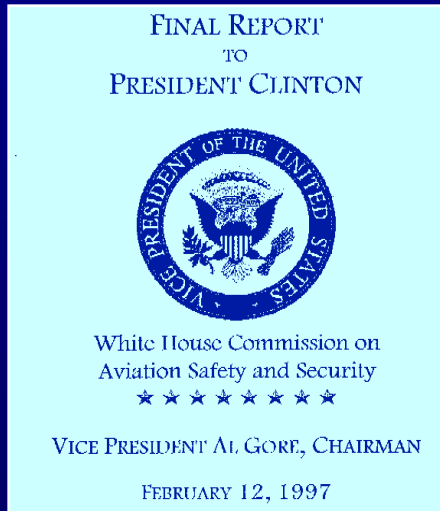


# **Commercial Aviation Safety Team (CAST)**

## **The CAST Framework and its Applicability to Cargo Operations**

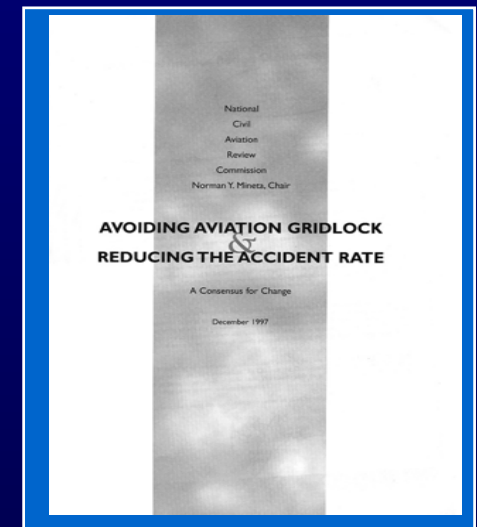
**NTSB Air Cargo Safety Forum  
March 30-31, 2004**

# White House Commission on Aviation Safety, and The National Civil Aviation Review Commission (NCARC) provided a go-forward approach

