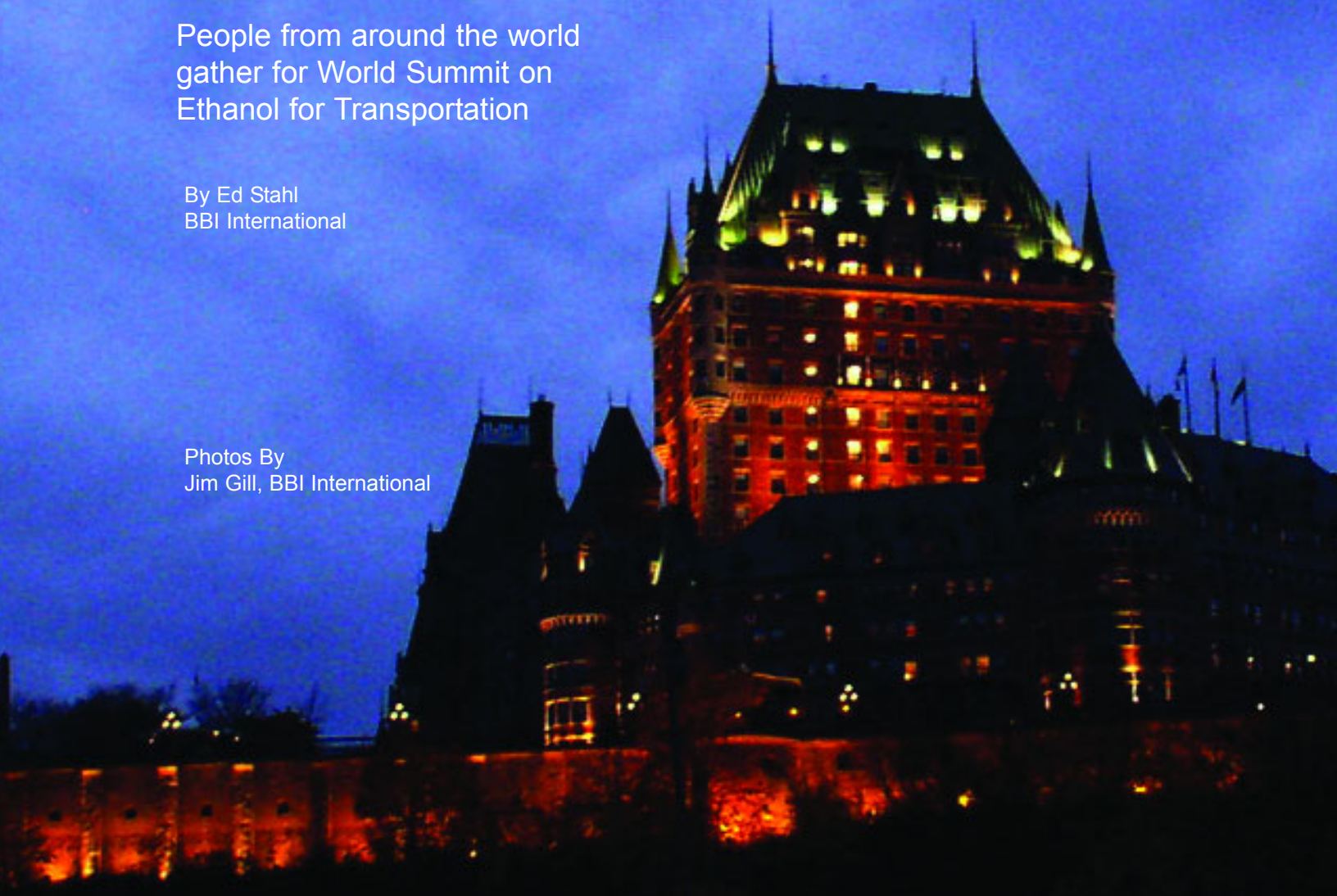


The Fairmont Le Chateau Frontenac in Quebec City, Quebec, was the appropriate venue for a multinational gathering at the World Summit on Ethanol for Transportation, held Nov. 2-4.

