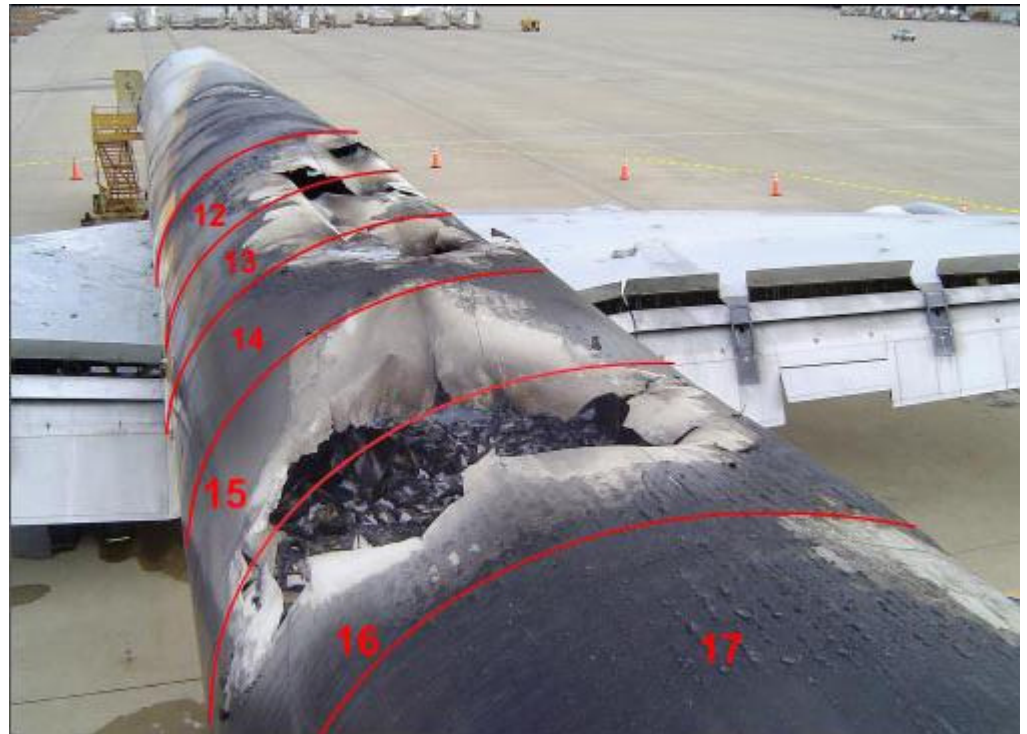


Freighter Fire Suppression Cost Benefit Analysis & Risk Model

BACKGROUND

A Cost Benefit Analysis carried out for the FAA in 2009 concluded that:

“Halon fire suppression systems, or alternatives that are likely to be developed for below floor cargo compartments, are unlikely to be cost beneficial for the main deck cargo compartments of cargo aircraft of any weight category.”



