

Civil Aviation

California Energy Commission

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Inputs and Methods for the 2013 Transportation Energy Demand Forecast Hearing Room A

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Aviation Model

- Separate modules for passenger and freight jet fuel demand
- Multiple intrastate, interstate and international origins and destinations
- Separate methodology for aviation gasoline
- No military jet fuel forecast



Aviation Data Sources

- **Bureau of Transportation Statistics**
 - 2011 data from air carriers
- **Energy Information Administration**
 - Annual Energy Outlook
 - Exogenous forecasts for 2012-2040
- **Demographic & Economic Data**



Key Aviation Inputs

Passenger

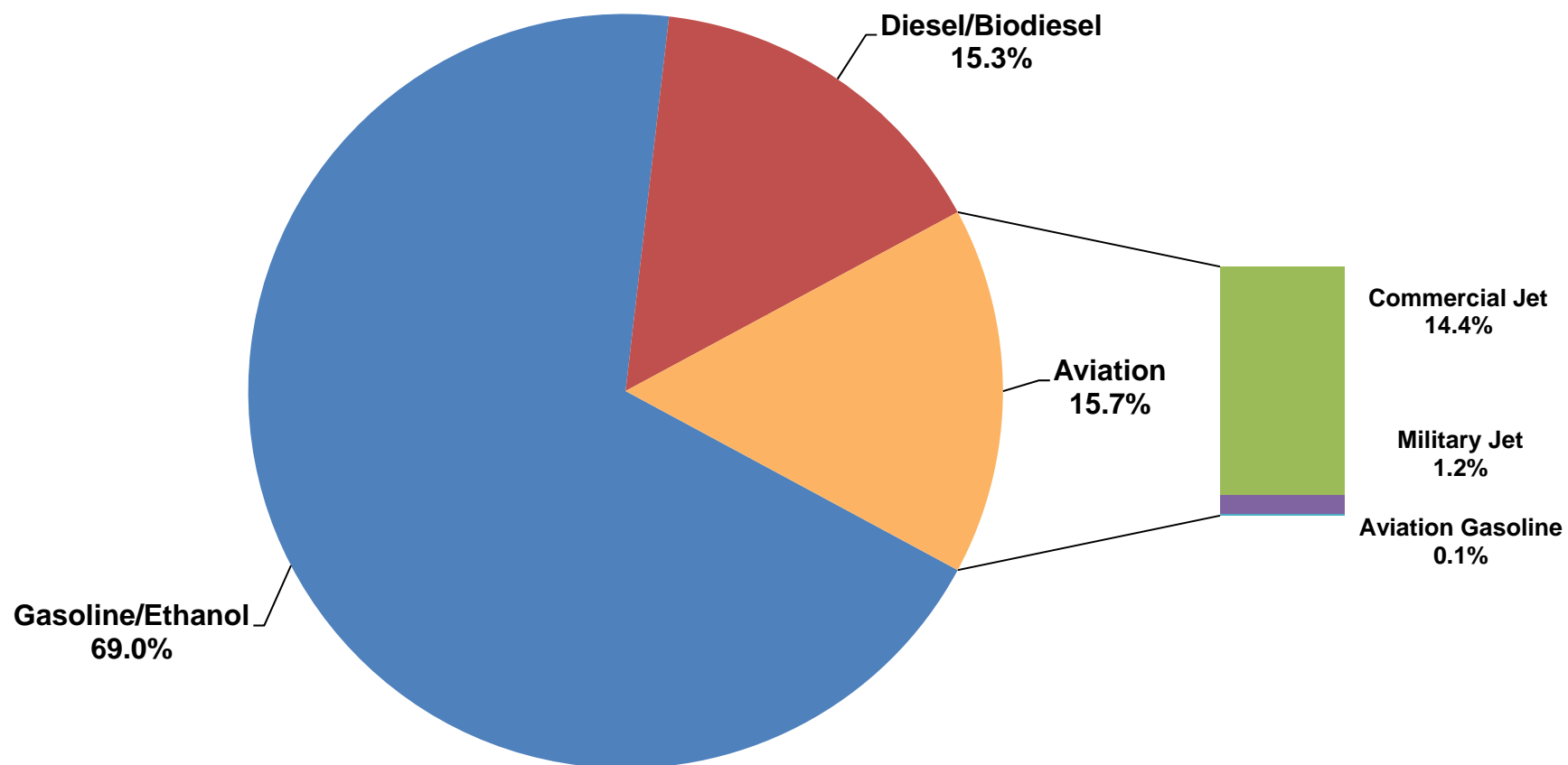
- Fleet Composition
- Aircraft Efficiency
- Ticket and Fuel Prices
- Household Income
- Load Factor