Thirteen countries were represented among the nearly 250 participants at this first-ever conference hosted by the Governors' Ethanol Coalition International Committee. Guests included producers, government officials, industry suppliers, bankers, researchers and growers from around the globe, all with one common link: an interest in establishing ethanol's role in the worldwide renewable energy economy of the future.

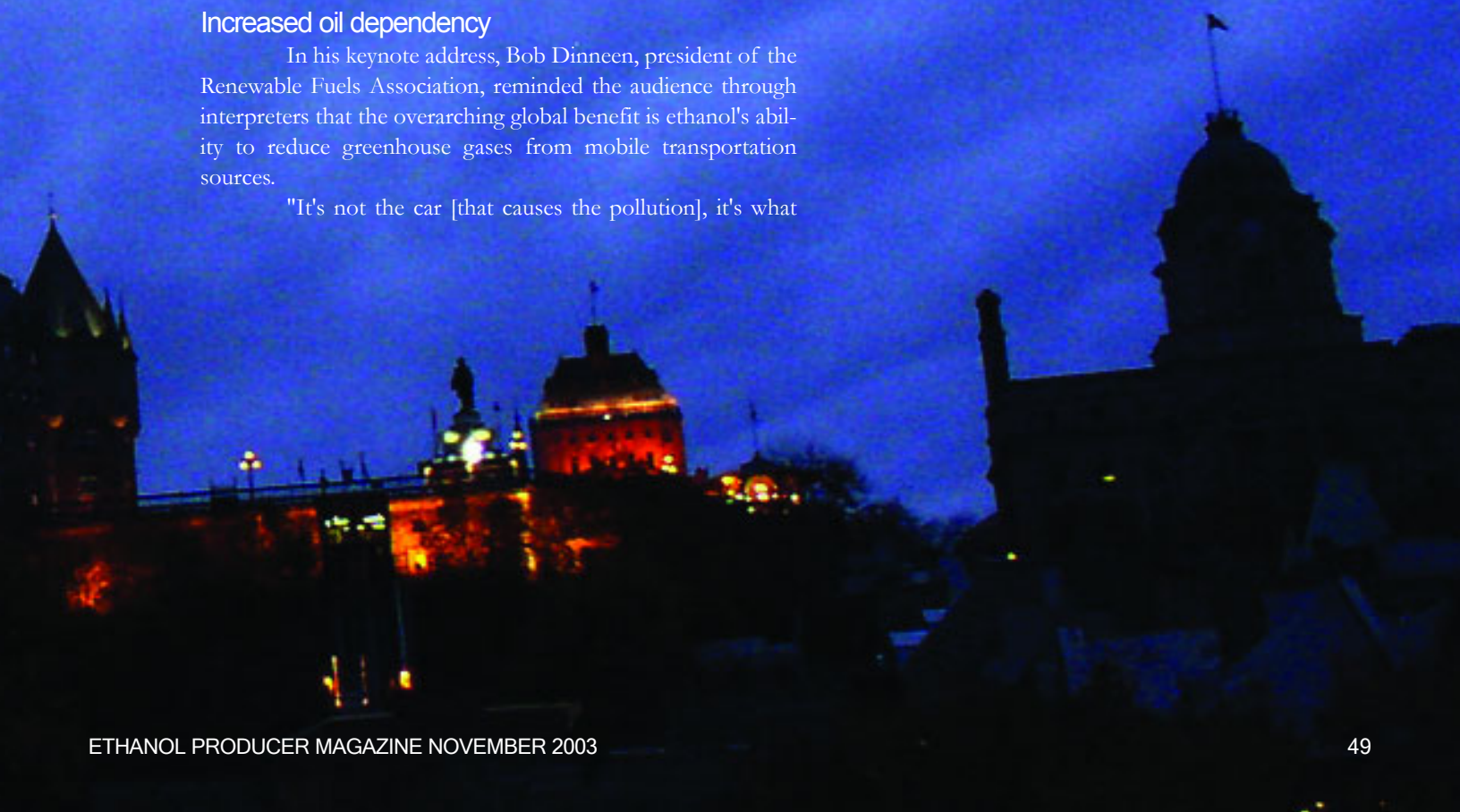
Presenters from various producing and aspiring countries held roundtable discussions on such topics as: the state of the industry, international policy, economic development drivers in developing countries and a session on myth and realities surrounding ethanol use.

