The ATR -600 Series

The most ECONOMICAL way to fly short-haul connections

Low Fuel Consumption + Low Emissions = LOW COST

Low Noise
Being a small part of a serious problem, there is still a serious challenge to do even better.

IATA’s Vision
Giovanni Bisignani
Director General & CEO
FULLY PROFITABLE
The highest **composite** utilisation in a regional aircraft >>

**Light structure >>**
Low fuel consumption leading to low weight-related charges

**Technology to reduce fuel consumption**

- **LIFT (aerodynamics)**
- **DRAG (aerodynamics)**
- **THRUST** (propulsion efficiency)
- **WEIGHT** (structural efficiency)

High tech engines and propellers, advanced aerodynamics, low drag airframe, structural efficiency and the resulting level of fuel savings have prompted many operators to select turboprops, ATR especially, above all others. The proven level of low fuel consumption is a primary concern for airlines eager to lower cash operating cost and wishing to be environmental frien-
Turboprop is optimised for speed around 300 Kts, over low altitudes on short range trips.

**Turboprop** : 20% higher Propulsive Efficiency compared to Turbofan within typical regional sectors’ speed.
Light is beautiful!

The tangible impacts of low structural weights on:

Fuel consumption

300 Nm stage, 1,800 flights per year

MTOW : 23 T

MTOW : 29.5 T

$ + 200 Kg per trip$

$ + 360,000 Kg per year per aircraft$

* : Quantifiable effect of Structural Efficiency on fuel consumption only

Taxes

300 Nm sector, Germany (Eurocontrol formula)

MTOW : 23 T

MTOW : 29.5 T

244 Euros

277 Euros (+14%)

With an utilisation of 1,800 flights / year, low structural weights lead to

80,000 $ / year / aircraft of savings on en-route charges
ATR 72: The most fuel-efficient aircraft in the regional market

Fuel Economy on 250 Nm = 42%

- Lighter structure
- Optimized speed
- Well-suited engine

Significantly LESS fuel consumption

Whatever your regional sector length,

> > > > > > > > the ATR 72 is by far more fuel efficient
Propulsive efficiency
Propulsive profits

Turboprops are the natural hedge against high fuel prices

With airlines increasingly focused on slashing operating costs and with soaring fuel prices, the only profitable way to fly short connections is with turboprops.
While aviation’s total emissions are modest compared with other sectors, they are not expected to decrease in the coming years. If the impact of air transport on the environment is to be minimised, the industry must continuously devote adequate resources to improve its environmental performance. It has a duty to fully exploit the best available technology.

**Latest Generation Turboprops**

- Environmental friendliness
  - Low emissions
  - Low fuel burn
  - Low airfield noise

**ATR**: promoting the concept of **SUSTAINABLE AVIATION** to ensure an **OPTIMAL BALANCE** between economic growth, social benefits and environmental responsibility.
ATR : The «Green» Star of Air Transport

Advanced propulsion technology
Optimum designed high-lift systems
Efficient aerodynamics
Light structure

Fuel consumption
Gaseous emissions
Airport nuisances

LESS

Reduced environmental impact
Matching International Standards
Meeting ICAO noise requirements with ample margins

ATR’s aim is to reinforce its contribution to ensure a sustainable future for the aviation industry, to reconcile the foreseen additional growth in the air transport industry with the absolute necessity of reducing its environmental impact.
ATR’s Quiet Neighbours for the Environment

**Level requirements (EPNdB)**

<table>
<thead>
<tr>
<th>Aviation Type</th>
<th>Chapter 3 limit: 281</th>
<th>Chapter 4 limit: 271</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATR 42-320</td>
<td>17.5</td>
<td>26.6</td>
</tr>
<tr>
<td>ATR 42-500</td>
<td>31.3</td>
<td></td>
</tr>
<tr>
<td>ATR 42-600</td>
<td>16.9</td>
<td></td>
</tr>
<tr>
<td>ATR 72-200</td>
<td>26.6</td>
<td></td>
</tr>
<tr>
<td>ATR 72-500</td>
<td>31.3</td>
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</tbody>
</table>

**The benefits of the new technology**

Comparative noise footprints - 90 EPNdB

- Modern regional turboprop (ATR -500 and -600 Series): 1.2 (3.5) sq miles (sq km)
- Modern regional jet: 2.1 (5.4) sq miles (sq km)
- 30-year old turboprop: 5.2 (13.5) sq miles (sq km)
- 30-year old jet: 11.3 (29.3) sq miles (sq km)

**Margins**

Large margins vs ICAO Ch 4 regulations and more stringent future airport restrictions

**ATR -500 /-600 Series is one of the quietest in the industry**

**ATR**: Welcome visitors at the smaller city airports and regional hubs with minimum environmental impact.
On a 200 Nm sector, the ATR 72-600 fuel consumption per passenger is up to 11% lower than a typical European car.