Freight

- Fleet Composition
- Aircraft Efficiency
- Fuel Price
- Economic Activity



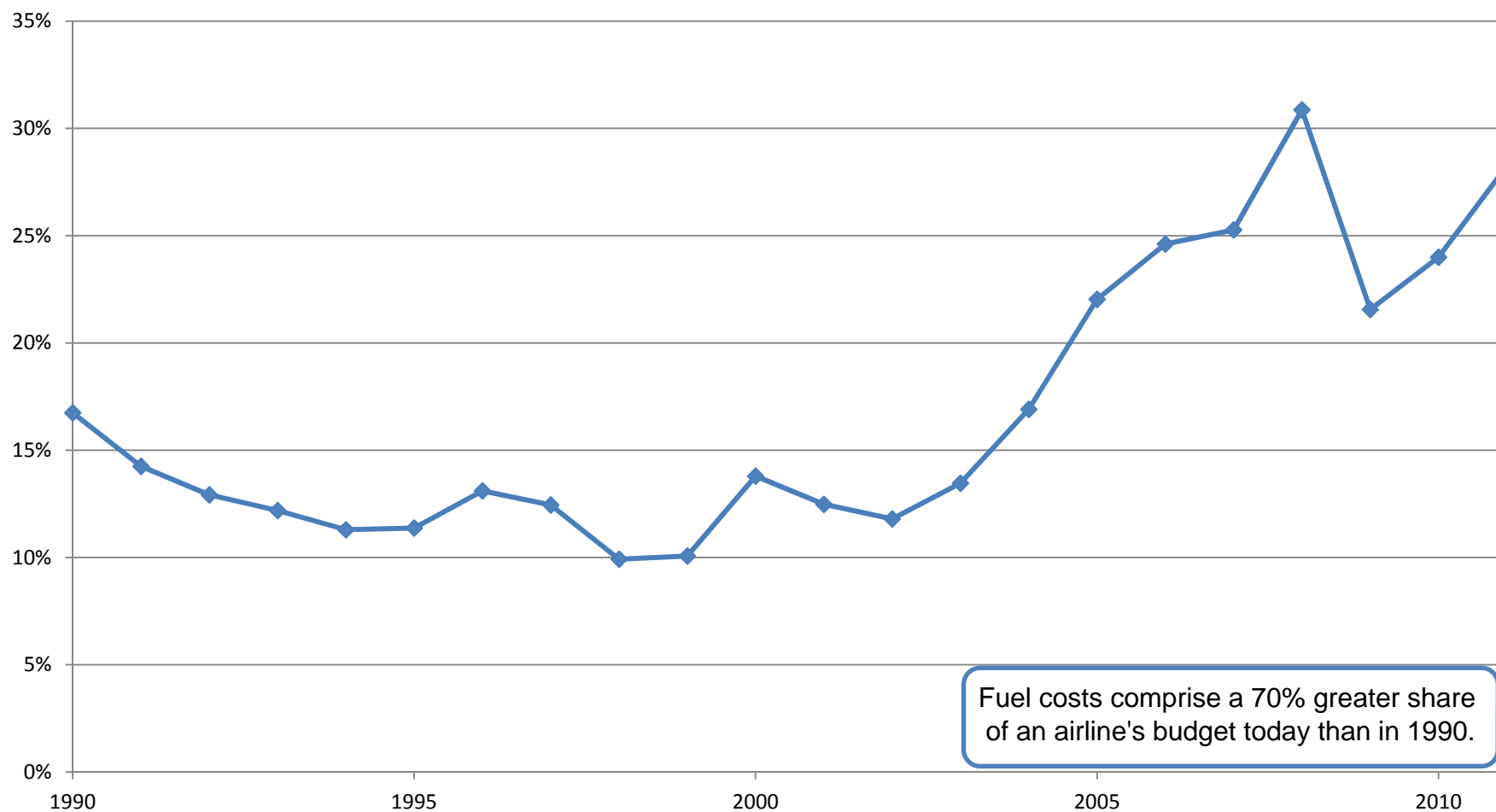
2010 California Liquid Fuel Demand



Source: Energy Commission analysis of Board of Equalization and confidential PIIRA data