Of the nations represented at the Summit, ethanol production and use varies widely. The United States, for example, produces over 2.7 billion gallons of ethanol a year, while its neighbor to the north, Canada, approached 39 million gallons in 2002. The world's largest producer of ethanol, sugarcane-rich Brazil, has topped the 3.6 billion gallon mark with 18 million vehicles running exclusively on fuel blends of between 20 percent and 100 percent ethanol.

Increased oil dependency

In his keynote address, Bob Dinneen, president of the Renewable Fuels Association, reminded the audience through interpreters that the overarching global benefit is ethanol's ability to reduce greenhouse gases from mobile transportation sources.

"It's not the car [that causes the pollution], it's what



Alain LeFebvre, Quebec Ministry of Natural Resources, Wildlife and Parks, chaired the Summit organizing committee."

Margaret Bailey

you put in it," Dinneen said. He went on to predict that "the Stone Age did not end for a lack of stones and likewise the oil age will end long before we run out of oil."

Despite these words, which Dinneen later attributed to Sheik Amani of the Organization of Petroleum Exporting Countries (OPEC), the United States and other nations continue to be largely dependent on foreign sources of oil.

"In 1973 at the start of the oil embargo, the U.S. was 23 percent dependent on imported petroleum at six million barrels per day. Today, we are 56 percent dependant with 11 million barrels per day," Dinneen said.

Baker, Bailey define Canada's target

Bliss Baker, former president of the Canadian Renewable Fuels Association, provided a microcosmic look at the world scene by reviewing the Canadian ethanol industry and its vast provincial differences. Diversity of population, environmental issues, policy inclinations and feedstock availability was the backdrop for Baker's summary assessment.

"Canada has built one new plant

Manuel J. Molano Ruiz, Mexico Secretary of Agriculture with Isabel Gomez.

in 10 years while the U.S. will build one per month this year," Baker said. He added that the landscape is changing rapidly and federal initiatives have been implemented to facilitate the inevitable growth of renewable fuel sources.

Margaret Bailey of the Fuels Policy and Programs Office of Natural Resources Canada illustrated Baker's point by stating that road vehicles account for 75 percent of Canada's transportation related GHG emissions. The result in Canada: a recently announced target of 35 percent of gasoline being E10 by 2010. Ontario is Canada's largest fuel market, consuming over 14 billion gallons of gasoline. A total mandate could equate almost 1.5 billion liters (390 million gallons) of ethanol.

Diverse issues, common goals

It was evident early in the presentations, however, that while the common link was ethanol use and the development of a production infrastructure, the drivers, barriers and political issues were as diverse and complex as the languages being spoken throughout the event.

Isabel Gomez Macias, director of the Mexican ethanol program, spoke about the new organization that has been formed to develop ethanol in Mexico, Fundacion E-mision. This interdisciplinary group will coordinate the developing ethanol program between the Secretaries of Economy, Agriculture, Property and Public Credit, and Environment and Natural Resources.

Paritud Bhandhubanyong, Thailand's director of the Ministry of Science and Technology, estimated the financial losses from air pollution to be approaching $1 billion in Bangkok and Manila and deaths attributable to the same pollution to be more than 1.5 million. To simply replace MTBE in Thailand's current fuel supply would require one million liters (260,000 gallons) per day of production. The only plant in Thailand currently produces 25,000 liters (6,500 gallons) per day.

The European model presents an entirely different glimpse of the issues that affect broad scale introduction of ethanol into the fuel supply. According to Jeff Passmore of Iogen Corporation, a Canadian firm developing the conversion of biomass to ethanol, the European Union has issued a direc-

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Petroecuador introduces ethanol

Ecuador-based company Petroecuador will begin production of alternative fuels to replace the country's importation of petroleum products, Oil Daily reported in November. A pilot plant near Quito would produce 18,720 gallons per day of fuel-grade ethanol utilizing 98,842 acres of cane sugar and other sugar plants, helping Ecuador save over $50 million per year in petroleum imports. The plant would expand to 144,820 gallons per day in the future.