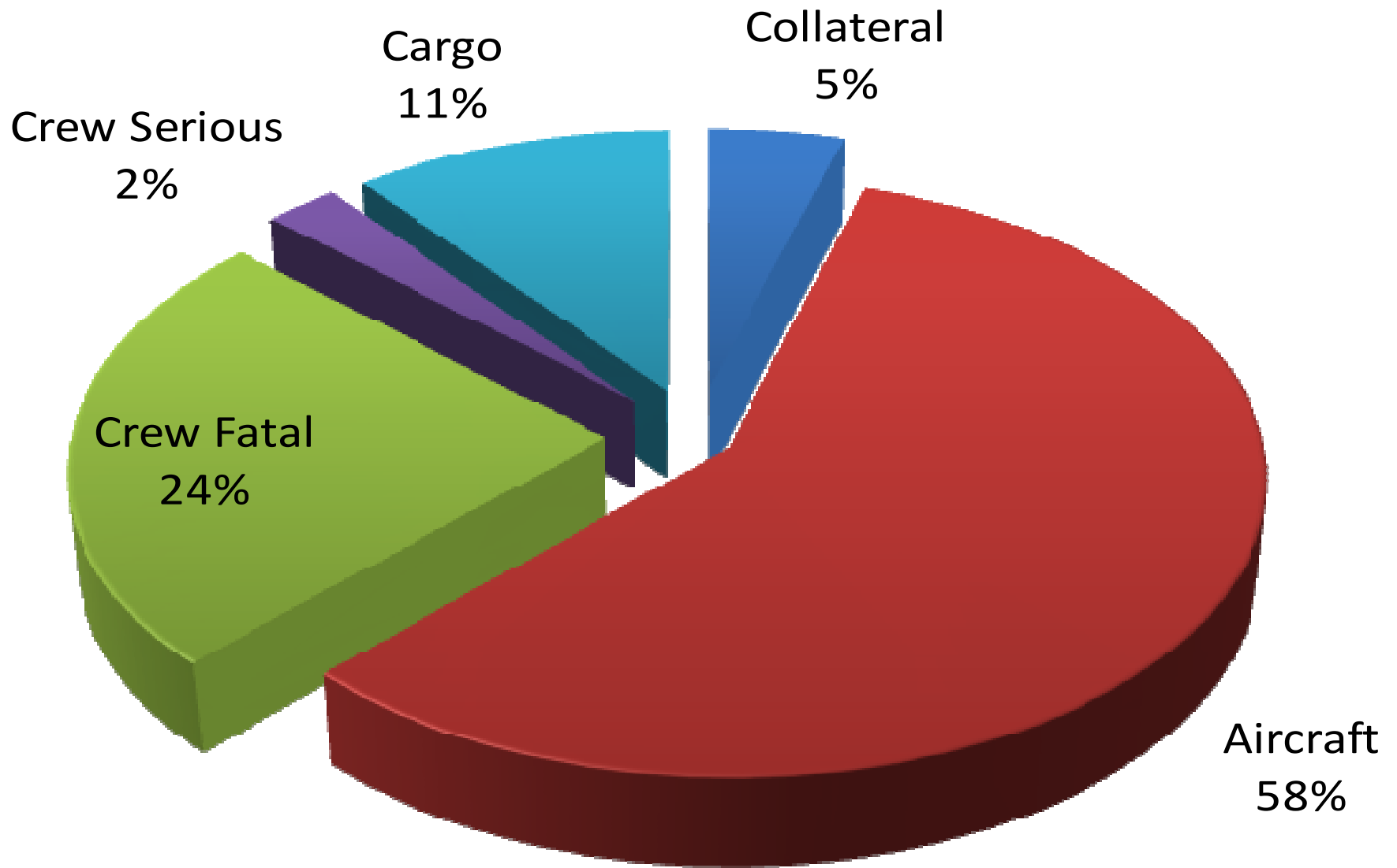
BACKGROUND

Transport Canada commissioned a re-evaluation of these conclusions following the fatal accident to the UPS Boeing 747 freighter in Dubai on 3rd September 2010. The interim results suggest that this one additional accident *“would have very little impact on the cost benefit ratio established by the original study”*.

BACKGROUND

However, other factors have changed since the FAA study in 2009 – primarily the average value of the US freighter fleet which is a major factor in the cost benefit ratio.