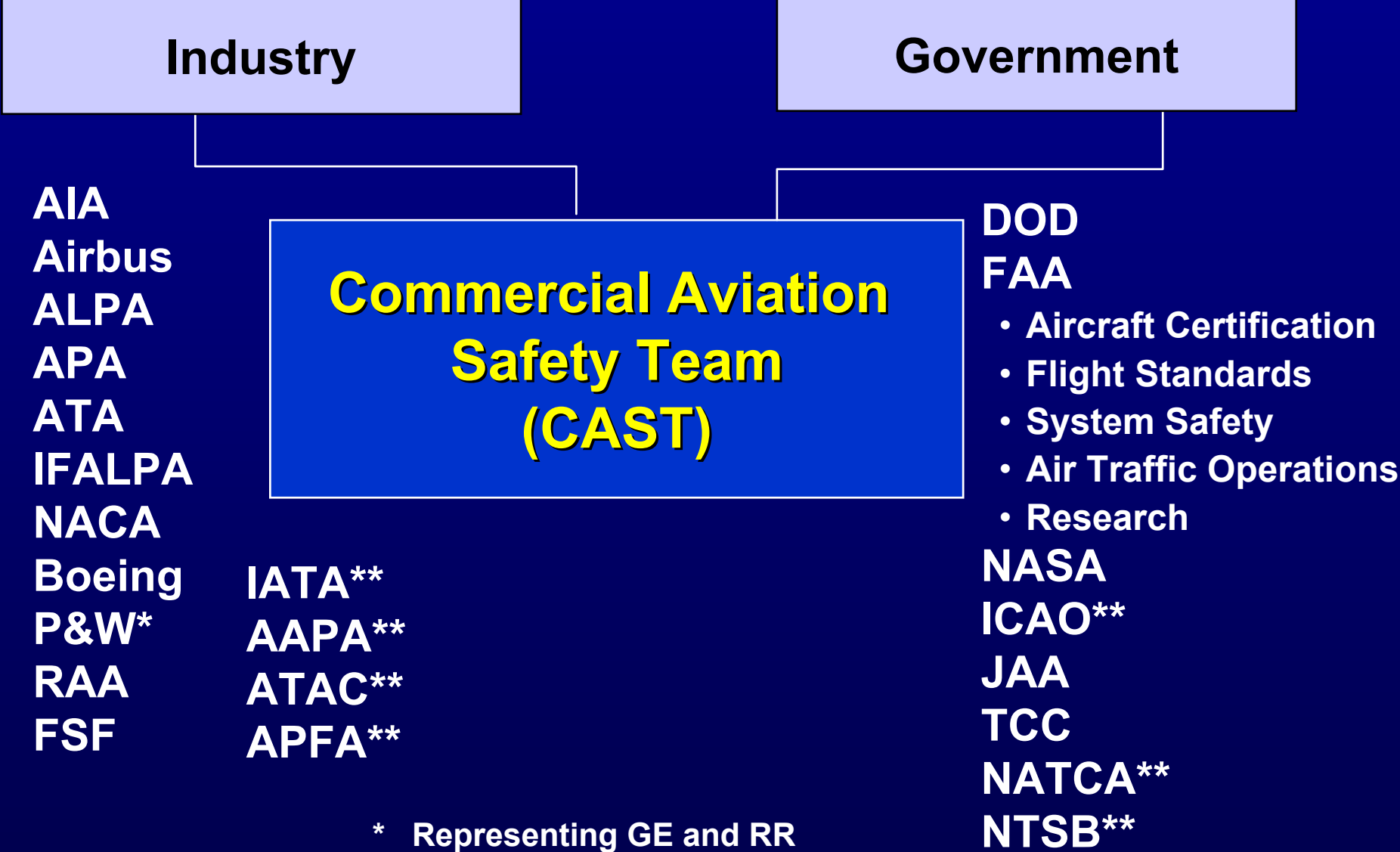


**“Reduce Fatal Accident  
Rate by 80%”**

**“Strategic Plan to Improve Safety”  
“Improve Safety Worldwide”**



# CAST brings key stakeholders to cooperatively develop & implement a prioritized safety agenda



\* Representing GE and RR

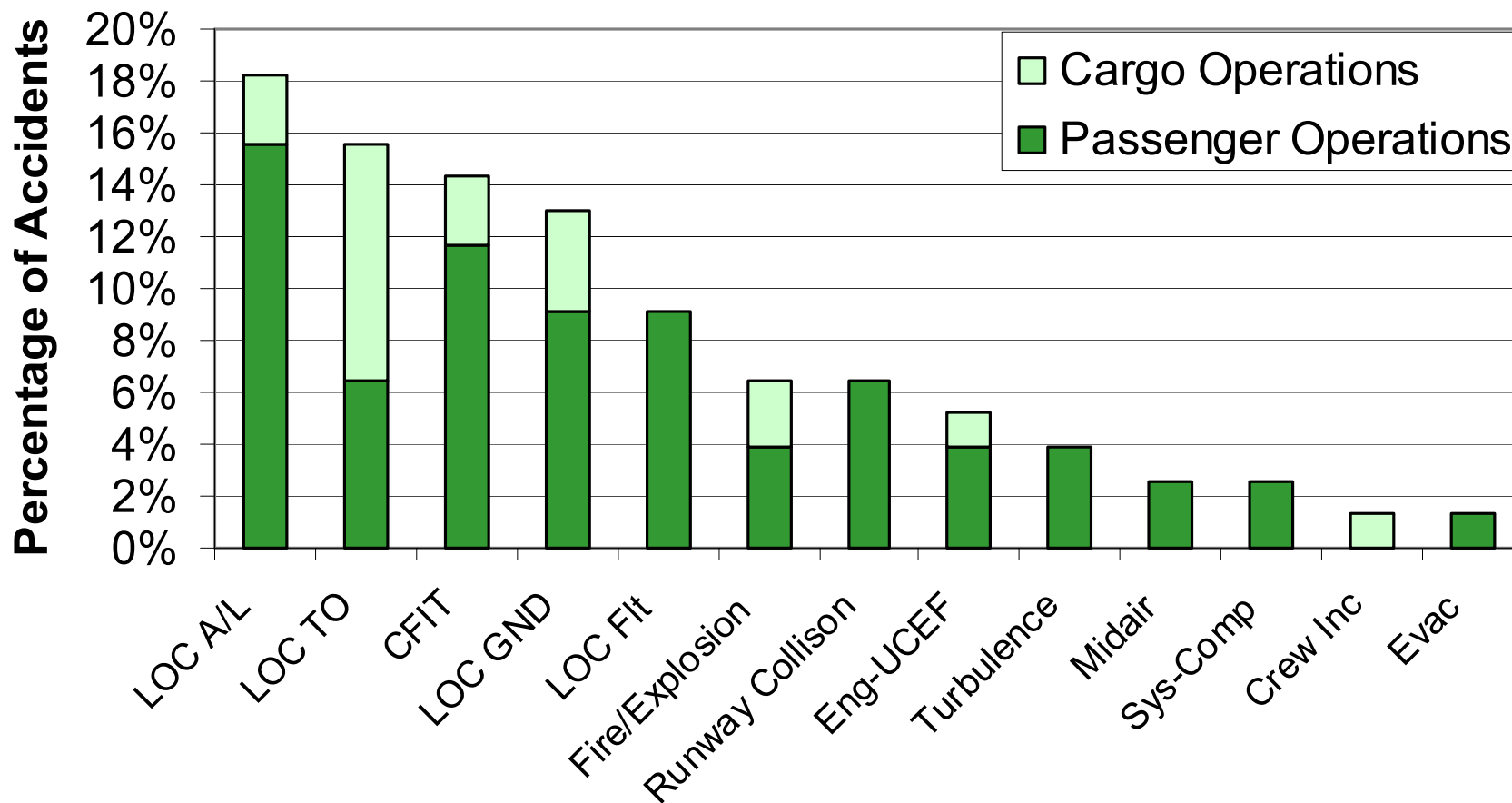
\*\* Observer

# CAST Goals

- Reduce the U.S. commercial aviation fatal accident rate by 80% by 2007
- Work together with airlines, JAA, ICAO, IATA, FSF, IFALPA, other international organizations and appropriate regulatory/government authorities to reduce worldwide commercial aviation fatal accident rate

# Cargo and passenger operations share similar issues

## Distribution of 1987-2000 Part 121 Hull Loss & Fatal Accidents



# Initial CAST investigation categories set by reviewing the data

- **Controlled Flight Into Terrain**
- **Loss of Control**
- **Uncontained Engine Failures**
- **Runway Incursion**
- **Approach and Landing**
- **Weather**

*Both cargo and passenger issues included in investigations*

# Commercial Aviation Safety Team (CAST)

## CAST

### Joint Safety Analysis Teams (JSAT)

- Data analyses

### Joint Safety Implementation Teams (JSIT)

- Safety enhancement development

### Joint Implementation Measurement Data Analysis Team (JIMDAT)

- Master safety plan
- Enhancement effectiveness
- Future areas of study

# Robust CAST Methodology

- **Detailed event sequence - problem identification from worldwide accidents and incidents**
  - **CVR**
  - **DFDR**
  - **NTSB reports, etc.**
- **Broad based teams (45-50 specialists/team)**
- **> 800 problem statements**
- **752 interventions**
- **Packaged into 87 system enhancements**
- **Analyzed for effectiveness and synergy**
- **46 enhancements adopted**



# CAST process led to integrated strategic safety plan

- Part 121 or equivalent passenger and cargo operations studied
- *19% of accidents and incidents analyzed in detail involved cargo operations or operators* (CFIT, Approach & Landing, Loss of Control)
- Current CAST plan:
  - 46 Prioritized Safety Enhancements
  - 8 R&D projects and 2 studies
  - *Projected 73% fatality risk reduction by 2007*
- Industry and Government implementing plan
  - ATA (20 operators), RAA (47), NACA (13) plus non-aligned (35)

