

ECOTUG Consulting[®]



Aircraft Extended Towing Procedure

www.ecotug.eu

Siret : 89433234500012

Phone : +33 6 27 49 37 13 Email : Contact@ecotug.eu

Who are we ?

Ecotug was founded in Bordeaux, France in 2020.

The consultants Team is the result of a reflection carried out over several years by **Malik Chabi**, a Senior B787 Captain, in a professional and aeronautical settings which have led him to work during about 30 years on the world's largest airports and all around the Globe. This for major carriers like Emirates, Turkish Airlines or Norwegian.

Mr Emmanuel Courtaud, a consultant highly concerned by the transition to a more sustainable aviation. As a former airport station manager his knowledge covers a large panel of aviation domains including safety, security and ramp operations. Also Private Pilot rated.

What is the idea ?

Based on the conclusion that taxiing is definitely the part of a journey during which the use of the aircraft engines is the least relevant, Ecotug developed the extended taxiing concept called “**the Aircraft Extended Towing Procedure**” (**AETP**). This new sustainable practice will be facilitated by the use of a new generation Towbarless Tugs actually available on the market. General Performances and safety has been drastically improved for the last 12 years by including multiple sensors and electronic devices to protect aircraft handling for pushback and towing at speeds compatible with normal aircraft taxiing performances.

This innovative procedure, which Ecotug is proposing to implement with you, provides an obvious lever for partners such as airlines and airports wishing to reduce their GhG emissions. This simple and efficient idea could be beneficial from day one of the testing period just by immediately and drastically improve the image of all stakeholders. The benefits will be even more significant when developing and implementing the procedure Worldwide and, as expected, becoming an **International Aviation Standard**.

Ecotug Team can intervene Worldwide to advise airlines, airports or handling operators. Providing a relevant flexible and economically justified solution, its aim is to support airports and operators. The goal is to help them to reduce their emissions in

accordance with their commitments, whether they are voluntary (ACA) or forced (Climate Act). We have since the beginning already prepared the way by informing boldly majors actors and Managers as well as French Transport Ministry Cabinet, DGAC, and ACNUSA. They all considered this project as a good one and will offer us full support to implement a POC (Proof Of Concept) in partnership with Trepel Airport Equipment who will provide the **Charger 380** tractor.

An initial step using Cargo Aircraft does make sense safety wise before extending the procedure to passengers Aircrafts.

Aviation history and developments have often been built on strong and courageous decisions guided by pragmatism. Acting now is common sense and part of the sustainable approach that is firmly in line with the innovative nature of the aviation sector.

What are the objectives ?

It is the towing of medium and large airplanes, with engines off, as close as possible (warm up and shut down requirements applicable) to the take-off area from the parking position and after landing to the next parking position. We call it the AETP, also known as “Dispatch towing” according to the ICAO definition.

Aircraft Extended Towing Procedure. This will implement multiple benefits like ***reducing ecological impact, kerosene cost saving (SAF even more and battery soon later), reduction of maintenance costs and effective engine potentials usage, significant increase in ground safety (Ground staff safety, by reducing jet blast, noise and FOD) and numerous qualified jobs creation.***

Ecotug, in its capacity as neutral external consultants, organizes, plans and coordinates stakeholders like airlines, airport operator, aviation administration, FBO, ARFF, in order to implement the Aircraft Extended Towing Procedure on any airport after a POC that will be carried out on site by us as a fully dedicated actor able to gather all involved local entities to reach the ultimate goal of keeping OFF engines as far as possible in an organized and safe environment.

Here some Numbers

Taxiing : A GhG significant emission phase

State of play

According to ICAO LTO* data for an airport such as Paris CDG, taxi averages 26 minutes.

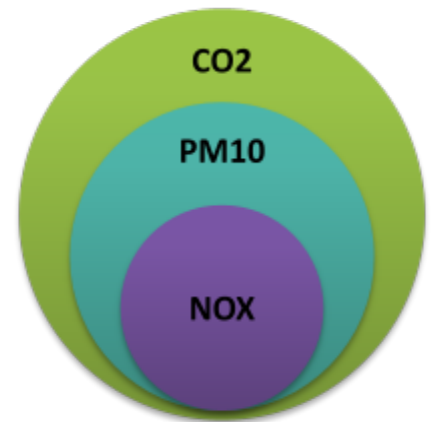
During a typical phase of displacement on the ground, 11% of the nitrogen oxide particles and 40% of the PM10 particles are emitted.

In addition, taxiing results in a significant consumption of kerosene, the combustion of which is directly responsible for CO2 emissions.