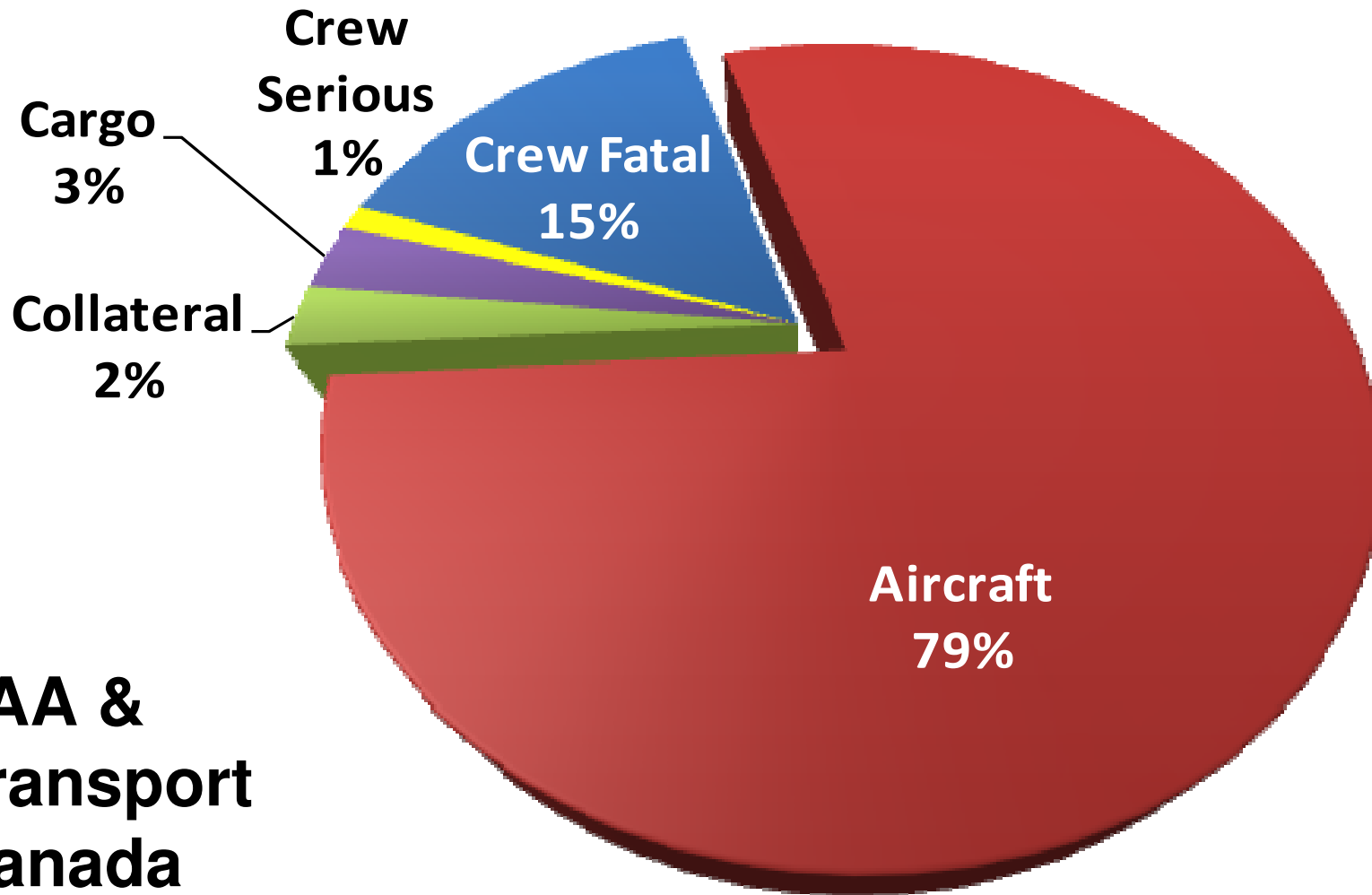




FAA Study 2009

1715\\Model\\Issue 2 - Summary of Results.xlsx

BACKGROUND

