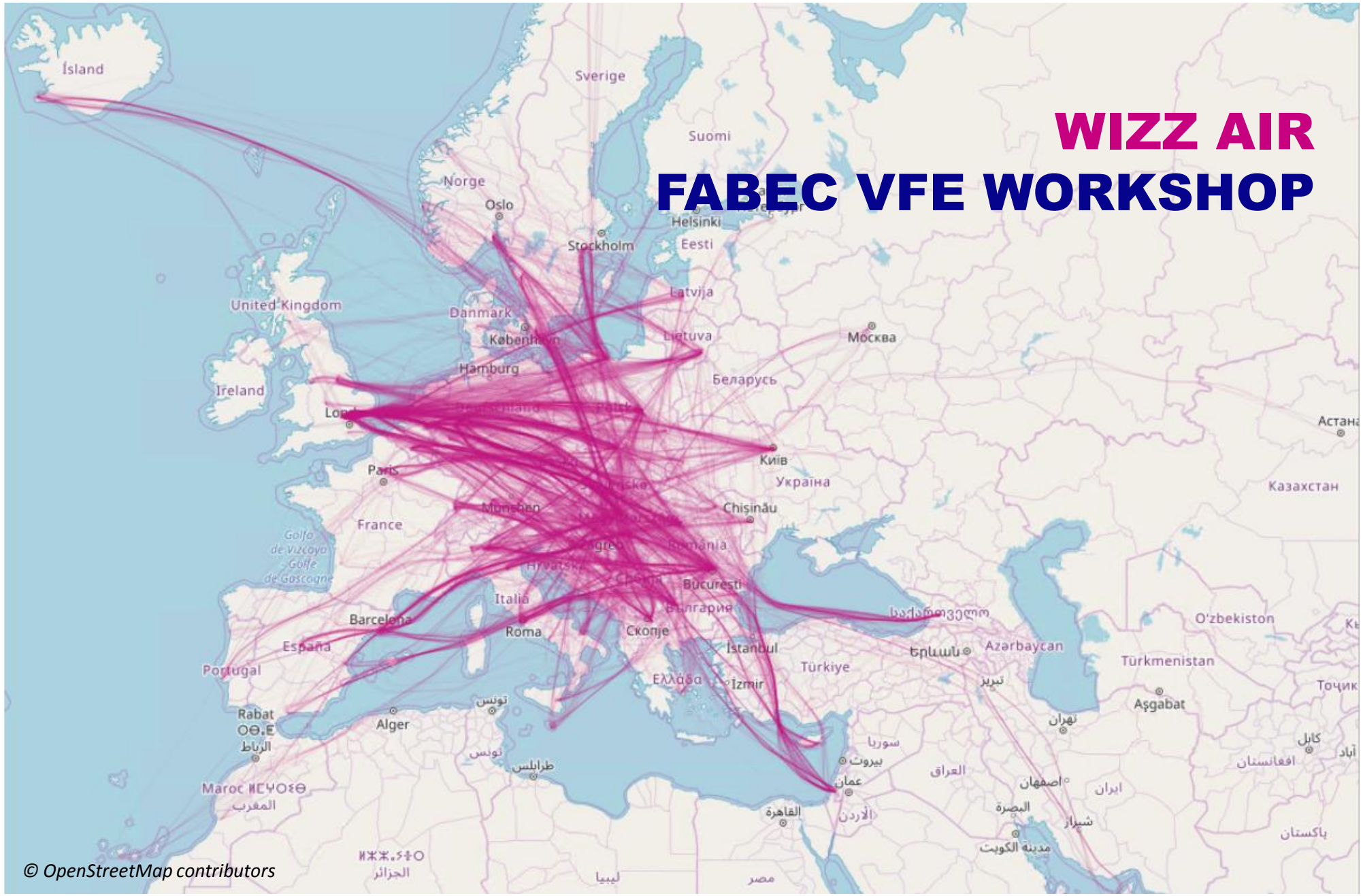

WIZZ AIR

FABEC VFE WORKSHOP

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FUEL EFFICIENCY INITIATIVES

VFE – Climb & Descent – good practices and our aims

- Level segments during climb results in lower emissions penalty than during descent. The best option is no level segment during climb and descent.
  Minor exceptions are: acceleration during climb (climb thrust) and deceleration during descent at idle thrust.
- Climb and descent rate restrictions normally results in penalty, unless they fit optimum profile – very rare.
- Speed reductions below 250kts during climb and descent will lead to increase in emissions & cost of time.
- Higher acceleration (climb) and earlier deceleration (descent) results in emissions penalty
- Imposing of early steep continuous descent gradient results in increase of emissions and cost of time
- Comparison of descent profiles using indicators defined by altitude windows or from the Top of Descent point results in incorrect conclusions. Comparison will only give meaningful results if its made for fixed geographical (high volume QAR data) or air distance.
- From operational perspective – crew training and feedback providing tools are key
- FMS optimum climb and descent speed calculations are over simplified => area for optimization
- FMS descent flight path calculation is not optimal (non-DPO)

