



FUEL MANAGEMENT PROGRAM
ICAO/Transport Canada Workshop

September 2006



Agenda



- Introduction
 - Background
 - History of fuel management at Air Transat
 - Getting started
 - The Process
 - The Findings
- Air Transat Initiatives
 - Flight Operations
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 - Engineering
 - Flight Planning
 - Ground Handling
- Freight Sustainability Demonstration Program
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 - Air Transat Results
- Conclusion

Introduction



Background

- The idea of a fuel conservation project started in 2001... but put on ice after September 11th
- The idea of fuel conservation was always in the back of everyone's mind
 - Fuel is the #1 expense in the company
 - 30% of our expenses
 - \$199 million dollar (2005)
 - Increased environmental awareness (want to be good corporate citizen)
- In 2003, it became one of the company's top priorities





Getting Started

- First approach... we can do it ourselves!
- It became clear that we lacked the necessary expertise....Hired Flight Sciences to help us

- Experts in all areas of fuel management
 - Maintenance
 - Propulsion
 - Ground Operations
 - Cargo Loading
 - Flight Operations
 - In-Flight Services/Catering



The Process



Approach:

- Involve everyone
- Upper management support
- Get employees to propose solutions
- Keep challenging the status quo
- Sensitize all employees about fuel conservation

Six Phases:

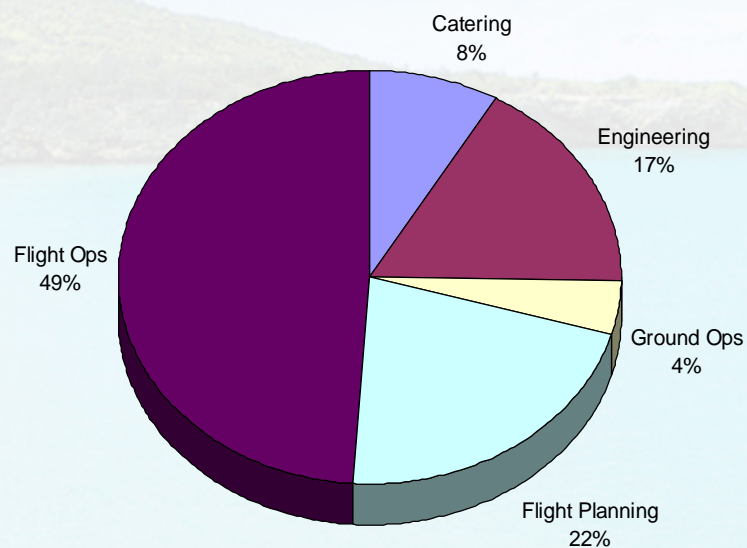
1. Data collection and analysis – 30 days
2. On-Site Research – 2 weeks with 7 experts
3. Data Analysis – 30 - 60 days
4. Plan Development – 30 days
5. Peer Review - 2- 3 days
6. Presentation to Executives
7. Implementation (ongoing)

The Findings



- The study with Flight Sciences showed that we could save 5-6% of our fuel burn!
- The challenge....to overcome internal resistance to fully implement the findings
- Started with small initiatives during initial implementation...then moved to more complex ones. With a mature program in place, it is now time to re-examine initiatives that were originally discarded.

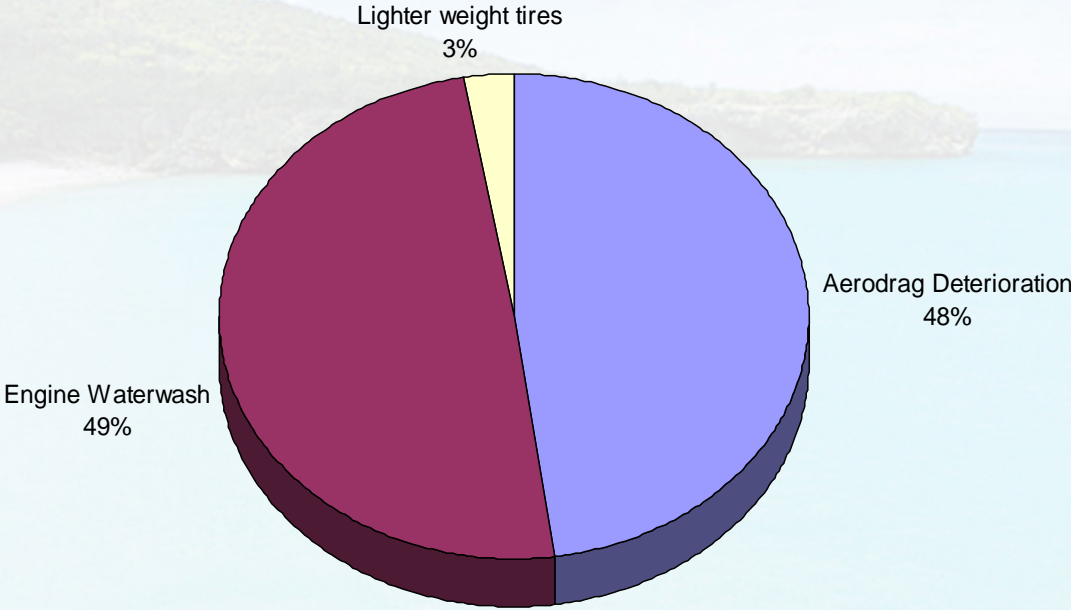
Annual fuel savings: 10 million \$ /year



