



## **ReadiJet™ Alternative Fuel Takes Flight: The world's first jet aircraft flight powered by 100%, un-blended, renewable jet fuel that meets petroleum jet fuel specifications lands in Canada**

### *Historic Milestone for the Aviation and Sustainable Energy Industries*

**Ottawa, Canada, October 29, 2012** – 3:45 p.m., Monday, October 29<sup>th</sup> will go down in history as the first time a civilian jet was powered by 100 percent unblended, renewable biofuel. Applied Research Associates (ARA) and Chevron Lummus Global (CLG) partnered with the National Research Council of Canada (NRC), the U.S. Air Force Research Laboratory (AFRL), and Agrisoma Biosciences Inc. to test and analyze their ReadiJet™ drop-in jet fuel. The biofuel, ReadiJet®, was produced by ARA, under contract to AFRL, from Agrisoma's *Resonance*™ feedstock crop using CLG's and ARA's breakthrough *Biofuel ISOCONVERSION* process.

Prior to the test flight, NRC completed ground testing of the fuel with their GE 700 2D2 Turbofan engine in their test cell, and performed a ground test in the Falcon 20. The renewable jet fuel was tested against ASTM and military specifications. During the flight, the biofuel flowed into the engine of the Falcon 20 - one of NRC's specifically equipped and best suited jet for this challenge – as it flew over the sky of Canada's capital. A second aircraft, the T-33, tailed the Falcon in flight and collected valuable information on the emissions generated by the biofuel. Research experts at the National Research Council will analyze this information to better understand the environmental impact of biofuel. Preliminary results will be released in the following weeks. This historic hour-long flight symbolizes a significant step not only for the aerospace industry, but also towards advancing sustainable sources of renewable energy.

The enthusiasm on the tarmac during and after the flight was palatable. "Today, I flew the world's first 100 percent biofuel flight," said Tim Leslie, one of NRC's pilots. "We have been working hard with our partners for many months, and it is most rewarding to see it all come together. It is truly inspiring to take this step towards an eco-friendly future."

Canadian Ministers congratulated the National Research Council for world's first 100% Biofuel Flight. The Honourable Christian Paradis, Minister of Industry, and the Honourable Gary Goodyear, Minister of State (Science and Technology) issued the following statement: "I congratulate the aerospace team at the National Research Council of Canada for achieving today's milestone in aviation history. This is a perfect example of how government and industry work together to bridge the gap between Canadian innovation and commercialization. The NRC, through our government's investments, helps support the Canadian economy by enabling its partners to develop and bring effective sustainable energy solutions to market."

The biofuels ISOCONVERSION Process is a combination of ARA's CH technology and Chevron Lummus Global's ISOCONVERSION® Catalysts to make the finished ReadiJet® fuel. The integrated ARA/CLG process and Agrisoma's *Resonance*™ feedstock provide a pathway for fulfilling the commercial and military markets' requirements for alternative fuels at parity with petroleum while spurring opportunities for farmers.

"Today, with the support of NRC Canada, the US Air Force Research Lab, Air Transport Canada, and GARDN, our team comprised of ARA, Chevron Lummus Global, and Agrisoma Biosciences, unveiled the future of alternative fuels: Agrisoma's *Resonance*, a true industrial oil feedstock grown by farmers with conventional growing techniques and ARA/CLG's Biofuels ISOCONVERSION process. Our passionate scientists have shown the world that their

creativity and innovation will lead the way to cost competitive, 100% alternative fuels in the near future,” stated Chuck Red, ARA’s Alternative Fuels Program Lead.

"This flight represents the culmination of a significant and strategic effort within Canada to demonstrate leadership in green aviation - from the commercialization of a sustainable and scalable feedstock crop to "at altitude" flight demonstration with emissions monitoring in real time during the flight. Agrisoma is proud to be a part of this landmark work. To date all powered flight has relied on fossil fuel - **this flight changes everything** – we have witnessed petroleum free aviation," said Steven Fabijanski, President and CEO of Agrisoma, who was present on the tarmac.

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**About Chevron Lummus Global**

CLG licenses refining hydroprocessing technologies and catalyst systems worldwide, and is a 50-50 joint venture between Chevron Products Company, a wholly owned subsidiary of Chevron Corporation, and Lummus Technology, a CB&I business sector. CLG's research and development staff is continuously seeking advancements in catalyst and technology that will improve operating economics. CLG is the leading Process Technology Licensor for Alternate Sources of Fuels including: Oil Sands Bitumen, Shale Oil, Biofuels, Extra Heavy Oils. For more information about Chevron Lummus Global please visit:

[http://www.chevron.com/products/sitelets/refiningtechnology/about\\_che\\_tech.aspx](http://www.chevron.com/products/sitelets/refiningtechnology/about_che_tech.aspx)

**About ARA**

ARA’s alternative fuel effort began in 2006 in response to a U.S. military requirement for technologies that can convert renewable oils to jet fuel. To answer this challenge, ARA Principal Engineers conceived an idea of using high temperature water to create biocrude. A U.S. patent on the CH technology was granted to ARA in 2010. “The current driving factors for both the Department of Defense and civilian markets are finding a solution that is environmentally superior to petroleum and also comparable to the cost of petroleum,” said Chuck Red, ARA fuels lead. In addition, the material used to create the fuel must be renewable, a non-food crop, and ready to be grown, harvested, and processed. For more information about their fuel initiative, visit: [www.ara.com/fuels](http://www.ara.com/fuels). For more information about ARA's diverse and innovative capabilities, please visit [www.ara.com](http://www.ara.com).

**About Agrisoma**

Agrisoma Biosciences is a Canadian based agricultural biotechnology company that has commercialized a sustainable feedstock crop solution for the biofuels industry. Resonance™ Energy Feedstock is a biofuels solution: a non-food oilseed that is sustainable, with value chain economics that support its scaling to support the biofuels industry – a “drop-in” crop solution that takes advantage of the power of agriculture to achieve scale and quality. Resonance™ Energy Feedstock provides an optimized oil for advanced biofuel manufacturing technologies with significant benefits in fuel manufacturing efficiencies and economics.

[www.agrisoma.com](http://www.agrisoma.com)

**About NRC**

The National Research Council (NRC) is the Government of Canada's premier organization for research and development. Every year NRC scientists, engineers and business experts work closely with Canadian industry to take research impacts from the lab to the marketplace. This delivers innovation faster, enhances people's lives and addresses some of the world’s most pressing problems. NRC has the people, expertise, services, licensing opportunities, national facilities and global networks to help Canadian businesses bring new technologies to market.

[www.nrc-cnrc.gc.ca](http://www.nrc-cnrc.gc.ca)