FUEL EFFICIENCY INITIATIVES

Descent optimization

Descent optimization includes several initiatives, which as a group have the highest potential to reduce emissions:

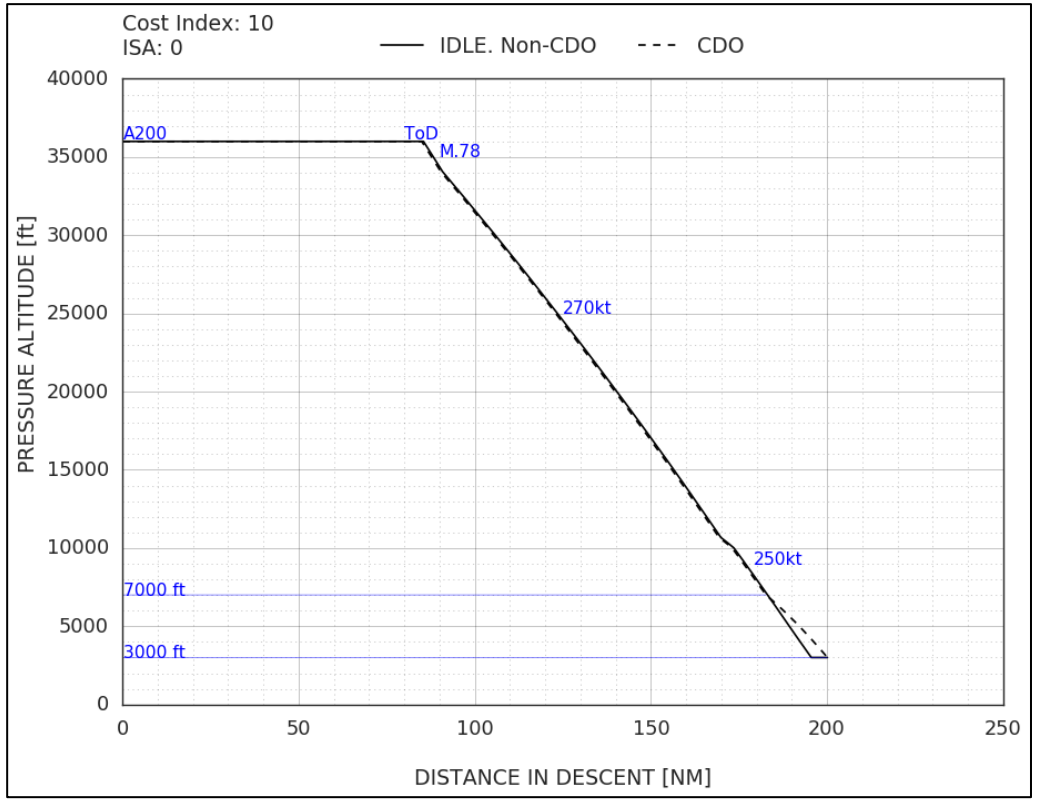
- Descent speeds
  Wizz Air applies in-house derived descent ECON speeds.
  On average this saves 50kg Co2.

- Descent Profile Optimization
  Aircraft (FMS) modification which brings vertical profile calculation closer to optimum

- Regular updated Idle factor
  IDLE factors bias FMS calculations with A/C specific descent performance calculated from WQAR data.

