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Clean Vehicles Partnership

British Airways Heathrow CVP Case Study



A world first in zero emissions, remote-control pushback tugs

British Airways (BA), working in partnership with Heathrow Airport, has trialled and commenced implementation of live operation zero emission, remote controlled aircraft pushback tugs for the entire short-haul operation in Terminal 5A at Heathrow.

BA has become the first operator in the world to use multiple electric remote-control tugs on commercial flights. The use of the device and associated infrastructure is also a first for any major international airport. In 2017, BA received the Clean Vehicles Partnerships (CVP) Innovator Award in recognition of its work implementing cutting edge technology.

Here, we talk to BA about what inspired the technology and how the CVP helped the business to achieve its low emissions ambitions.





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How will the new technology be implemented at Heathrow?

One remote control tug will be positioned on each short-haul stand in Terminal 5 and several towbarless tugs will be stood down. This will remove the need for normal tugs to operate in Terminal 5A, except for maintenance tows.

A new ramp supervisor grade has been created to manage aircraft loading activity and aircraft push back by using the electric remote-control push back tug.

Our operational staff were involved in detailed operational trials last year and have been positive about the new programme. Since then we have invested in 28 units, which will allow us to operate on all Terminal 5A short-haul stands, without the need to move these units between stands.



In 2017 British Airways received the Clean Vehicles Partnership (CVP) Innovator Award recognising its work developing and implementing cutting edge low emissions technology

What inspired you to develop and implement this new technology?

BA is inspired to use innovation to challenge the norm. 1995 saw the introduction of towbarless tractors and after 22 years we have introduced something that is innovative and simple to use with many benefits for passengers, employees and the environment - without compromising safety.

Advances in battery and charging technology ensures that the remote-control tug can operate over many days between charge. Working with Heathrow Airport, we have agreed an ambitious infrastructure plan that allows for parking positions on each stand as close as possible to the front of the aircraft, with chargers installed at each parking position to ensure optimised operational efficiency.





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British Airways and the International Airlines Group have worked closely with the remote-control pushback manufacturer, Mototok, to enhance the design and bring it into commercial use. Close work with Heathrow, NATS and the Civil Aviation Authority has ensured that operating procedures, training and user operating permits comply with regulatory and airport operational procedures. Where required, this has included defining operational safety instructions that are unique to the way the device operates.

How did the CVP help you to achieve your targets?

British Airways has been attending CVP meetings for a long time and was encouraged by CVP's positive approach to encouraging airlines, suppliers and ground handlers to be greener and adopt alternative fuel technology.

CVP has provided valuable data on current ground support equipment fleet emissions and how this would be reduced by adopting alternative technology, such as electric tugs and other vehicles.

What were the benefits to your business?

This cutting-edge technology will significantly reduce CO₂ and NO_x emissions from ground equipment vehicles operating around the Terminal 5A campus as heavy vehicle tug movements are no longer required for pushback operations in this terminal. We anticipate that this will save approximately 7.4m kg of CO₂ per year and 27,000 kg of NO_x per year.

In addition, the design of the remote-control tug, in combination with a wireless headset, allows for a single man push operation, reducing the number of people exposed to working in a hazardous environment. It will also improve punctuality as a device is positioned on each aircraft stand, preventing delays caused by aircraft waiting for pushback tugs or crew to arrive.

We are working on future options and reviewing new technology which would allow us to roll out similar products to long-haul push back operation. We are confident that the remote-control push back tugs will help us to reduce damage costs, noise pollution and gas/oil fuel use.



To find out how to join the Clean Vehicles Partnership and receive free support on how to reduce emissions and secure sustainable growth, contact heathrow_cvp@ricardo.com

CVP is delivered by Ricardo on behalf of Heathrow Airport Limited to support the sustainability goals outlined in Heathrow 2.0.