### Gaseous Emissions Spectrum

ATR gaseous emissions per pax in terms of CO (Carbon Monoxide) are 15 times less than a car and comparable to the train.

As far as the Nitrous Oxides are concerned, the ATR is 3 times less pollutant than a car and 40% less than a train.

**ATR**

- European car: 18 liters (4.76 US Gal) for 2 pax
- ATR 72: 16 liters (4.23 US Gal) for 72 pax

**Emissions per Passenger Kilometer**

- **Car**: 2 pax, Electricity from heavy fuel power station
- **Train**: Turboprop (ATR 72)

- **Hydrocarbons**
- **Nitrous Oxides**
- **Carbon Monoxide**

**Comparing with other transport modes**

ATR is significantly cleaner and contributes to sustainable air transport development.
ATR Yearly CO2 saving - 10 aircraft fleet*

* 2,500 cycles / year / aircraft. Average sector of 250 Nm (460 Km)

ATR 72 the only aircraft compliant with IATA Best Practises
ECONOMICAL
ATR 72-600 features exceptionally low operating costs when compared to similar sized turboprop and regional jet competitors on typical regional sectors.

- Lower engine and airframe maintenance costs, simpler systems, better reliability, better accessibility, less expensive to maintain engine components.
- Significantly lower airport and en-route charges, linked to MTOW.
- Exceptionally lower fuel costs.
- Speed adapted to efficient, low-cost regional operation.
The «cost of speed» on regional connections is being carefully monitored by airlines

**Oil and Jet Fuel costs: multiplied by four in 4 years**

Barrel: 135 US$ in May 2008

Barrel: 30 US$ in 2004

Fuel efficiency is increasingly important

**The «cost of speed» on regional connections is being carefully monitored by airlines**

Dash8 - Q400 extra fuel costs 1 Million US$ / year / aircraft

Extra fuel cost generated by DASH8 - Q400:

<table>
<thead>
<tr>
<th>Fuel Price</th>
<th>Extra US$ / trip / aircraft</th>
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</thead>
<tbody>
<tr>
<td>3$ / US Gal</td>
<td>311</td>
<td>777,000</td>
</tr>
<tr>
<td>3.5$ / US Gal</td>
<td>363</td>
<td>907,000</td>
</tr>
<tr>
<td>4$ / US Gal</td>
<td>415</td>
<td>1,037,000</td>
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</tbody>
</table>

Sector length: 250 Nm (460 Km); Yearly utilisation: 2,500 Cycles

For 10 aircraft fleet over 10 years, this pays the initial capital cost of 5 ATR 72s.
Flying clean, burning lean, polluting less...

ATR is actively cooperating with its large base of 140 operators to recommend and suggest measures and initiatives to be adapted for efficient operation in the current environment of high fuel prices.

Investigating all the means to lower fuel consumption, by:

- Better Pre-Flight Procedures
- Efficient In-Flight Procedures

(optimising LF, Center of Gravity, fuel tankering, the most efficient routing, adapted descent techniques, monitoring weight issues and aircraft performance, ...)

These recommendations can easily generate:

- 10 Kg to 15 Kg of fuel savings per flight, or 35,000 US$ to 45,000 US$ savings and 60 Tons to 100 Tons of CO2 savings per year per aircraft.
ATR 72-600 : Better Economics = Superior Profitability

ATR 72 : 4 Pax more profit potential

ATR 72-600 : Better Economics = Superior Profitability

 Break Even Load Factor

<table>
<thead>
<tr>
<th>Ticket Yield</th>
<th>ATR 72</th>
<th>Q400</th>
<th>Pax Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 US$</td>
<td>79%</td>
<td>87%</td>
<td>Q400 needs 10 more Pax</td>
</tr>
<tr>
<td>120 US$</td>
<td>49%</td>
<td>54%</td>
<td>Q400 needs 6 more Pax</td>
</tr>
</tbody>
</table>

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