FUEL EFFICIENCY INITIATIVES
Planned ZFW Optimisation

Planned ZFW is part of the aircraft's gross weight ➔ it has an impact on optimal FL chosen by flight planning system.

Instead of using standard values for passenger/luggage weights when estimating ZFW, Wizz Air developed an improved model based on two years of historical data.

The model was developed with machine learning algorithms, trained on actual data from flights from 2018 and 2019. By correlating different parameters for each flight (city pair, seasonality, time of the day, etc.), the model is able to predict:

- **Luggage weight**
- **Passenger no-show rate**
- **Same-day bookings**

Having safety in mind, the model was designed from the ground up to overpredict ZFW by around 1,000 kg (minimising underestimations).
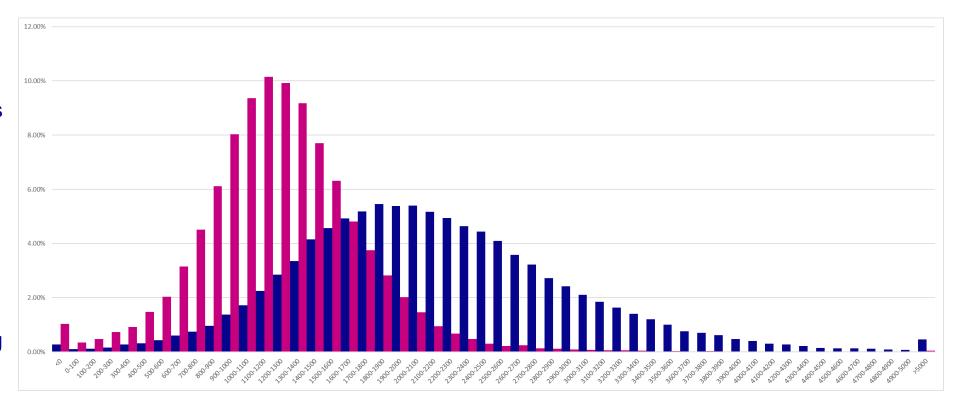
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Planned ZFW Optimisation

When applying the new model to existing flight data for the period **Sep-19 to Jan-20** (considering around 53,500 flights), a **decrease of ~900kg** was observed in the **dZFW →** overestimation dropped from 2.1t to 1.2t when compared to the previously used model.

This higher planning accuracy translates to savings of around **180 kg of CO_2** per flight

ZFW optimisation is directly correlated with the Flight Plan submitted Vertical Profile.
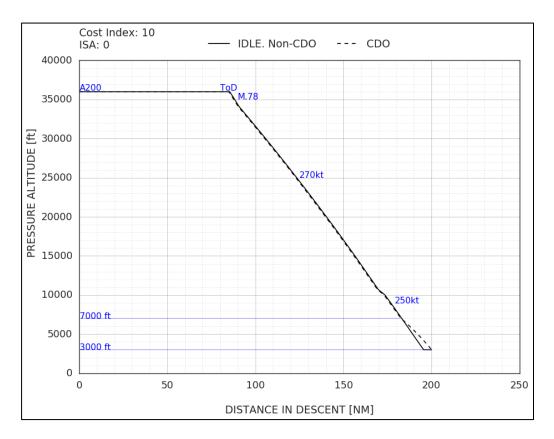
FUEL EFFICIENCY INITIATIVES
Descent optimization

Descent optimization includes several initives, 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**

Cost Index: 10
ISA: 0   —— IDLE. Non-CDO   - - - CDO

(Chart: PRESSURE ALTITUDE [ft] vs DISTANCE IN DESCENT [NM], with labels A200, ToD, M.78, 270kt, 250kt, 7000 ft, 3000 ft)

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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

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