# **CAST Safety Plan**

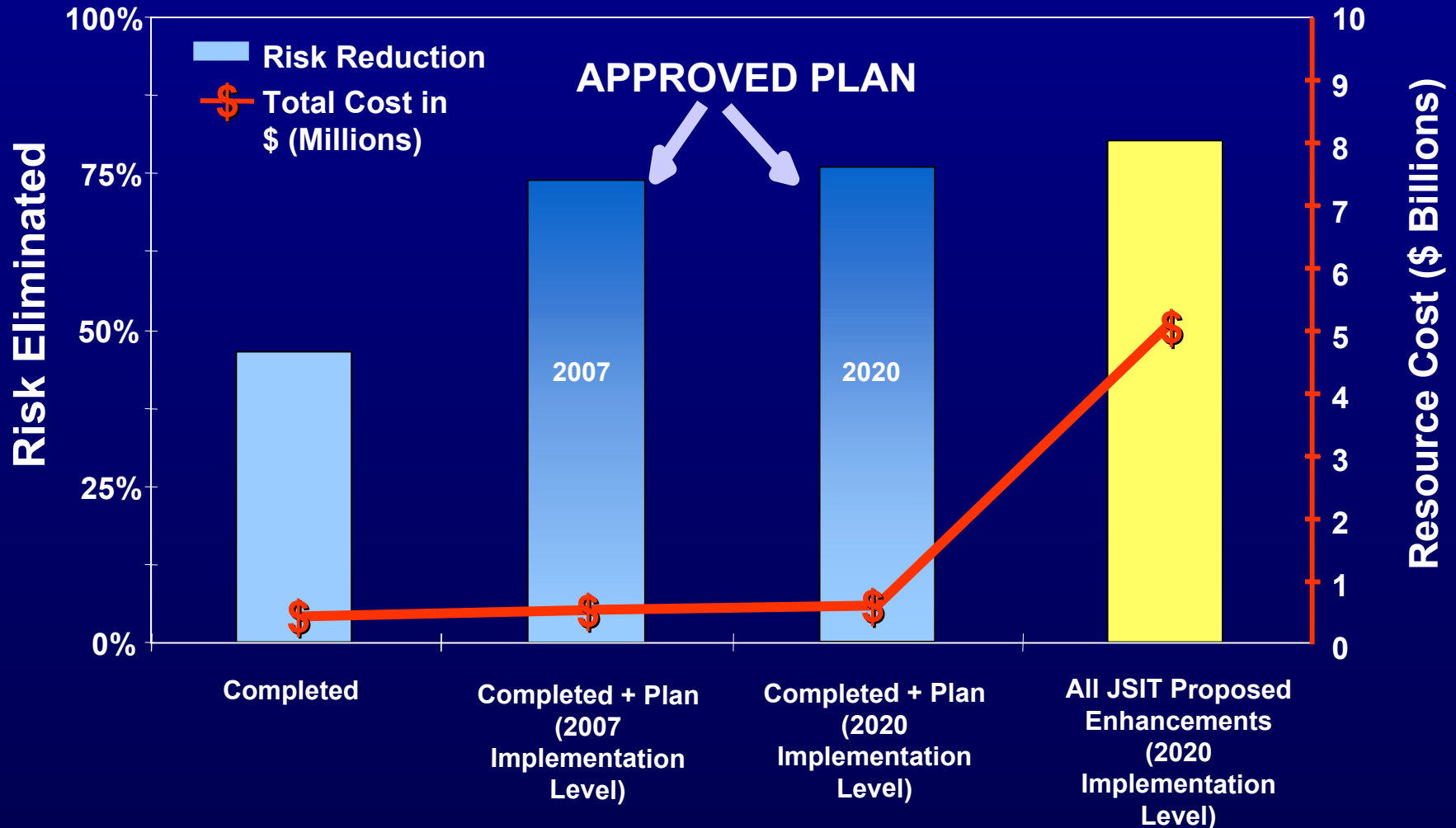
- **25 Completed Safety Enhancements**

- **Safety Culture**
- **Maintenance Procedures**
- **Flight Crew Training**
- **Air Traffic Controller Training**
- **Uncontained Engine Failures**
- **Terrain avoidance warning system (TAWS)**
- **Standard Operating Procedures**
- **Precision Approaches**
- **Minimum Safe Altitude Warning (MSAW) Systems**
- **Proactive Safety Programs (FOQA + ASAP)**

