

## ***46ESS-08: Water Injection Systems for Aircraft Applications***

**MARIA ROYO BONO**

*Water injection in gas turbines is not a new concept. It was implemented more than 60 years ago in the aeronautic field, although, commercial aircrafts did not employ the method till a decade later. Initially the purpose of water injection was to increase take-off thrust on hot days; with improvements equalling approximately 10-30%. However, gas turbine development over the last few decades has resulted in the generation of even more thrust; meaning water injection has consequently been somewhat downgraded. Nevertheless, despite this, there are still a few aircrafts in service that continue to use water injection, such as one of the largest commercial aircrafts, the Boeing 747.*

*Resultantly, water injection systems' new proposition is its reduced emissions level; an issue of paramount importance currently. This paper will now describe different existing systems, explaining in depth the configuration, impact, advantages and disadvantages of each.*