Initiatives



Engineering : 1,700,000\$ CAD /year



Initiatives implemented



- **Aero Drag :**
 - Aircraft Performance Monitoring system
 - Tracking of a/c Bias: engineering, dispatch and flight ops
 - New maintenance job cards to track every element impacting aero drag deterioration: ex. seal leaks

- **Engine water wash :**
 - New water wash equipment
 - Water Wash A310 and A330 Engines on Wing Every Six Months

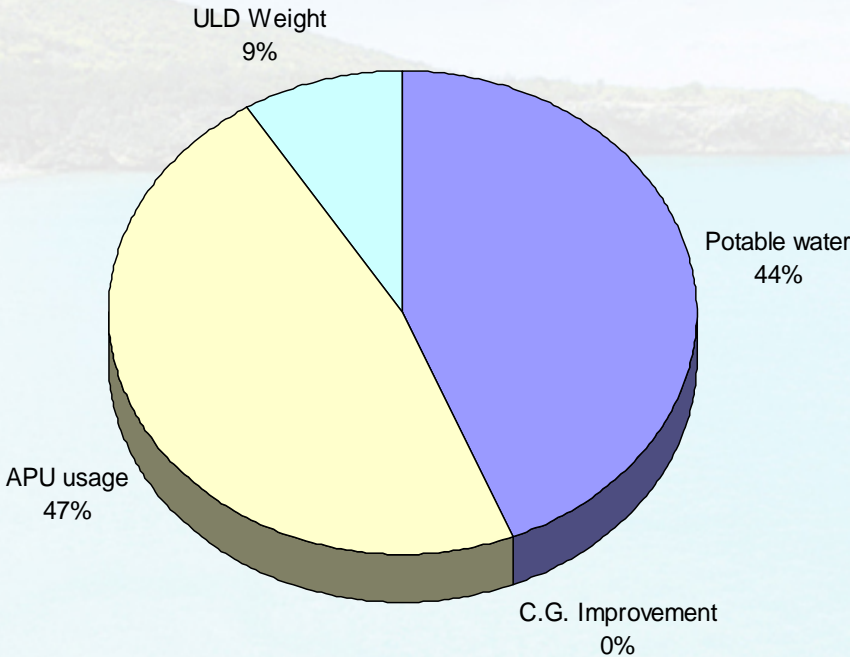
- **Lighter weight tires:**
 - Change A310 Fleet Tires to Lighter Bridgestone Tires

Rejected initiatives



- Zonal dryer – Not cost effective in our type of operations
- Paint vs polish - Rejected for marketing reasons

Ground Operations: 421,000 \$/year



Initiatives implemented

■ Potable water:

- A/C tanks were always full at departure
- We have done a survey to evaluate how much was remaining after the flights
- Result: we can reduce Potable Water on Airbus Fleet by:
 - South: 50%
 - Europe: 0-25%