- Dedicates Flight Ops procedures

- Feedback statistics for pilots



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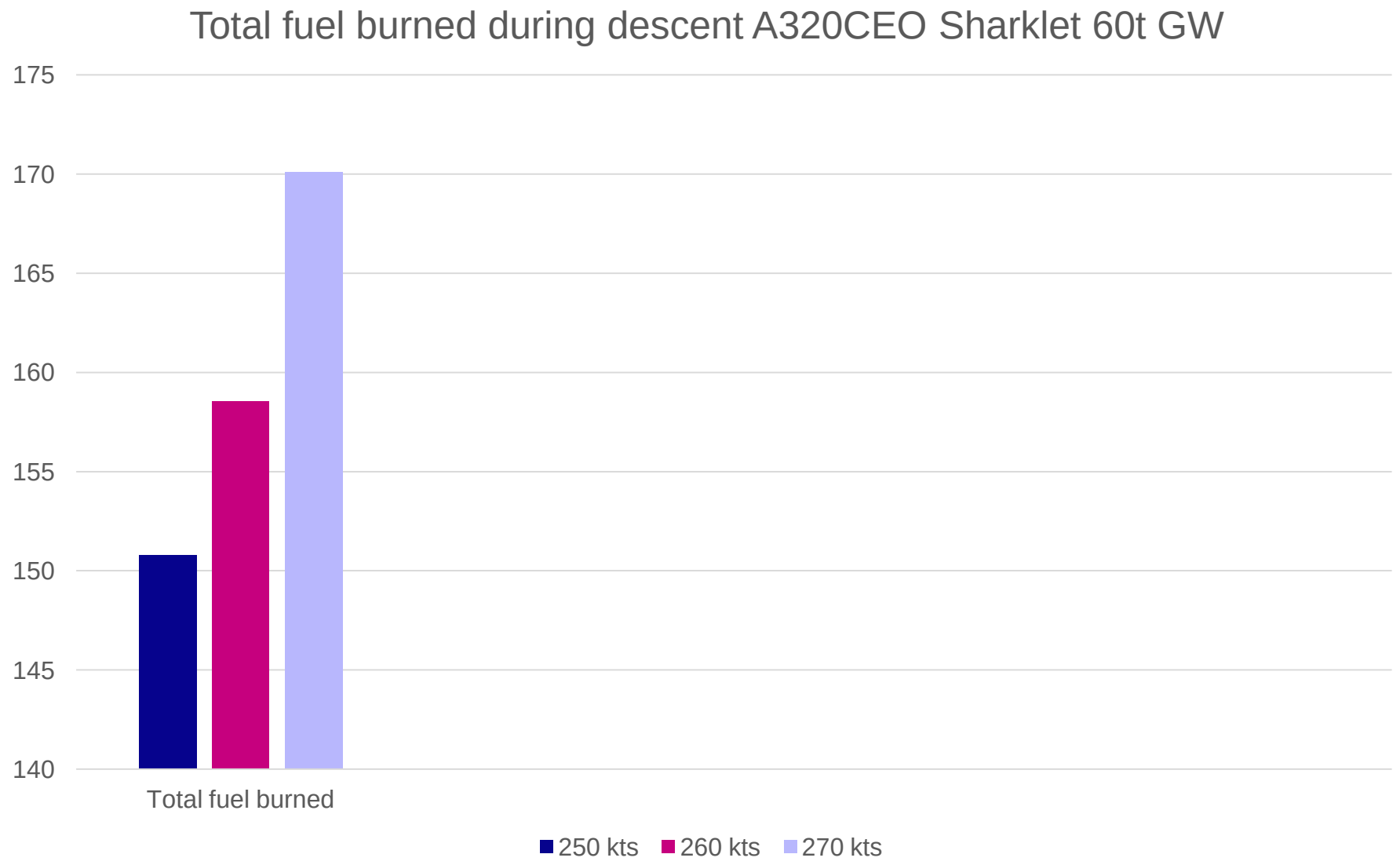
DC1-Internal Data

FUEL EFFICIENCY INITIATIVES

Descent optimization



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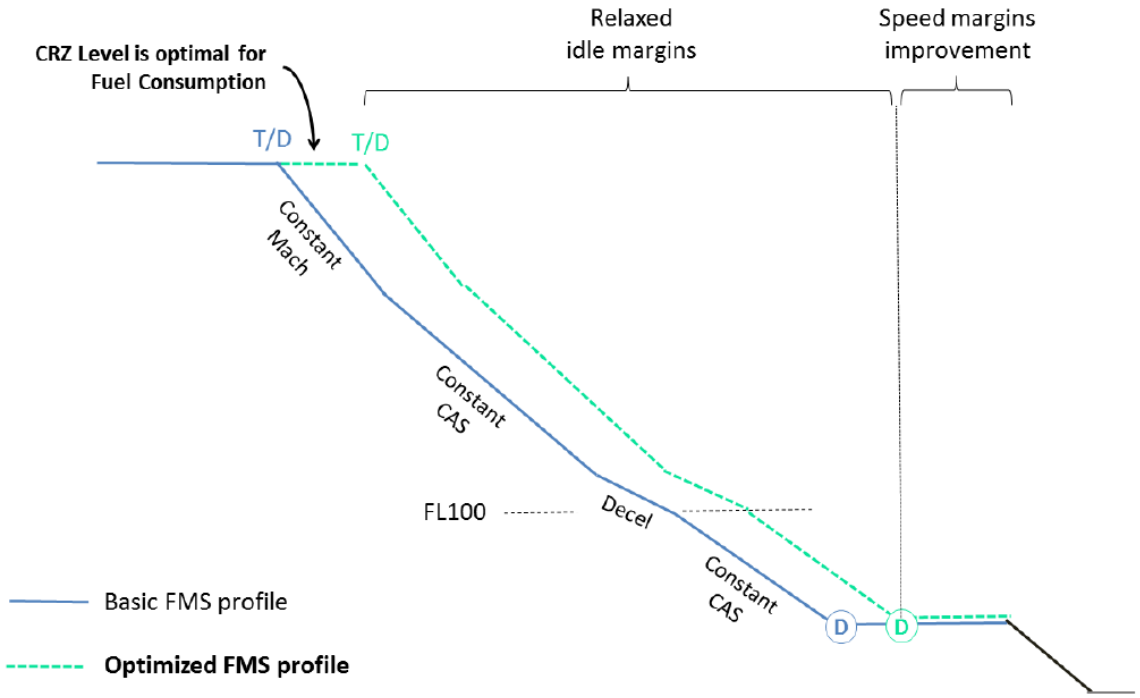
FUEL EFFICIENCY INITIATIVES