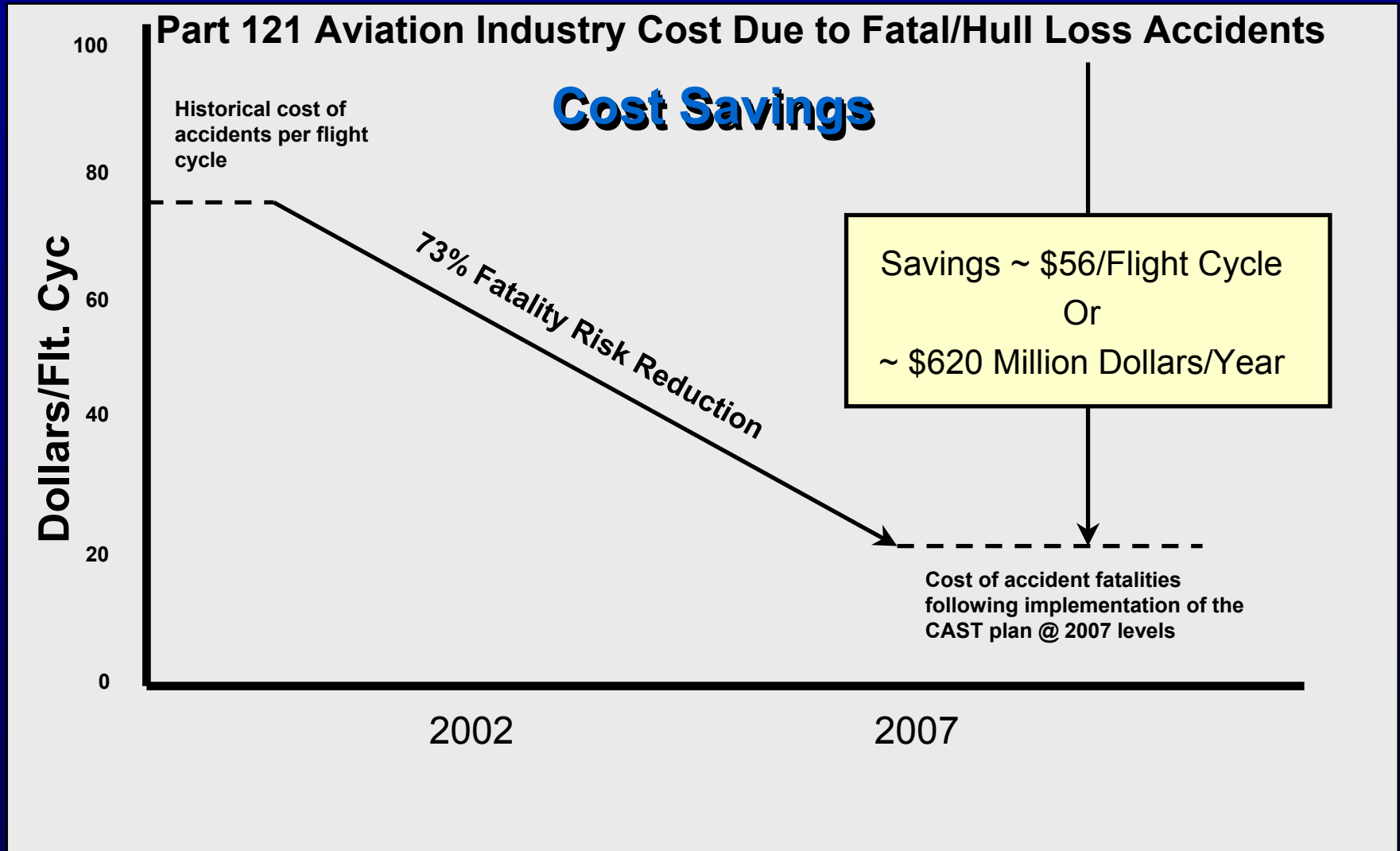
# **CAST Safety Plan (cont.)**

- **21 Committed Safety Enhancements**
  - **Policies and Procedures**
  - **Aircraft Design**
  - **Flight Crew Training (additional aspects)**
  - **Runway Incursion Prevention**
  - **Precision Approaches (additional projects)**
- **8 R&D Projects and 2 Studies**