| C-GFAT POTABLE WATER PANEL SETTINGS | | | |
|-------------------------------------|--|--|--|
| EAST CANADA EST | TRANSIT OR FERRY OR POSITIONING <= 2 HRS (Ex. YMX-YYZ) | | 25% |
| | TRANSIT OR FERRY OR POSITIONING > 2 HRS (Ex. YMX-YHZ) | | 50% |
| | À/TO | WESTERN CANADA/LAS VEGAS YVR,YYC,YEG,YGW,LAS | 75% |
| | DE/ FROM | | 75% |
| | À/TO | CUBA CCC,CFG,CMW,CYO,HOG,SNU,VRA,SCU | 50% |
| | DE/ FROM | | 50% |
| | YYZ À/TO | FLORIDA, BAHAMAS, TURKS & CAICOS FLL,MCO,PIE,ZSA,PLS | 50% |
| | YYZ DE/ FROM | | 50% |
| | YMX À/TO | DOMINICAN REPUBLIC LRM,POP,PUU,SDQ | 75% |
| | YUL DE/ FROM | | 75% |
| | YQB À/TO | MEXICO ACA,CUN,HUX,PVR,ZIH,ZLO | 100% |
| | YHZ DE/ FROM | | NO UPLIFT - PANEL SET AT DEPARTURE AND NOT CHANGED |
| | YOM À/TO | LATIN AMERICA & OTHER CARRIBEAN MGA,PTY,PMV,ADZ,SJO,LIR,GEO,AU A,PAP,MBJ,KIN,POS | 100% |
| | YYT DE/ FROM | | NO UPLIFT - PANEL SET AT DEPARTURE AND NOT CHANGED |
| | À/TO | CARRIBEAN - FRENCH WEST INDIES SXM,PTP,FDJ | 75% |
| | DE/ FROM | | 75% |
| | À/TO | WESTERN EUROPE CDG,BRU,LYS,MRS,NCE,NTE,TLI,DUB,SNM,BFS,BHX,CWL,EDI,EXT,GLA,LGW,MAN,NCL,AMS,FAO,LIS,OPO,PDL,TER | 100% |
| | DE/ FROM | | 100% |
| À/TO | EUROPE-ITALY,GREECE & GERMANY FCO,ATH,FRA,MUC | 100% | |
| DE/ FROM | | 100% | |
| WEST CANADA OUEST | TRANSIT, FERRY OR POSITIONING <= 2 | | 25% |
| | TRANSIT OR FERRY OR POSITIONING > 2 HRS | | 25% |
| | À/TO | CUBA VRA | 75% |
| | DE/ FROM | | 75% |
| | YVR À/TO | CARRIBEAN (DOMINICAN REPUBLIC & ST. MARTIN) POP,PUU,SXM | 75% |
| | YYC DE/ FROM | | 75% |
| | YEG À/TO | MEXICO PVR,CUN | 100% |
| | YWG DE/ FROM | | NO UPLIFT - PANEL SET AT DEPARTURE AND NOT CHANGED |
| | À/TO | EUROPE AMS,FRA,LGW,GLA,MAN | 100% |
| | DE/ FROM | | 100% |

Initiatives implemented



- **APU Usage reduction:**

- Require Flight and Ground Crews to use APU for Only 20 Minutes per Cycle (Except When Needed for AC)
- Canadian + European stations: start 15min before departure
- South stations: let the APU run since we have no air cond provided by the station. GPU used for electricity.

- **ULD weight reduction:**

- Third Party service rather than ownership of ULDs.
- Lighter weight ULDs.

Rejected initiatives

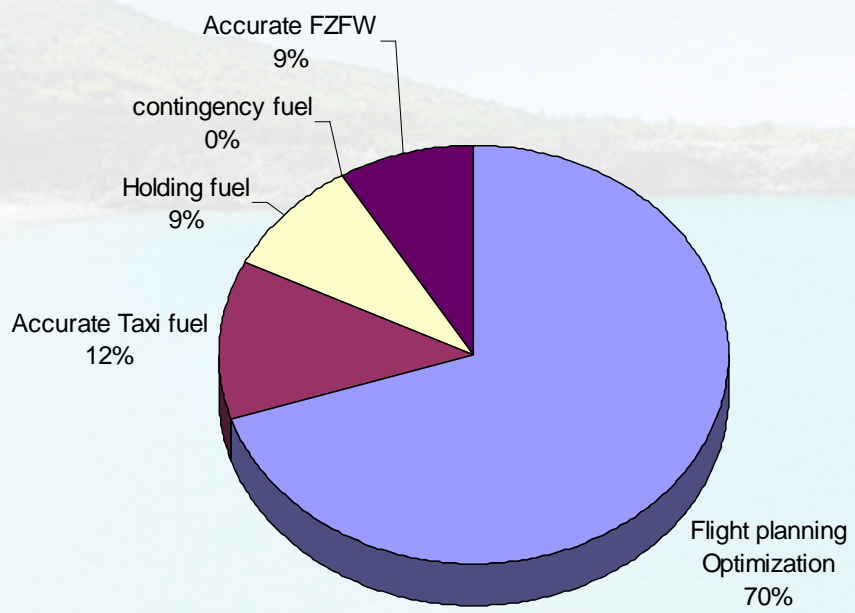


- CG improvement – Little savings on the Airbus fleet



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Flight Planning/Dispatch = 2,160,000 \$/year