Descent optimization

DPO - FMS software modification which allows to more accurate calculate T/D point for the most efficient descent

- Initial analysis shows saving potential of **~94 kg of CO2 per flight** during unrestricted descent
- Analysis commissioned to an external specialist company to confirm effectiveness
- Already installed on new Aircrafts
- Airbus declare availability of retrofit for older fleet at the beginning of 2021
- Combined with automatic in-flight weather update ensures calculation of the most efficient descent profile



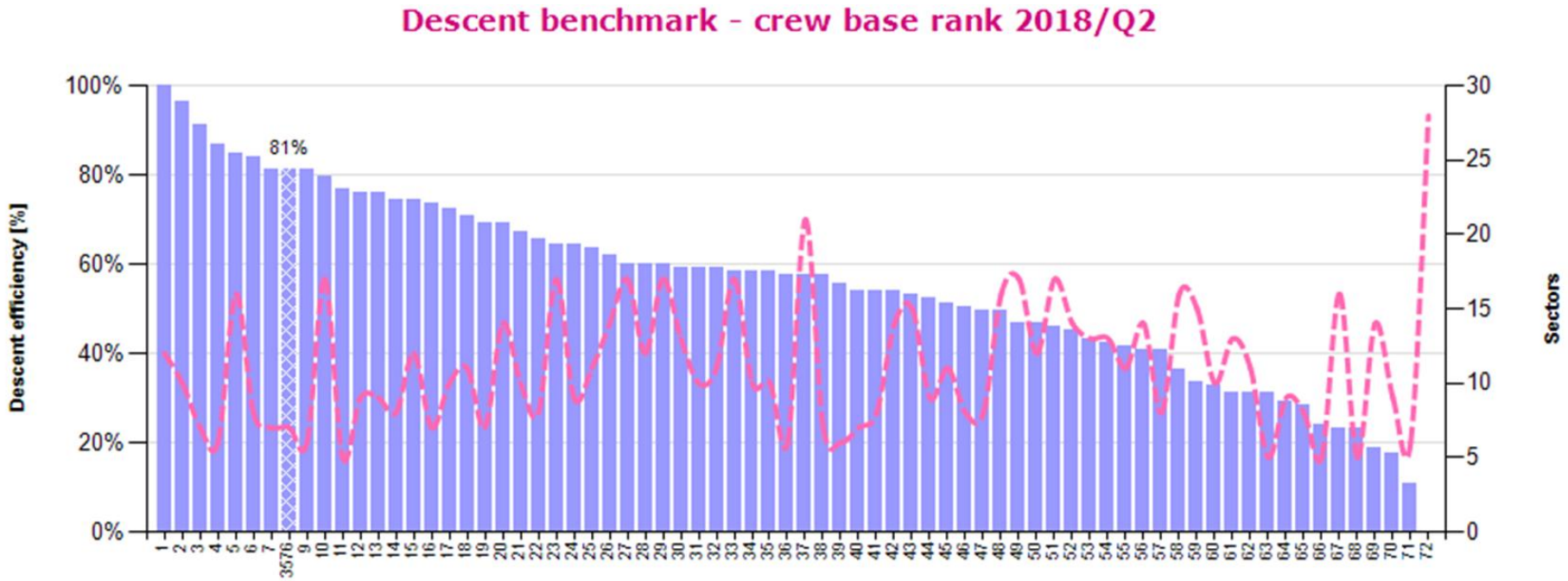
FUEL EFFICIENCY INITIATIVES

Descent optimization

Pilot Name		Pilot Id	3576	Position	CPPF
Report Date	7/1/2018	Execution Time	9/10/2018 1:04:45 PM		

Descent benchmarking

Presents efficiency during descent into your crew base per PF. The results are calculated from 135NM until Final Approach, extreme deviations from personal average excluded.
Note: Pilot company ID number on horizontal axis appears if sufficient number of descent as PF have been carried out.



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