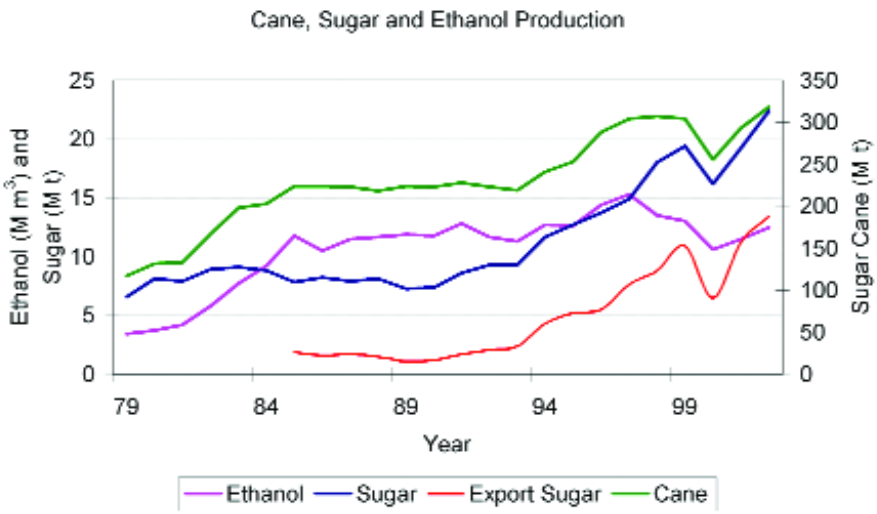
Australia extends E10 trial

Caltex Australia will extend its trial of E10 fuel in Cairns for another six months, according to an Oct. 23 report in The North Queensland Register. Sales of E10 – 90 percent gasoline, 10 percent ethanol – had been promising, but negative publicity recently caused sales to slow. Caltex ethanol-blended fuel has been available at five Caltex and Ampol sites in Cairn since May 20. Government and industry entities hope the extension will increase consumer confidence in ethanol, The Register said.

'Supercritical fluid' proposed for biomass-to-ethanol

Japan's Forestry & Forest Products Research Institute has developed a novel technique to derive ethanol from biomass, according to The Asia Pulse. The procedure requires water, which is converted into a supercritical fluid at 370 degrees Celsius and 22 megapascals of pressure. Supercritical fluid has properties of both a liquid and a gas. When mixed with biomass, the fluid is converted to glucose by hydrolysis. Then it is fermented with yeast to produce ethanol. The process also provides lignin, a component of plant cell walls, which can be used as a fuel to heat the boiler and

continued on Page 54



Source: Macedo/Carvalho

tive to all member countries to develop a plan for a 5.7 percent blending of renewable ethanol into all non-diesel fuel. In Europe, 50 percent of all transportation fuel consumed is diesel. While biodiesel use in Europe is well ahead of most of the world, the use and acceptance of ethanol remains a challenge. To that end, the same directive allows for each country to develop its own taxing mechanism for ethanol use. The plans are due by the end of 2004.

Feedstock assortment

Feedstocks for ethanol plants is another indicator of the vast differences illuminated by shining a light on the global ethanol scene. While 95 percent of U.S. ethanol is produced from corn, Brazil's ethanol program is sugarcane-based. However, in western Canada an even better financial model appears when wheat is used. According to Donald O'Connor, an industry consultant from S&T2 in British Columbia, "ethanol production costs in western Canada are the lowest in North America and wheat feedstock is a significant part of the advantage." And around the world other feedstock sources like cassava, molasses, sugar beets, and barley continue to attract research attention as the opportunity to mesh the environmental, energy and economic benefits of ethanol production and use becomes more apparent.

The inability to trade ethanol as a fungible commodity continues to challenge the producers and would-be producers in Brazil, the U.S. and around the world. According to Patrick Funaro, a senior vice president at Fimat USA, the benefits of a futures market are price discovery, liquidity and leverage. The contract requirements for a qualifying contract are deliverability, standardized specifications and small quantities.

While much of the conference was centered on transferring the current models into developing markets, discussions turned to the emerging technologies, especially converting biomass to ethanol. The massive amounts of sugars

Luncheon speaker, Antonio Duarte Nogueira, Jr., Agriculture Secretary of Sao Paulo.