Implemented initiatives



- **Flight Planning Optimization:**
 - Modify Current System or Acquire New System Capable of Generating Optimized Flight Plans.
 - Optimum altitudes
 - Accurate winds
 - Integrated Cost Index

- **Accurate Taxi Fuel :**
 - We now calculate Taxi Fuel Requirements Based on Historical Data

- **Holding Fuel :**
 - Calculate Holding Fuel Based on Accurate Aircraft Landing Weight

Other initiatives



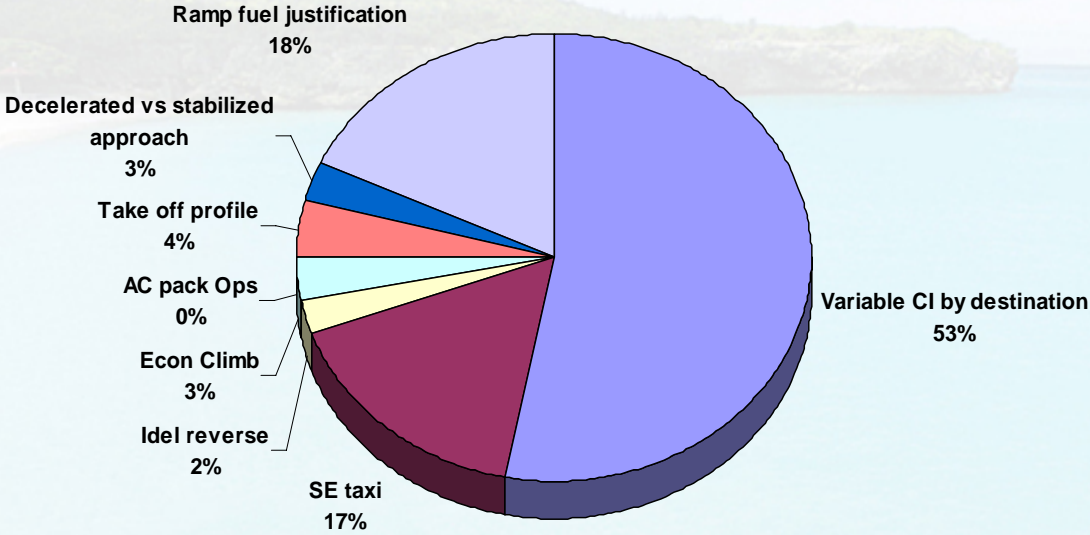
- **Contingency Fuel:**

- Change Contingency Fuel From 5% to 3% when Regulations allow. (not yet implemented)
- However, this past summer, for selected oceanic flights, we took advantage of a regulatory provision allowing the use of a reduced enroute fuel reserve. (new initiative)

- **Accurate ZFW:**

- Accurate catering weight
- Freight forwarder to provide accurate weights within two hours of departure

Flight Operations : 4,869,000 \$/ year



Ramp fuel justification:



- All pilots need to justify to dispatch any variance in ramp fuel
- Every variance is tracked by Dispatch and reported to the Chief pilots
- Done prior to Flight Sciences study

Variable Cost Index :



- The cost index is a number input into an aircraft's FMS to calculate the most economical cruise speed at which to fly the aircraft (ECON speed)
- There is a speed at which fuel consumption is optimal and balances operating costs against fuel burn
- Our cost index was preset when the aircraft entered our fleet
 - It had never been optimized for our operation (too high!)
 - Did not take into account that fuel price varies considerably from one station to another

Other Flight Operations initiatives



- Single Engine Taxi
 - Taxi in and Taxi out (subject to operational considerations)
- Idle Reverse
- Optimum Climb
 - Climb at most economical speed below FL100, when possible.
- Decelerated vs stabilized approach
- Take off Profile:
 - Standard Noise Abatement Departure Profile is ICAO NADP2, where possible

On-Board Weight Reduction



- Cost to carry 1 kg for 1 year on 1 a/c at Air Transat
 - A310: 131 US\$/kg/yr
 - A330-200/300: 95 US\$/kg/yr
- Too often aircraft are used as flying warehouses!
- We looked at all the possible ways to reduce aircraft weight
- Business case approach is now followed for any proposal that results in increased aircraft weight

Weight reduction areas



- Catering
- Seats
- Air Magazine (COW included in Business case)
- Blankets
- Pillows
- Life vest
- Carpets
- Galleys
- Paint
- Packaging
- Newspapers
- IFE Systems
- Etc.