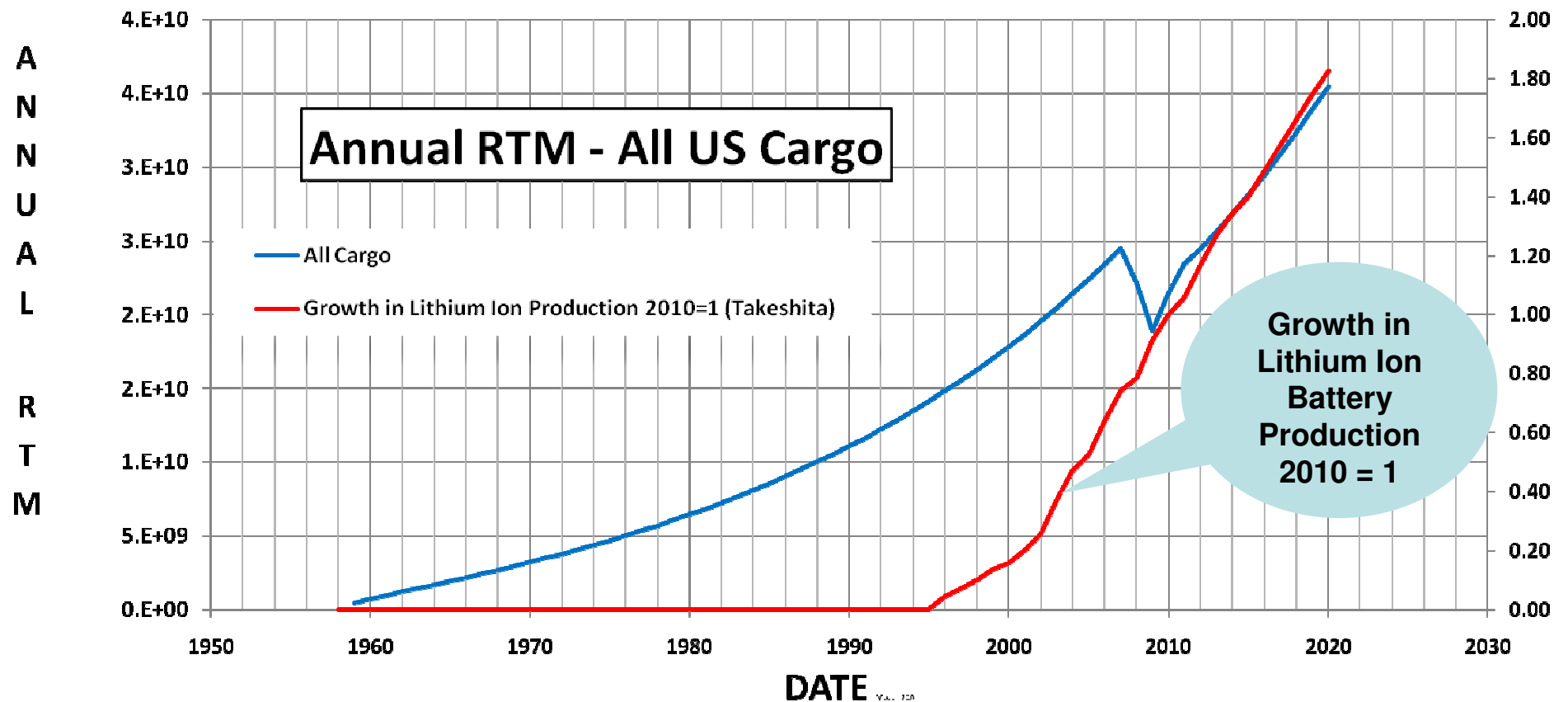


**FAA &
Transport
Canada
Study 2011**

BACKGROUND

Other factors have changed since the 2009 FAA study:

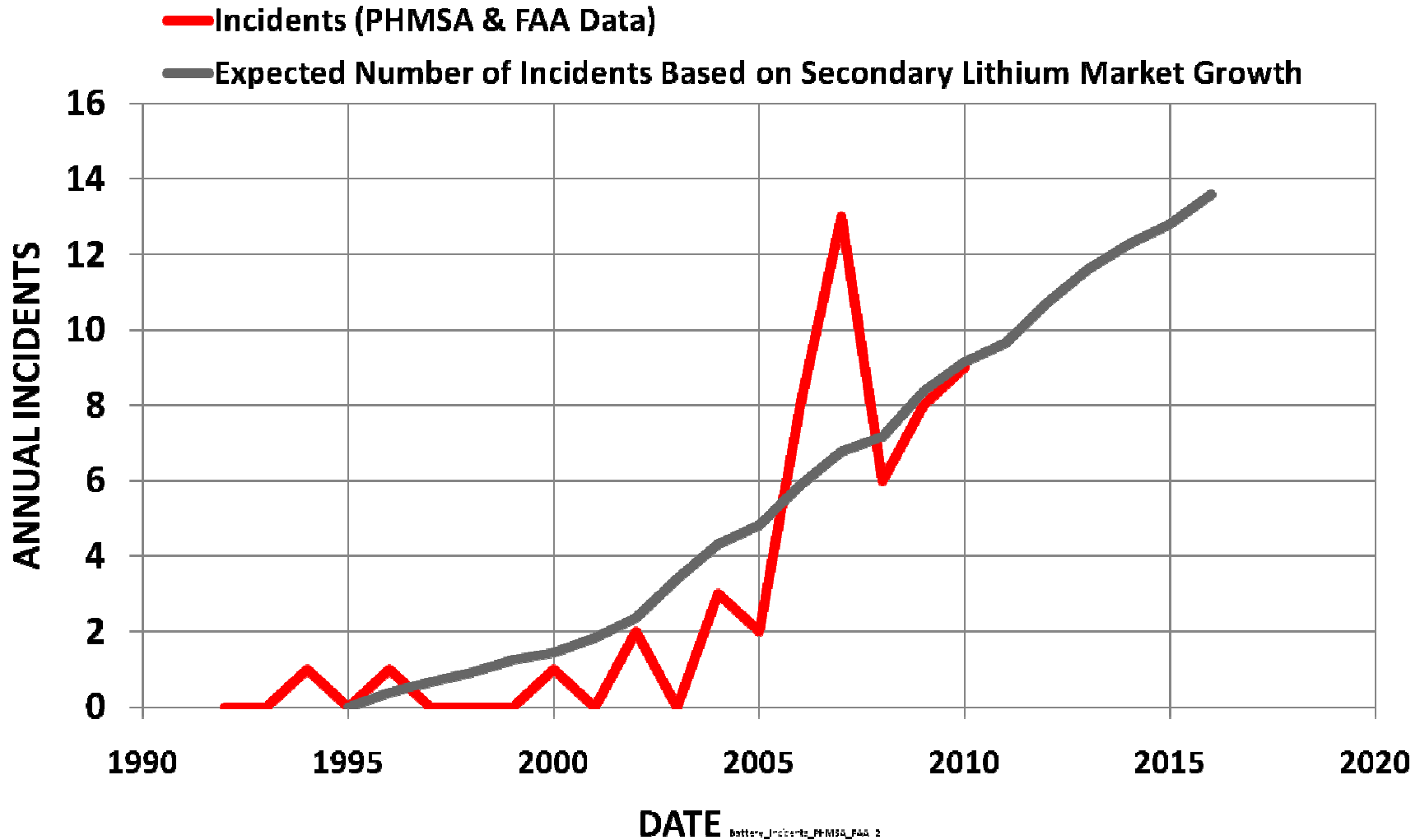
– in particular the rapid growth in the volume of freight being carried by the North American freighter fleet especially carriage of secondary lithium batteries that may have had an involvement in both the Philadelphia (2006) and Dubai (2010) freighter accidents.



If there was no increase in the threat of freighter fires due to batteries

PERIOD	CUMULATIVE RTM	NUMBER OF FIRE ACCIDENTS
1967 - 2010	624×10^9	5
2011 - 2020	365×10^9	3

BATTERY FIRE RELATED INCIDENTS



BACKGROUND

The current study, commissioned by the FAA, Transport Canada and the UK CAA, has resulted in the development of Cost Benefit and Risk Models to evaluate the impact of the increasing threat to freighter airplanes for a variety of potential mitigation strategies.

OBJECTIVES

The broad objectives of the Study are to:

- Evaluate the relative **Cost Benefit Ratios** for Freighter Fire Suppression Strategies identified by the FAA
- Develop a **Risk Model** to assess the number of accidents likely to be experienced by the US fleet attributable to Freighter Fires

[..\..\Rgwc1720 \(Freighter Cargo Fire Risk Model\)\04 Final Report and Data\02 Benefit Model\Model\Monte Carlo Model - Version 20A Locked \(1000 runs\).xlsm](#)

MODEL OVERVIEW

- **Monte Carlo Simulation models have been developed in Microsoft Excel**
- **The model considers each freighter airplane type in the US fleet individually and in combination**
- **The model currently assesses Cost Benefit Ratio and the likely future number of accidents for any selected combination of 6 proposed mitigation strategies.**

[..\\02 Benefit Model\\Model\\Monte Carlo Model - Version 20A Locked \(1000 runs\).xism](#)