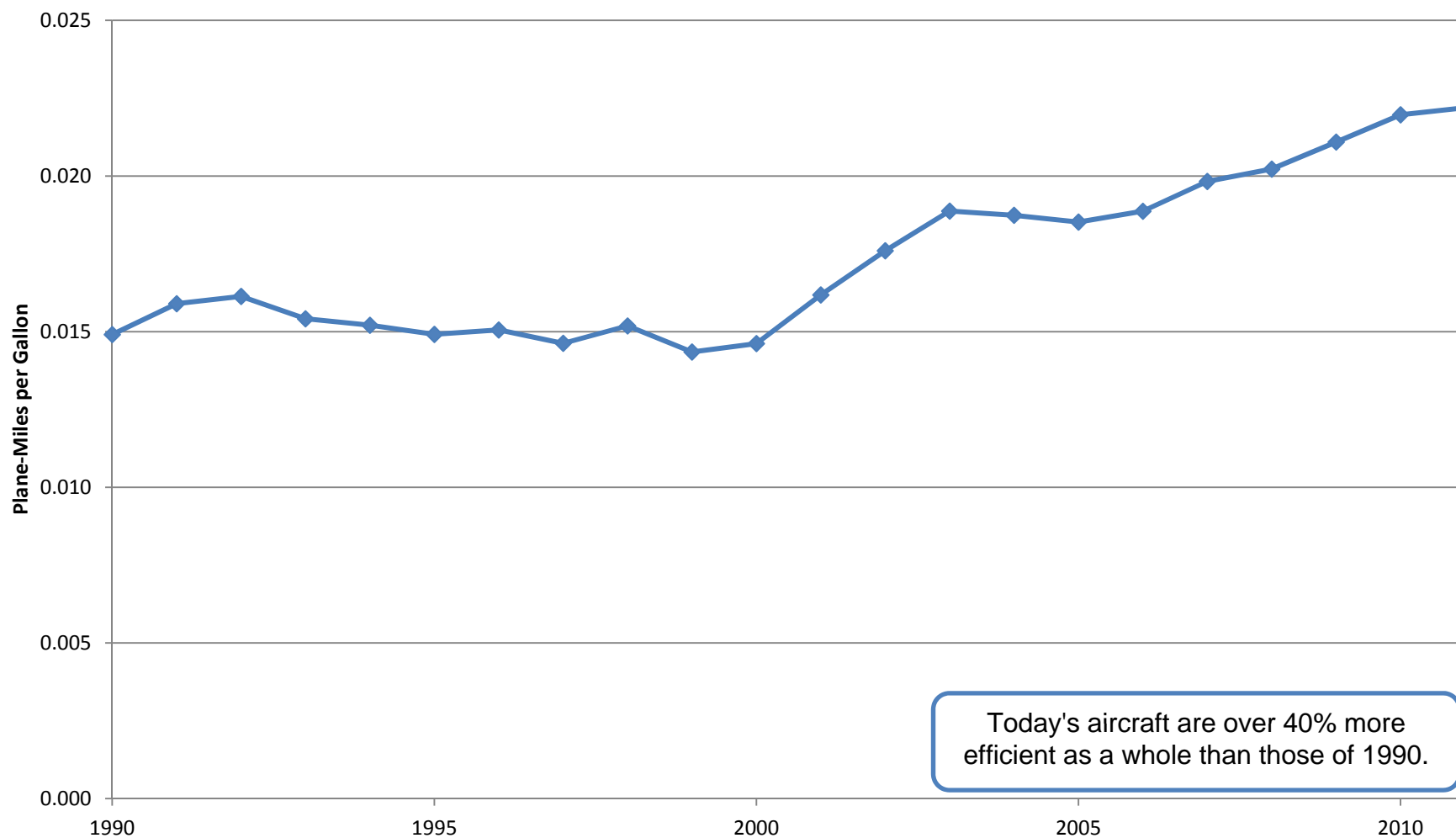
Airline Fuel Expense As Share of Total Operating Cost



