

NEW BIOJET ABU DHABI INITIATIVE TO DEVELOP COMPREHENSIVE FRAMEWORK FOR UAE BIOFUEL SUPPLY CHAIN

- **Collaboration by Etihad Airways, Boeing, Takreer, Total and Masdar Institute of Science and Technology**
- **Announcement follows Etihad Airways Boeing 777 biofuel demonstration flight in Abu Dhabi**

Etihad Airways, Boeing [NYSE:BA], Takreer, Total and the Masdar Institute of Science and Technology today announced they will collaborate on a new initiative – BIOjet Abu Dhabi: Flight Path to Sustainability – to support a sustainable aviation biofuel industry in the United Arab Emirates.

BIOjet Abu Dhabi will engage a broad range of stakeholders to develop a comprehensive framework for a UAE biofuel supply chain, including research and development and expanded investment in feedstock production and refining capability in the UAE and globally.

BIOjet Abu Dhabi was announced one day after Etihad Airways conducted a demonstration flight with a Boeing 777 powered in part by the first UAE-produced biokerosene from an innovative plant biomass-processing technology. The biofuel was partially converted from biomass by Total and its partner Amyris. Takreer, a wholly owned subsidiary of Abu Dhabi National Oil Co. (ADNOC), did the final aviation biofuel distillation, adding the UAE to a handful of countries that have produced and flown on their own biokerosene.

The Masdar Institute’s Sustainable Bioenergy Research Consortium, funded by Etihad Airways and Boeing, is currently researching and developing salt-tolerant plants that would be raw material for the same refining processes to produce renewable fuel.

James Hogan, President and Chief Executive Officer of Etihad Airways, said, “In collaboration with our key partners, our goal is to support and help drive the commercialisation of sustainable

aviation fuel in Abu Dhabi, the region and also globally. We have made some important first steps in this process and our continued focus will be to develop further initiatives such as this which will facilitate the availability of sustainable aviation biofuels for Etihad Airways in the coming years.”

The Etihad Airways demonstration flight and announcement of BIOjet Abu Dhabi were held in the run-up to Abu Dhabi Sustainability Week and the World Future Energy Summit, hallmarks of UAE leaders’ commitment to sustainable energy development. BIOjet Abu Dhabi: Flight Path to Sustainability is aligned with the Abu Dhabi Economic Vision 2030, which seeks to develop sustainable energy sources to diversify the UAE economy and increase workforce opportunities for Emiratis.

Jeffrey Johnson, President of Boeing Middle East, said: “With further commitment and investment, the UAE, a global leader in commercial aviation, is well-positioned to lead efforts to make our industry more sustainable. Boeing, which works with partners around the world to advance sustainable biofuel development, sees great opportunity for BIOjet Abu Dhabi to have a positive impact in the UAE and globally.”

Jasem Ali Al Sayegh, Chief Executive Officer of Takreer, said: “Takreer is proud to have been involved in refining this product at its Abu Dhabi research centre. We support the concept of using biofuel as a sustainable aviation fuel for a cleaner future in line with ADNOC’s sustainability policy. We see this strategy as complementary to our future plans in meeting the rapid growth in demand for jet fuel in the country and the region in view of the expansion of the operations of airlines here.”

Bernard Clément, Senior Vice President of Total New Energies, added: “As a long-lasting partner of Abu Dhabi and responsible oil and gas producer, Total is proud to participate in the BIOjet Abu Dhabi initiative, and to assist the Emirate in the diversification of its energy mix. This demonstration flight – the first of its kind in the Middle East - illustrates the capacity of Total to integrate, as of today, aeronautical biofuels in a concrete and reliable way. Improving energy efficiency and leveraging the potential of renewables have become fully embedded in Total’s business model with concrete achievements in biofuels as well as in the solar sector.”

Dr Fred Moavenzadeh, President of Masdar Institute, said: “The collaboration for BIOjet Abu Dhabi reflects our partners’ commitment to sustainable biofuel, a concept that is currently being implemented from our side through the Sustainable Bioenergy Research Consortium. We remain focused on identifying commercially viable means for the production of sustainable aviation fuel and welcome the new initiative that will pave the way for faster adoption of such fuel by the industry. With our expertise, we will continue our contribution towards offering clean energy solutions for the benefit of all stakeholders.”

Etiihad Airways is an airline industry leader in supporting the development of lower-carbon renewable fuels. A member of the Sustainable Aviation Fuel Users Group (SAFUG), the airline operated the Gulf region’s first biofuel flight in January 2011 with a Boeing 777 delivery from Seattle to Abu Dhabi powered by a blend of petroleum-based and certified plant oil-based jet fuel.

