DLR at the Singapore Airshow

13 February 2012

The Singapore Airshow, the largest aerospace trade fair in Asia and an important meeting place for the global aviation industry, will be held from 14 to 19 February 2012. The German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) will be presenting its research into quieter and more environment friendly air transport in the form of electric ground propulsion systems for aircraft.

Johann-Dietrich Wörner, Chairman of the Executive Board said: "I am delighted at the fact that DLR is going to be represented at the Singapore Airshow. DLR established an office in Singapore last year, giving it a local presence in the Asian market. We will be expanding our activities in this promising area."

Cleaner and quieter aviation

DLR will be exhibiting an electrically driven nose wheel and a video presentation on the topic of 'Green Operations'. Together with its partners Airbus and Lufthansa Technik, DLR has developed an electrically driven nose wheel powered by a fuel cell, which enables aircraft to move to the runway – or to taxi to their gate – without using their engines. This development can help to significantly reduce pollutant and noise emissions. Studies have shown that about 20 percent of the emission of pollutants such as nitrogen oxides and carbon dioxide produced during ground operations at an airport can be avoided. In an initial test conducted in 2011 using DLR's A320 ATRA research aircraft, this nosewheel proved that an electric drive is capable of moving airliners of this size.

The 'Systems for Green Operations' project also deals with electric propulsion for aircraft. DLR researchers are working on forecasting the potential benefits from electrically driven main landing gear, which would be capable of moving aircraft up to the size of the A380 on the ground without using their engines. To lay the groundwork for this, researchers have developed software that can quickly simulate the ground movements of aircraft over a full working day. Data from this simulation is incorporated into a subsequent evaluation of fuel consumption – together with emissions of carbon dioxide. The 'Systems for Green Operations' project forms part of the EU 'Clean Sky' research programme. The aim of 'Clean Sky' is to reduce the impact of aviation on the environment.

DLR will be exhibiting at Booth H95 at the Singapore Airshow.

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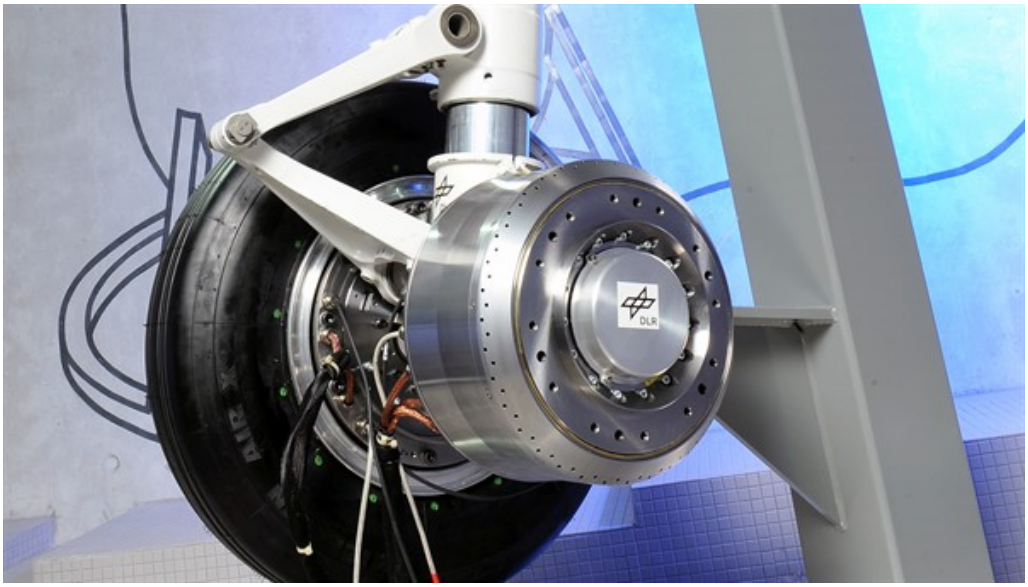
Electric nose wheel drive



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Credit: DLR (CC-BY 3.0).

Test engineer in front of the electrically driven nose wheel

A test engineer stands in front of the electrically driven nose wheel shortly before the first test.