Source: Energy Commission analysis of Bureau of Transportation Statistics data



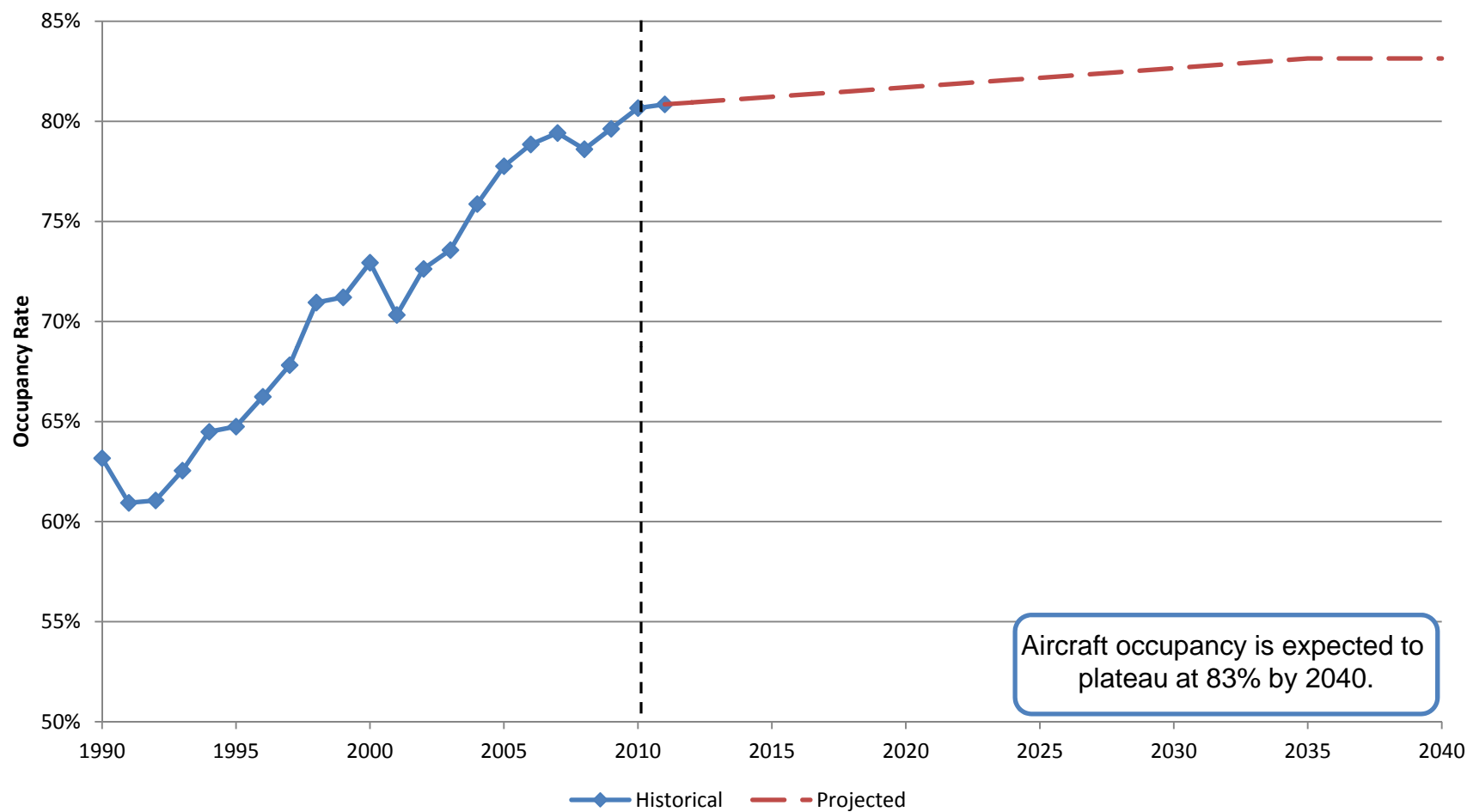
Industry-Wide Aircraft Efficiency



Source: Energy Commission analysis of Bureau of Transportation Statistics data



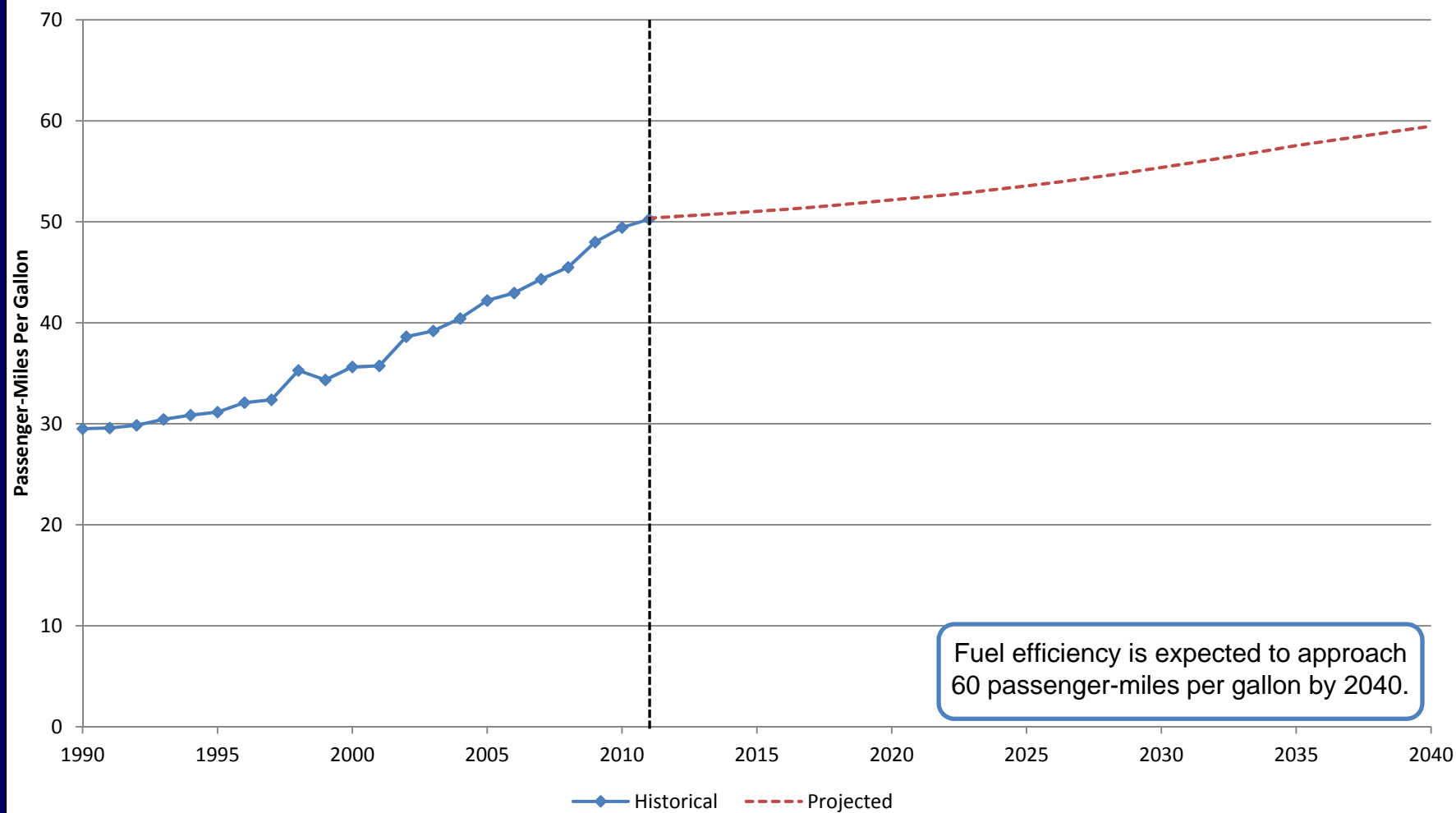
Aircraft Occupancy (Load Factor) Ratio of Passenger-Miles to Available Seat-Miles



Source: Bureau of Transportation Statistics (historical) and Energy Information Administration (projected)



Passenger-Miles Per Gallon



Fuel efficiency is expected to approach 60 passenger-miles per gallon by 2040.