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About Etihad Airways

Etiihad Airways, the national airline of the United Arab Emirates, began operations in 2003, and in 2013 carried nearly 12 million passengers. From its hub at Abu Dhabi International Airport, Etihad Airways offers flights to 102 passenger and cargo destinations in the Middle East, Africa, Europe, Asia, Australia and the Americas, with a fleet of 89 Airbus and Boeing aircraft. The airline has more than 220 aircraft on firm order, including 71 Boeing 787 Dreamliners, 25 Boeing 777-X, 62 Airbus A350s, and 10 Airbus A380s, the world’s largest passenger aircraft. Etihad Airways also holds equity investments in airberlin, Air Seychelles, Virgin Australia, Aer Lingus and Jet Airways. Subject to regulatory approvals, Etihad Airways will acquire 49 per cent of Air Serbia and 33.3 per cent of Darwin Airline in Q1 2014. For more information, please visit: www.etihad.com

About Boeing

Boeing is the world's largest aerospace company and leading manufacturer of commercial jetliners and defense, space and security systems. A top U.S. exporter, the company supports

airlines and U.S. and allied government customers in 150 countries. Boeing products and tailored services include commercial and military aircraft, satellites, weapons, electronic and defense systems, launch systems, advanced information and communication systems, and performance-based logistics and training.

Boeing collaborates with airlines, research institutions, governments and other stakeholders to commercialise sustainable biofuel around the world, including in the United States, Middle East, China, Brazil, Europe and Australia. For more information, please visit www.boeing.com/boeing/aboutus/environment/

About Abu Dhabi Oil Refining Company (TAKREER)

Abu Dhabi Oil Refining Company (TAKREER) was established in 1999 to take over the responsibility of refining operations from ADNOC. The operations cover the crude oil and condensate refining and supply of petroleum products.

Takreer's main objective is to develop the refining industry in Abu Dhabi which started with the inauguration of Abu Dhabi Refinery (earlier known as Umm Al Nar) in 1976 and Ruwais Refinery in 1981. Abu Dhabi and Ruwais Refineries with a total name plate capacity of 490,000bpd constitute our core business. They produce over 23 million tons per year of products for the local and export markets.

Takreer produces Liquefied Petroleum Gas (LPG), Naphtha, Gasoline (91, 95 & 98 Octane), Jet-A1, Domestic Kerosene, Diesel, Liquid Sulphur and Bunker fuel.

The refining capacity of the Company will be doubled by the end of 2014 after the commissioning of a new state-of-the-art Ruwais Refinery Expansion Project.

About Takreer Research Centre

TRC is the first research entity of its kind in the UAE with the mission to improve and support the refining industry while making a strong contribution to technology transfer and human resources development. It was established owing to ADNOC's vision that technology and innovation, coupled by scientific research are essential to its strategy.

The Centre supports Takreer's corporate strategy that targets improving the internal business and operational processes to provide a robust support to existing operations as well as on-going strategic expansion of Takreer refineries to meet future challenges.

About Total

Total is one of the largest integrated oil and gas companies in the world, with activities in more than 130 countries. The Group is also a first rank player in chemicals. Its 97,000 employees put their expertise to work in every part of the industry – exploration and production of oil and natural gas, refining and marketing, new energies, trading, and chemicals. Total is working to help satisfy the global demand for energy, both today and tomorrow. The Group holds a 66% stake in SunPower, a world leader in solar energy, and an approximately 18% stake in Amyris, an integrated renewable products company. Additionally, Total is actively engaged in a number of renewable R&D projects, such as solar and biomass.

Total is a longstanding partner of the United Arab Emirates, with a presence dating back to 1939. The Group has accompanied Abu Dhabi in the development of its oil and gas resources to supply both the international markets as well to cover the increasing energy domestic demand in the UAE. Alongside this strong partnership, Total also offers its expertise in renewable energy to the Abu Dhabi authorities and recently contributed to the launch of Shams 1, the world's largest concentrated solar power plant. www.total.com

About Masdar Institute of Science and Technology

Masdar Institute of Science and Technology (Masdar Institute) was established by the government of Abu Dhabi as a not-for-profit, private graduate university to develop indigenous R&D capacity in Abu Dhabi addressing issues of importance to the region.

In collaboration with the Massachusetts Institute of Technology (MIT), Masdar Institute has developed an academic and research platform that articulates its mission and vision according to critical energy and sustainability challenges.

An important characteristic of Masdar Institute is its focus on complex real-world problems that require a multidisciplinary approach for the development of solutions from an integrated technology, systems and policy perspective. This multi-interdisciplinary and integrated approach



is supported by the structure of its academic programs and by the emphasis placed on engaging external partners from industry, government, and other academic institutions in collaborative activities.