Freight Sustainability Demonstration Program



FSDP



- Reducing the growth of greenhouse gas emissions from the freight sector will require innovative solutions and broad sector participation, and Transport Canada's Freight Efficiency and Technology Initiative has been established to pursue this objective
- The Freight Sustainability Demonstration Program encourages the development of innovative ideas to reduce emissions, by funding the most promising of those ideas in partnership with other stakeholders. The program is intended to improve the adoption of effective technologies and best practices within the freight transportation sector

NEW REPORT: POLAR ICE CAPS MELTING AT AN ALARMING RATE.



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 **air transat**

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Project eligibility for the FSDP

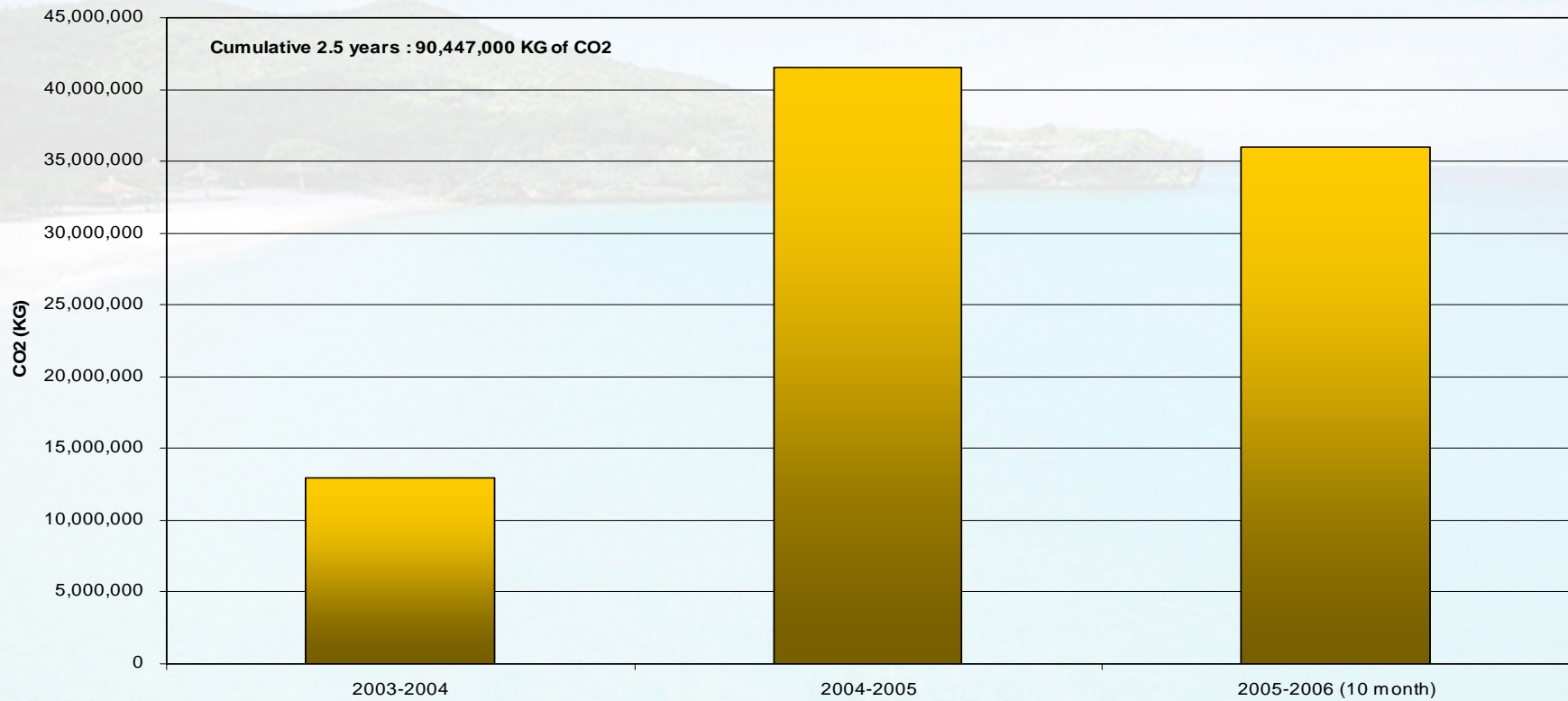


- Applications for project funding should include measurable objectives and a detailed plan to reach them
- Proposed products, services or technologies must be at or near the stage where they can be effectively harnessed to reduce greenhouse gas emissions
- Our fuel management project meets these criteria....we have been able to significantly reduce emissions!!!