Rodney Bothast

available in biomass feedstocks like switchgrass, rice and wheat straw, corn stover and many other sources are locked up tighter than in corn and require enzymatic or other chemical release to avail them for fermentation. Iogen Corporation is in the final stages of a phased startup of its commercial pilot plant, and when completed, it will convert switchgrass and wheat straw into approximately one million gallons of ethanol annually. According to Passmore, Iogen is now on a worldwide search for the location of its first full-scale production plant.

Despite Iogen's progress, which is a combined public-private partnership of Canadian agencies, oil companies and industry, the immediate future for biomass conversion remains uncertain. Economic viability still hinges on the enzyme manufacturers quest to reduce the cost of enzymatic release to one-tenth of what it was only five years ago. Companies like Novozymes and Genencor are working feverishly to accomplish this breakthrough.

Speakers share successes, dispel negative myths

The other most active technological pursuit in the U.S. is the effort at the National Corn-to-Ethanol Research Center in Edwardsville, Ill. Director Rodney Bothast discussed the facility's ability to facilitate modifications throughout the ethanol-making process to test technolo-

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continued from Page 52

power processing equipment. Currently the processing price is too high to become competitive with other fuels, but the institute hopes to build a pilot plant to conduct further tests, The Asia Pulse reported.

Hybrid Fuels Canada Inc. updates construction work

Hybrid Fuels Canada Inc. has completed dirt work and poured concrete on what is evidently a closed-loop ethanol facility in Oyama, British Columbia. Construction was delayed in August and September because of forest fires in central and northern Okanagan but picked up again in October. According to PR Newswire, the building frames should be ready and on site by the time the cement floors are completed. For updated construction information, visit www.hybridfuels.com. Hybrid Fuels has developed a unique farm-scale agricultural process that will combine beef operations with ethanol production, producing high-grade beef that is free of added growth hormones or antibiotics, according to the company's Web site.

Brazilian company to build ethanol plant in Africa

The Gazeta Mercantil Invest News reported that Brazil will invest $100 million in the construction of an ethanol plant in Angola, Africa. Collaboration on the project, located in Angola's capital city Luanda, will spur the opening of a Bank of Brazil branch in Angola and strengthen connections between the two countries, according to The Mercantil Invest News. Brazil is currently Angola's third biggest supplier, accounting for 12 percent of the country's imports. Last year, Brazil's exports to Angola totaled $199 million.

gies that may improve yields, energy efficiencies and even the makeup of the corn before it is fermented. The plant soon expects to be testing processes for dry-grind plants, which remove fiber and germ before introducing the starch stream into liquefaction. This may provide additional products to market as well as increase net ethanol production levels through the plant.

In one of the more popular sessions, industry experts addressed, and in many cases dispelled, the negative issues and "myths" which are commonly aimed at the ethanol industry regarding emissions, energy, engines and economics. Dan Santini, a researcher at Argonne National Laboratory, provided an updated look at flawed claims that ethanol requires more energy to produce than it contains.

Ralph Groschen, panel moderator and a marketing specialist for the Minnesota

|continued on Page 56|

Students from Laval University displayed their exciting SAE Formula ethanol-powered race car.

The beautiful Quebec Parliament building by moonlight in the historic sector of Old Quebec.

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Department of Agriculture, pointed out that through the years of introducing ethanol into one-tenth of Minnesota's gasoline supply, virtually every claim of vehicle or engine failure alleged to be caused by ethanol was ultimately dispelled. Groschen added, "as soon as the 'warning' labels came off the pumps, the complaints stopped altogether."

Hosein Shapouri, an economist for the U.S. Department of Agriculture, provided a glimpse at the economics of ethanol production, wet mill and dry-grind, and pointed out the clear pattern of improving financial viability that has steadily occurred in the industry.

In the end, the theme most prevalent was the charge issued by Dinneen at the beginning: "Build coalitions!" The past and the future of ethanol in the world market will be a reflection of coalitions-public and private, research and commercial, as well as state, national and international-working together to advance renewable ethanol as a viable alternative to a limited fossil supply. To most at this World Summit the future does indeed look rosy, or better yet, green! Summit proceedings can be purchased at http://store.yahoo.com/bbi-ethanol, click on World Summit CD link. EP

An example of Sunoco's promotion of ethanol blends.