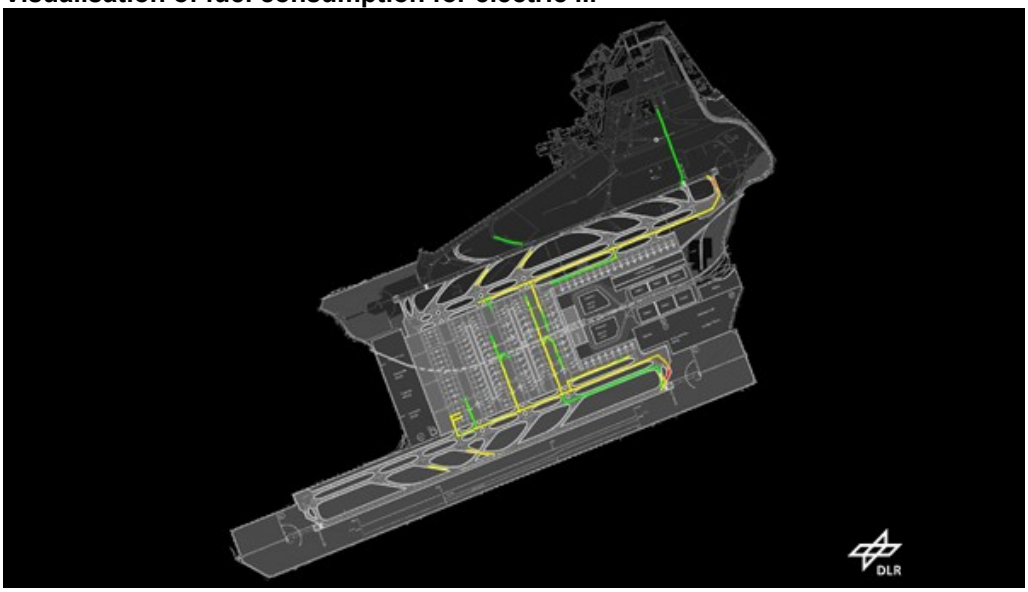
Credit: Airbus / C. Brinkmann.

DLR’s A320 ATRA research aircraft fitted with an electrically driven nose wheel

The DLR A320 ATRA research aircraft during the trials. It is fitted with an electrically driven nose wheel powered by a fuel cell.

Credit: Airbus / C. Brinkmann.

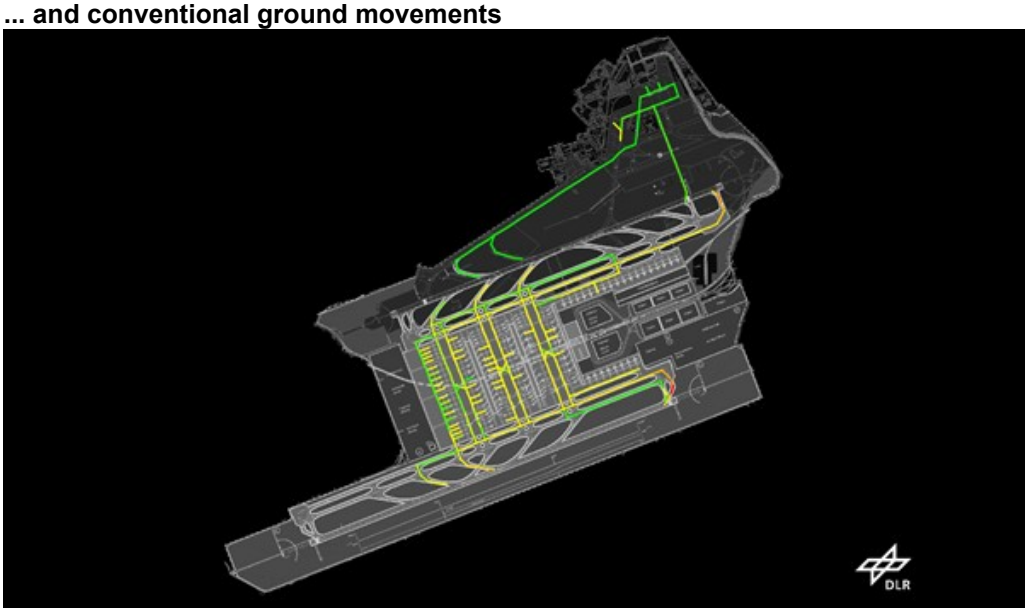
Visualisation of fuel consumption for electric ...



The coloured taxiways show approximately the amount of fuel used and emissions produced when aircraft are taxiing. The scale ranges from no colour (no fuel consumption and emissions), through green and yellow (low fuel consumption and low emissions), to red for higher amounts.

Credit: DLR (CC-BY 3.0).

... and conventional ground movements



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