Air Transat Gas emission reduction



Cumulative Carbon Dioxide (CO2) Reduction



Air Transat CO2 comparison



CO2 gas reduction for Air Transat fleet since 2003 : 90,447,000 kg

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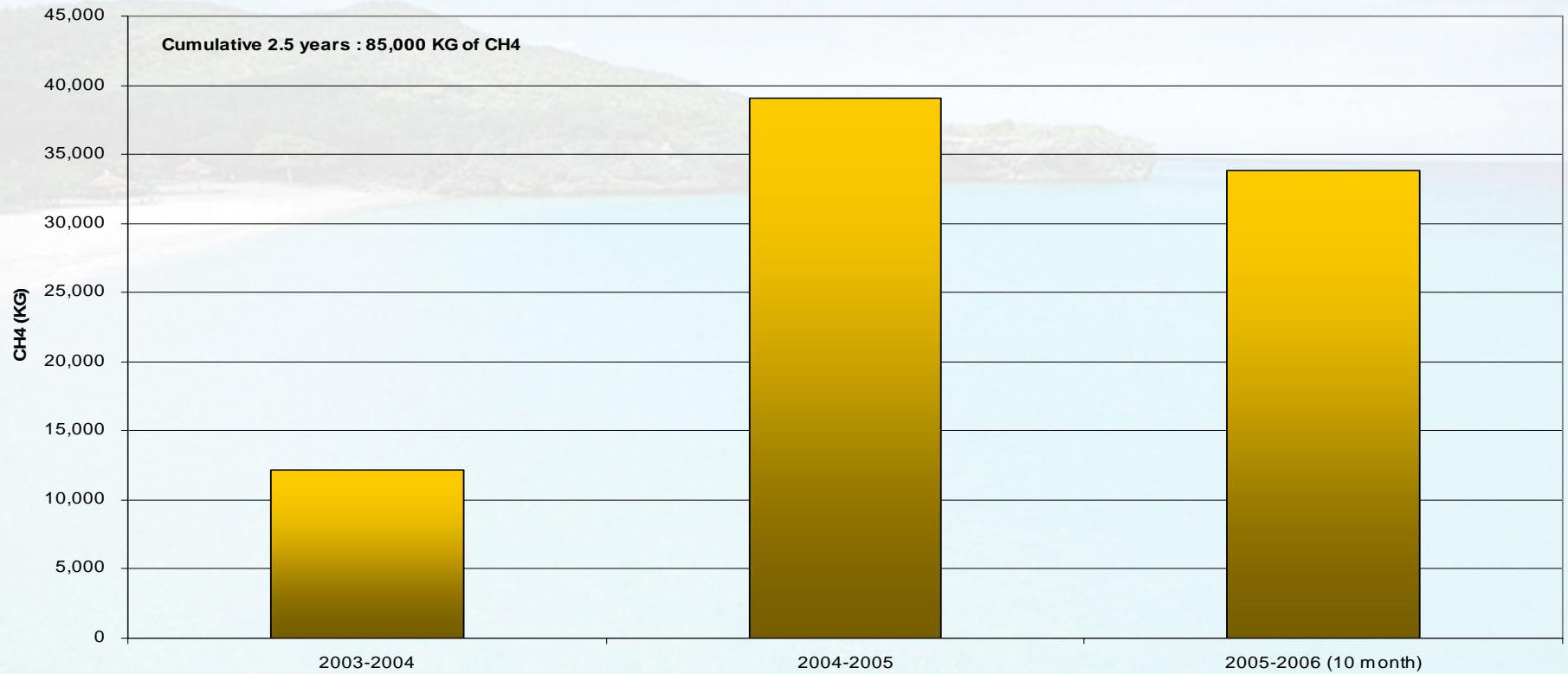
Yearly utilization of 14,321 cars