# Resources vs. risk reduction highlights the need for prioritized approach

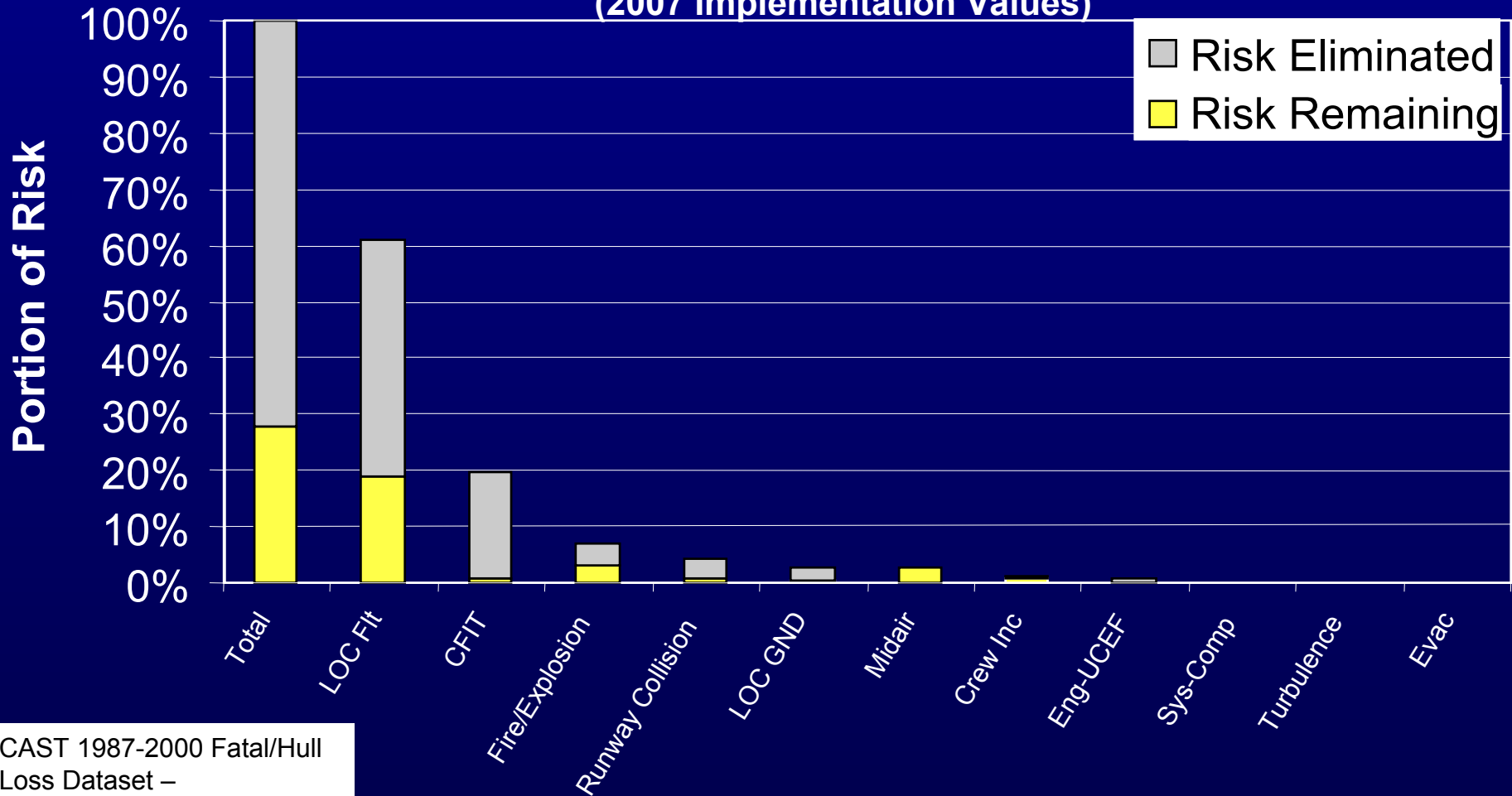


# Prioritized safety makes good economic sense



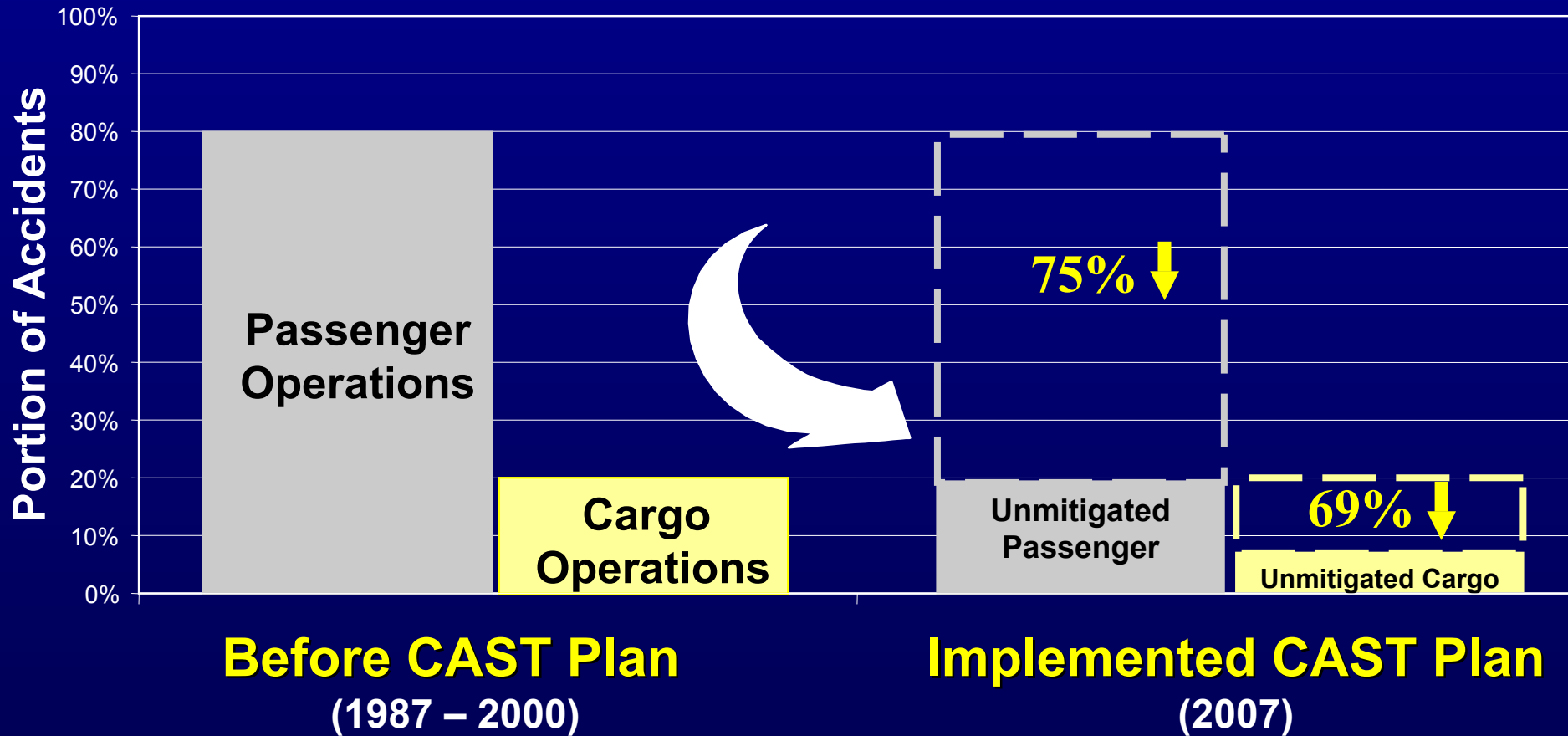
# Fully implementing the CAST plan will lead to a 73% overall risk reduction by 2007

Hull Loss & Fatal Accidents  
Portion of Total Fatality Risk Mitigated by the CAST Plan  
(2007 Implementation Values)