Source: Energy Commission Analysis of Bureau of Transportation Statistics (historical) and Energy Information Administration (projected) data



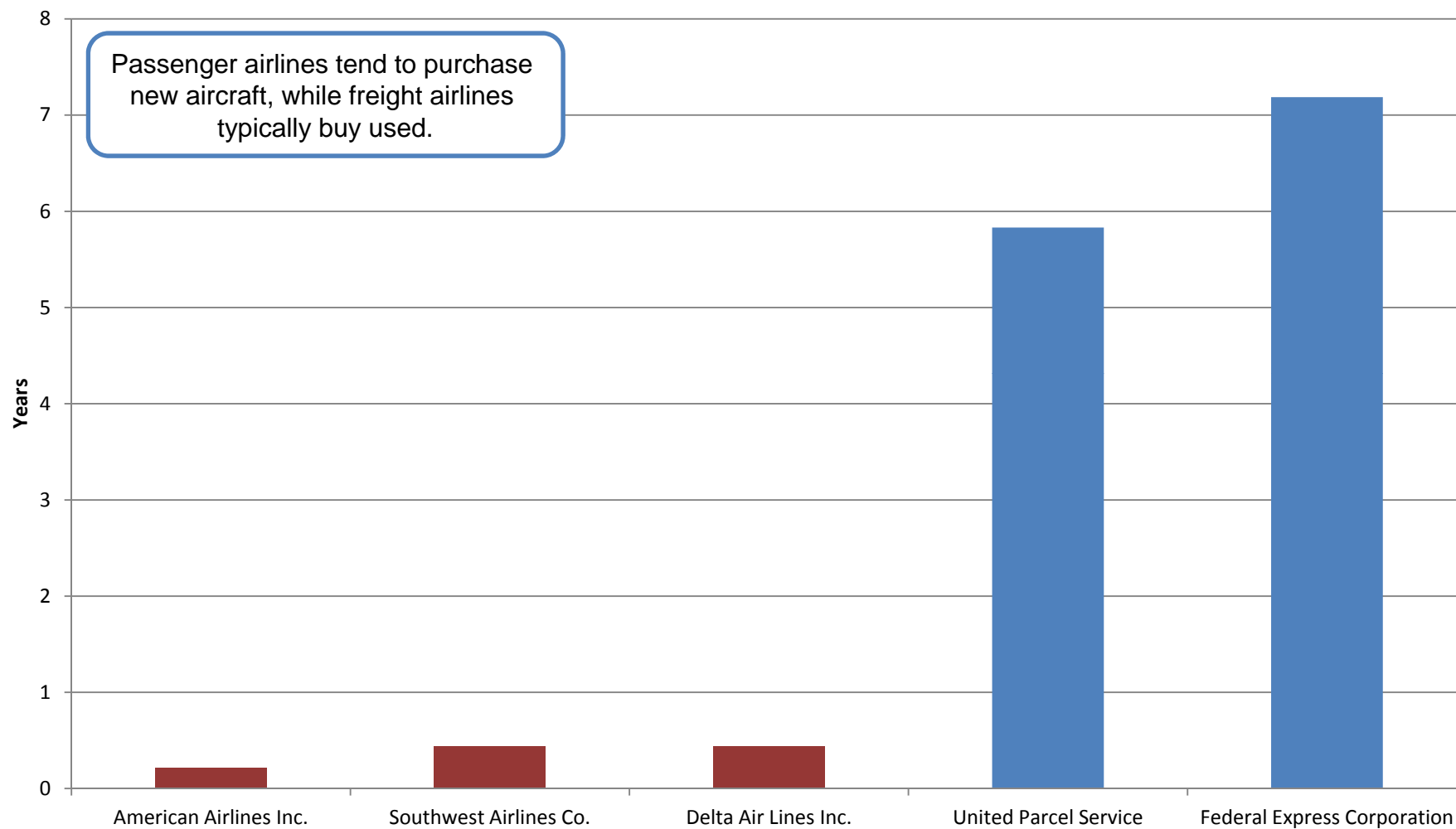
Delta Airlines Refinery Philadelphia



Source: Delta Airlines SEC 8-K Filing