*Landing Take Off / 2008

Taxiing : A real operational cost

The use of engines for the autonomous movement of an airplane is not without consequences. While the engines are designed to propel the aircraft at high speed and high altitude, their performance on the ground and at low speed is obviously not optimal. Therefore, it is a highly relevant approach to think about how to optimize the use of these elements by limiting them to what they were actually designed for.



JetA1 consumption related to taxiing. e.g:

Paris airports

250 Tons per day

Either

750 tons of CO2 emitted

BOEING 787 AETP TAXIING ESTIMATION BASED ON A LTO CYCLE OF 26 MINUTES

	Operational gain	Financial gain
FUEL	-300kg	375€
POTENTIAL & MAINTENANCE	52min (2 engines)	1300€
CO2	-900kg	90€
FOREIGN OBJECT DAMAGE	Risk suppression	Real

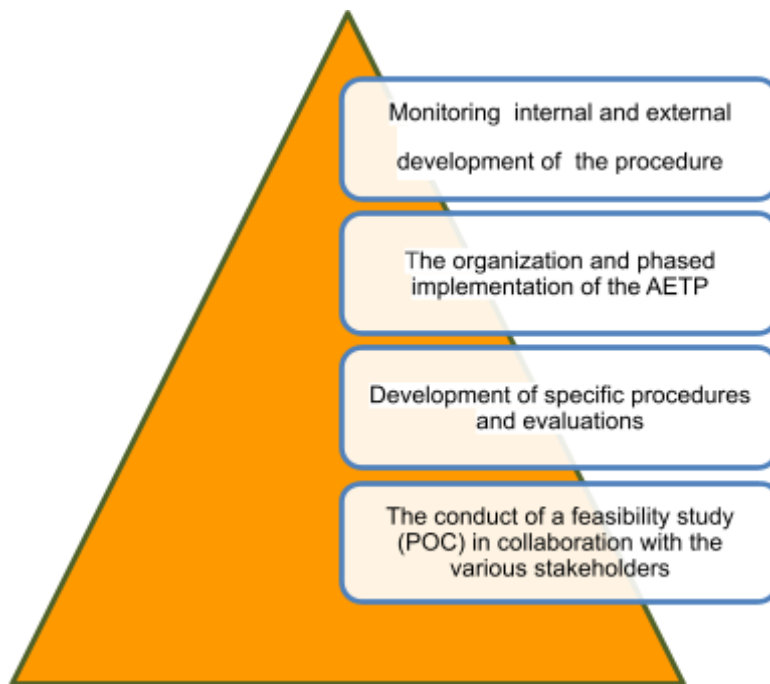
Extended towing is effective in both ecological and economic gains. The first one concerns the airport which is already committed to reduce its pollutant emissions with a clear goal to reach carbon neutrality within a specific schedule.

The second one is an important lever for airlines to engage in AETP in order to improve corporate image and make savings.

Ecotug's duty

Ecotug operates today under the model of a consulting firm.

Its stakeholders have experience and skills to exclusively focus on the topic of extended aircraft towing. These skills include :



Our knowledge of all procedures, provide a mastery of the means necessary to assist our partners in the achievement of their objectives.

For more information please contact Captain Malik Chabi for a personalized interview and a video conference presentation by The EcoTUG Team.

mchabi@ecotug.eu ☎ +33 627 493 713

ecourtaud@ecotug.eu ☎ +33 651 893 720

Follow us

On the web : www.ecotug.eu

Facebook : www.facebook.com/ecotug

Linkedin : www.linkedin.com/company/ecotug/



Trepel simulator facility for tug drivers AETP training

LEGAL NOTICE

The contents of this publication are for general information and illustrative purposes only and are used at the reader's own risk. EcoTUG uses all reasonable endeavors to ensure the accuracy of the information. However, EcoTUG does not guarantee or warrant the accuracy, completeness, factual correctness, or reliability of any information in this publication and does not accept liability for errors, omissions, inaccuracies, or typographical errors. The views and opinions expressed in this publication are not necessarily those of EcoTUG. © 2022 EcoTUG. All rights reserved. Without limiting rights under copyright, no part of this document may be reproduced, stored in, or introduced into a retrieval system, or transmitted in any form, by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose without the express written permission of EcoTUG. EcoTUG, the EcoTUG logo, EcoTUG ®, and EcoTUG Services are either registered trademarks or trademarks of EcoTUG in France and/or other countries. Other trademarks referred to in this document are the property of their respective owners.