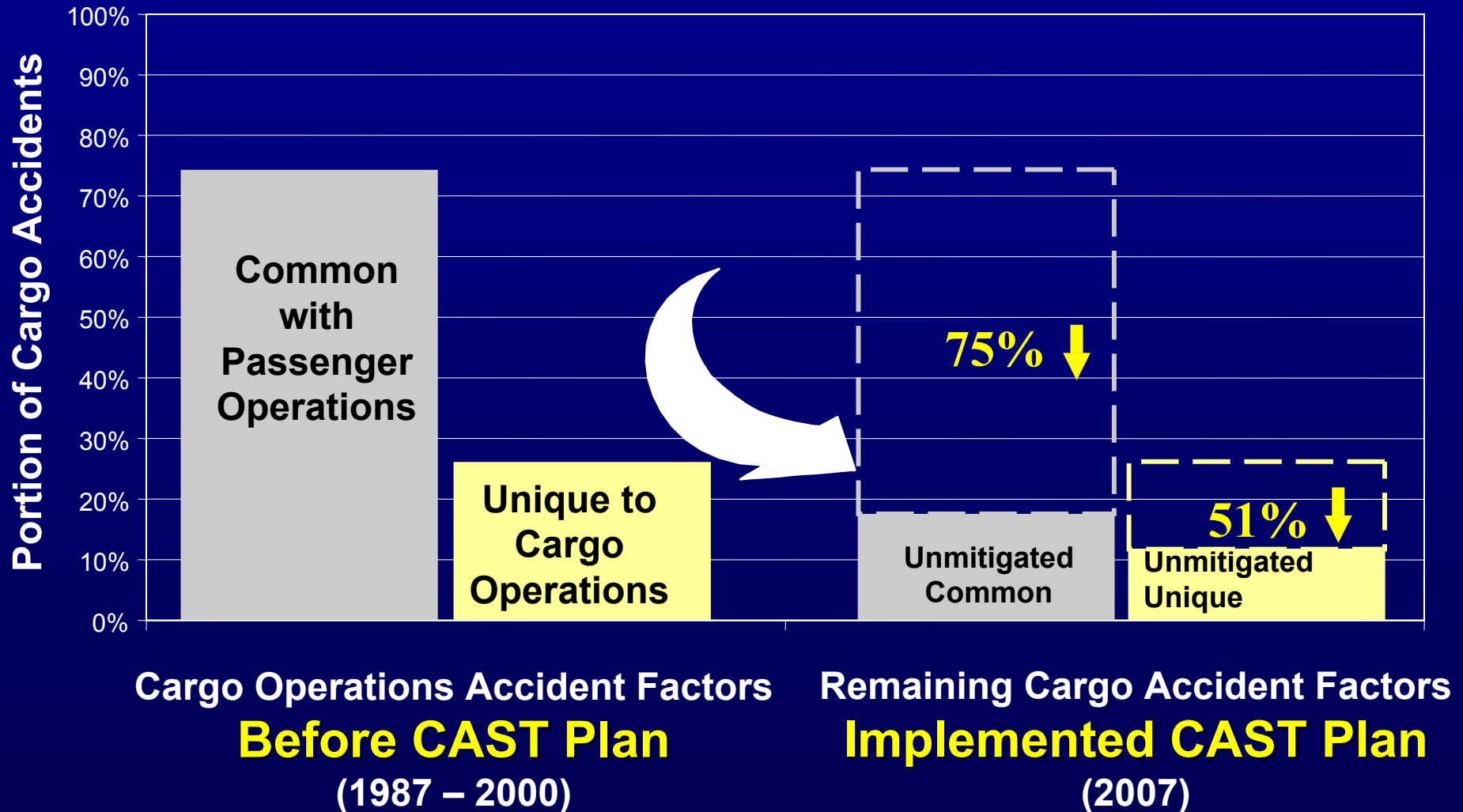
CAST 1987-2000 Fatal/Hull  
Loss Dataset –  
Security events excluded.

# CAST enhancements will lead to large safety improvement for both passenger & cargo operations



\* Based on assessment of 1987-2001 accident data for turbine powered aircraft

# Current CAST plan will give large safety improvements Across the range of cargo operations accident factors



•Part 121 Cargo Accidents

•Based on assessment of 1987-2001 accident data for turbine powered aircraft



# **JSAT chartered to examine additional issues not covered by initial CAST activities**

- **Remaining Risk JSAT :**
  - **Ground Icing/Deicing**
  - **Midair**
  - **Maintenance/System Malfunction**
  - **Cargo Unique**
    - ✓ **Cargo shift/CG/Gross Weight**
    - ✓ **Hazmat**

# Remaining Risk JSAT/JSIT Completion Schedule

- **Cargo JSAT - May 2004**
- **Cargo JSIT - December 2004**
- **Prioritization and updated CAST plan  
- February 2005**

# Summary

- **CAST analysis included several cargo accidents**
- **Cast safety enhancements provide effective risk reduction for cargo and passenger operations**
- **Cargo operators should incorporate applicable cast safety enhancements**
- **Remaining risk JSAT evaluating cargo unique factors**
- **Resulting enhancements should be considered prior to launching new initiatives**