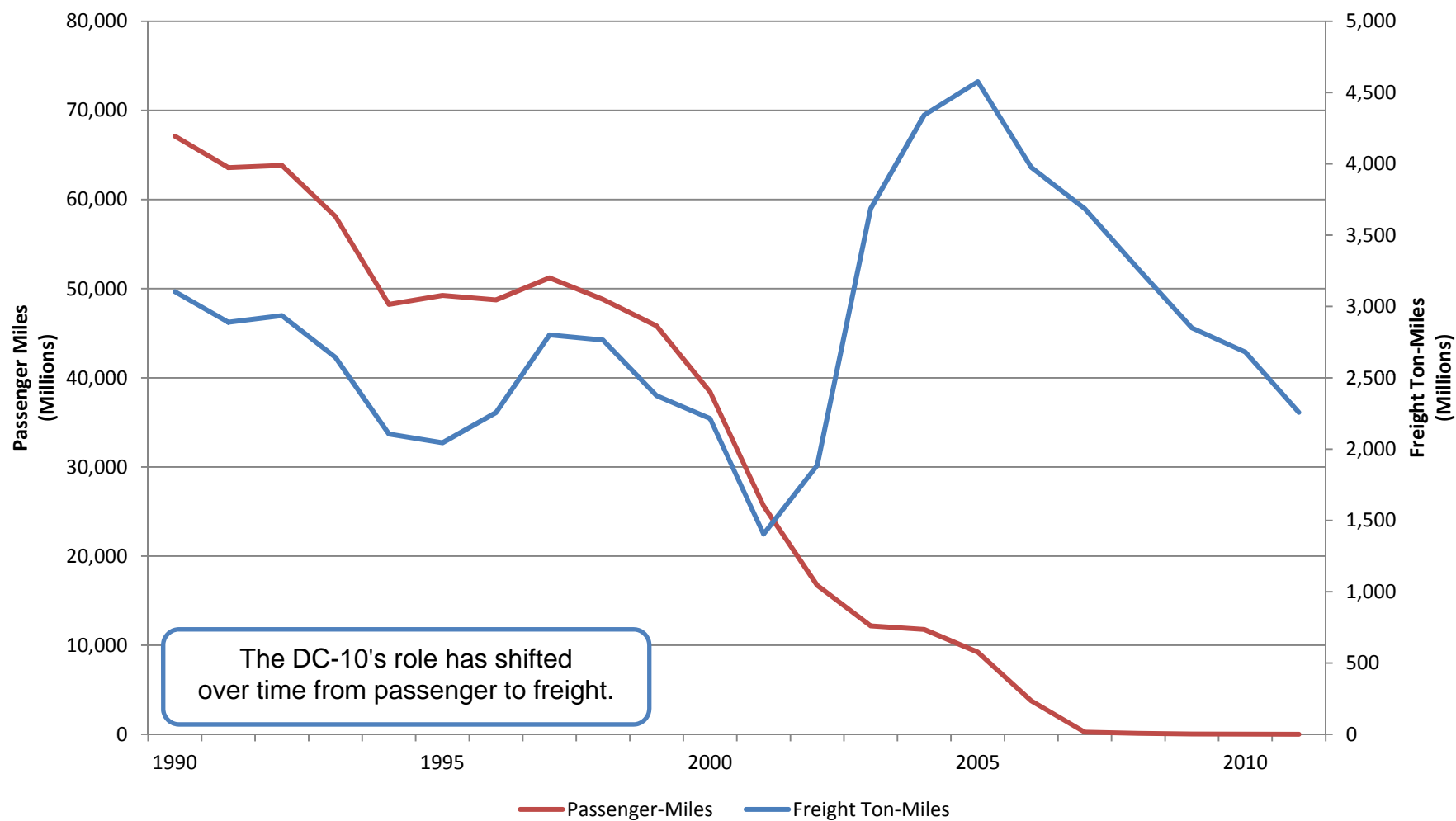
Average Age of Aircraft at Time of Acquisition



Source: Energy Commission analysis of Bureau of Transportation Statistics data



McDonnell-Douglass DC-10 Air Traffic



Source: Energy Commission analysis of Bureau of Transportation Statistics data