Air Transat Gas emission reduction



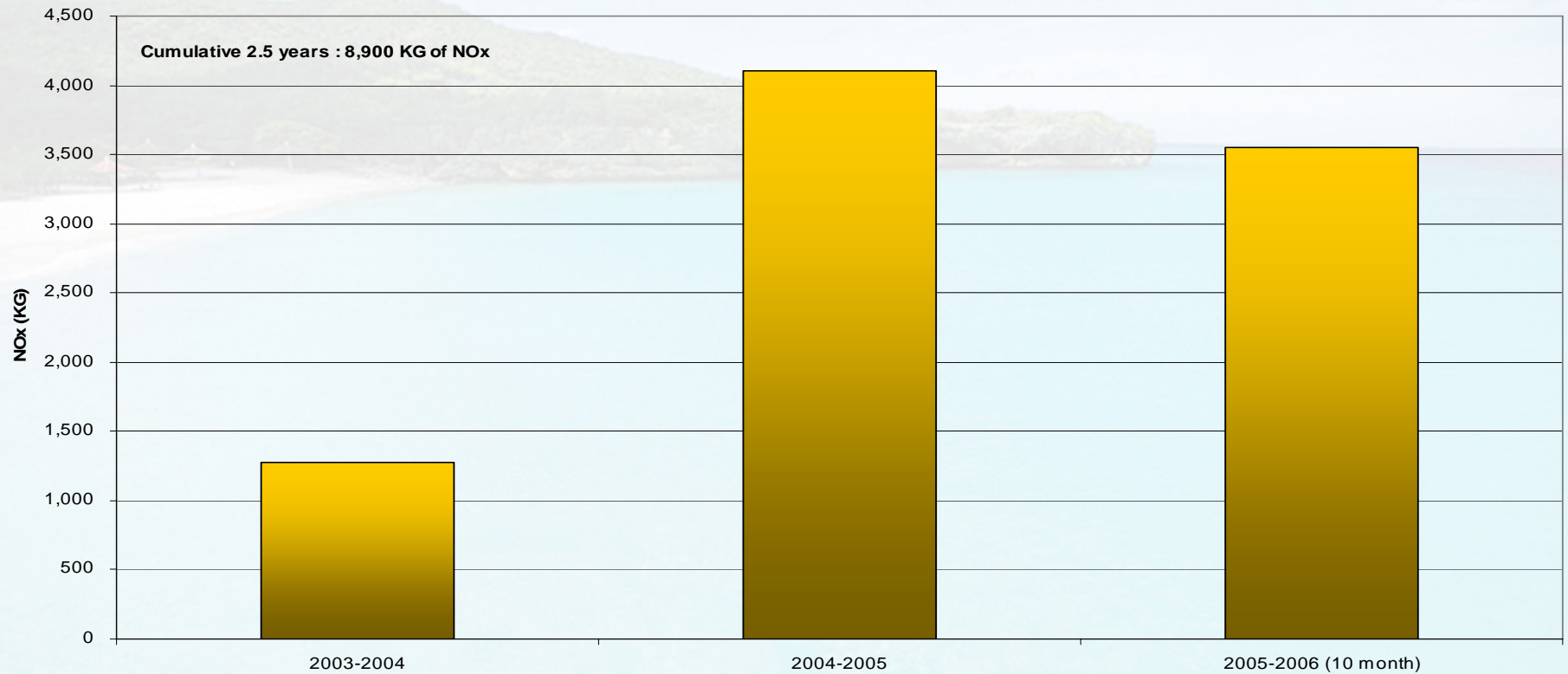
Cumulative Methane (CH₄) Reduction



Air Transat Gas emission reduction



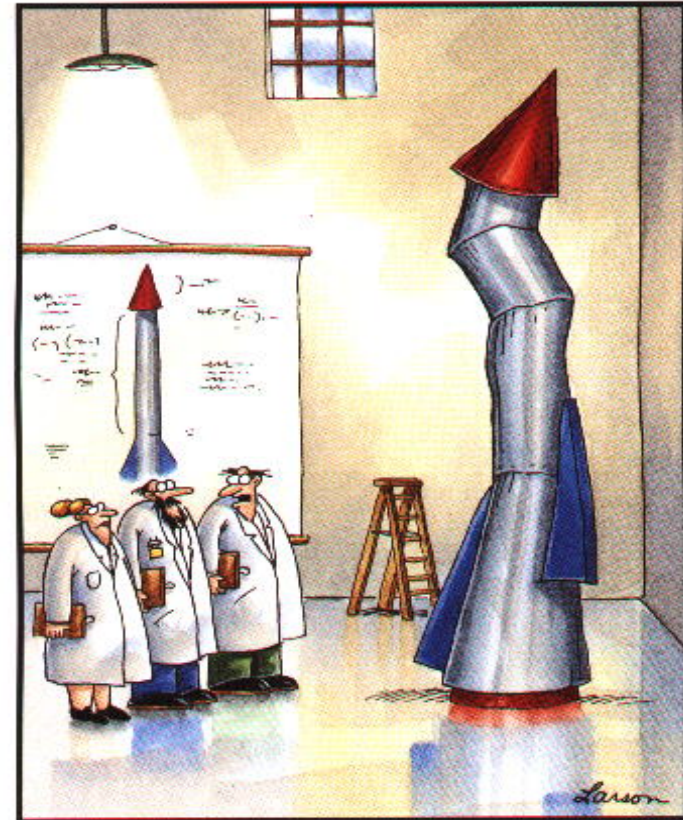
Cumulative Nitrogen Oxygen Gas (NOx) Reduction



Lessons learned



- Reducing fuel burn is not rocket science ... there are only 3 ways to do it
 - Optimize how you fly the aircraft
 - Reduce weight
 - Reduce aero-drag
- Difficulty is in the implementation. Need
 - Top level support (president)
 - External expertise (esp. former pilots)
 - Multi-departmental team
 - To overcome internal inertia and resistance – challenge status quo
 - Sensitize all employees about the benefits of fuel conservation
- Stay focused – tracking of performance and consideration of new initiatives must be ongoing

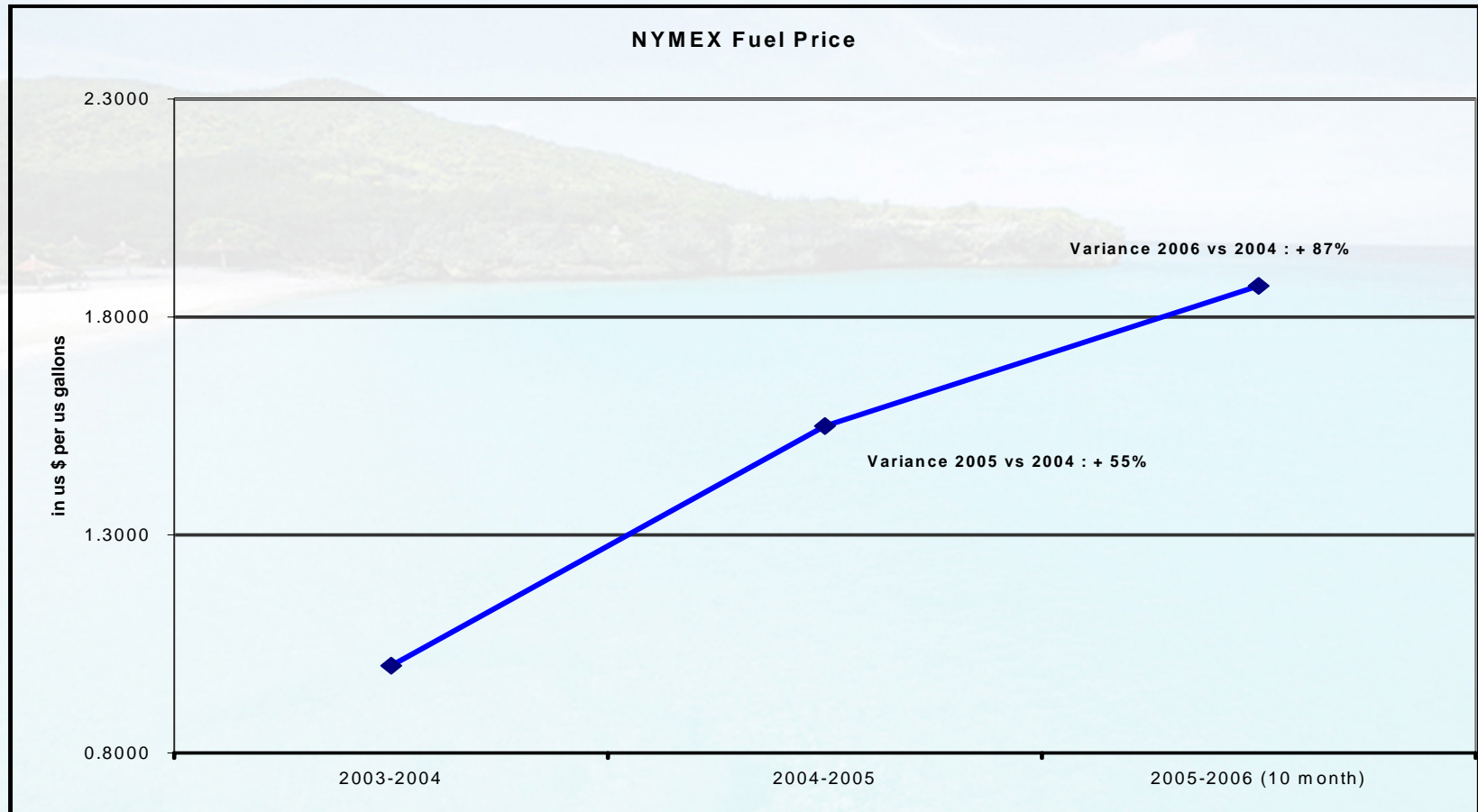


"It's time we face reality, my friends. ...
We're not exactly rocket scientists."

Conclusion



- Our Fuel management program has been an outstanding success. We are well on the way to reducing our fuel burn by over 5% per year
 - Saving millions of dollars annually
 - Significantly reducing environmental emissions
- The project is even more important now given rising fuel costs





Questions?



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