



Boeing Case Competition Group #4

October 29th, 2021

Meet the Team



Aaron Singh
Senior
Major: Business
Management



Nhan Tran
Junior
Major: Finance



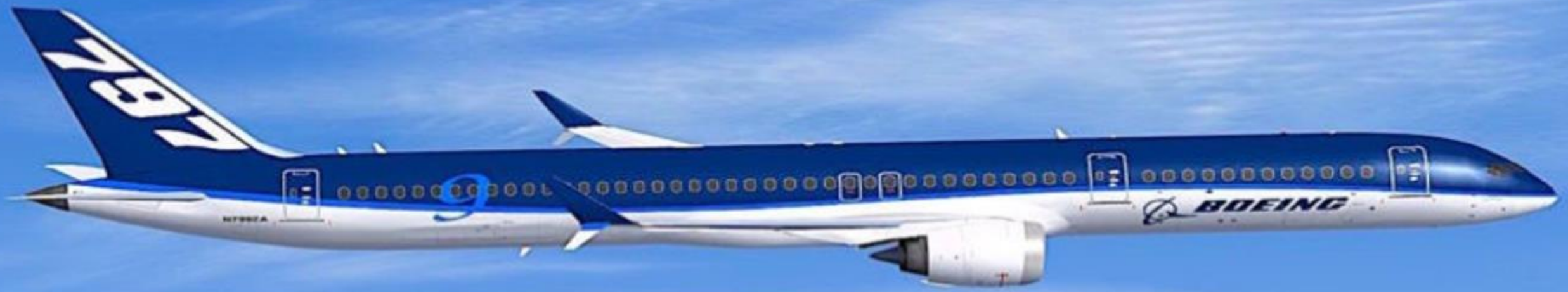
Mark Applegate
Senior
Major: Supply Chain &
Ops/ Business
Management



Catherine Dao
Junior
Major: Information
Systems



Richard Ramirez
Junior
Major: Finance



Agenda



Assumptions



Current State of
Boeing



Our
Recommendation



Market Trends



Financial Analysis



Performance
Goals



Implementation
Timeline

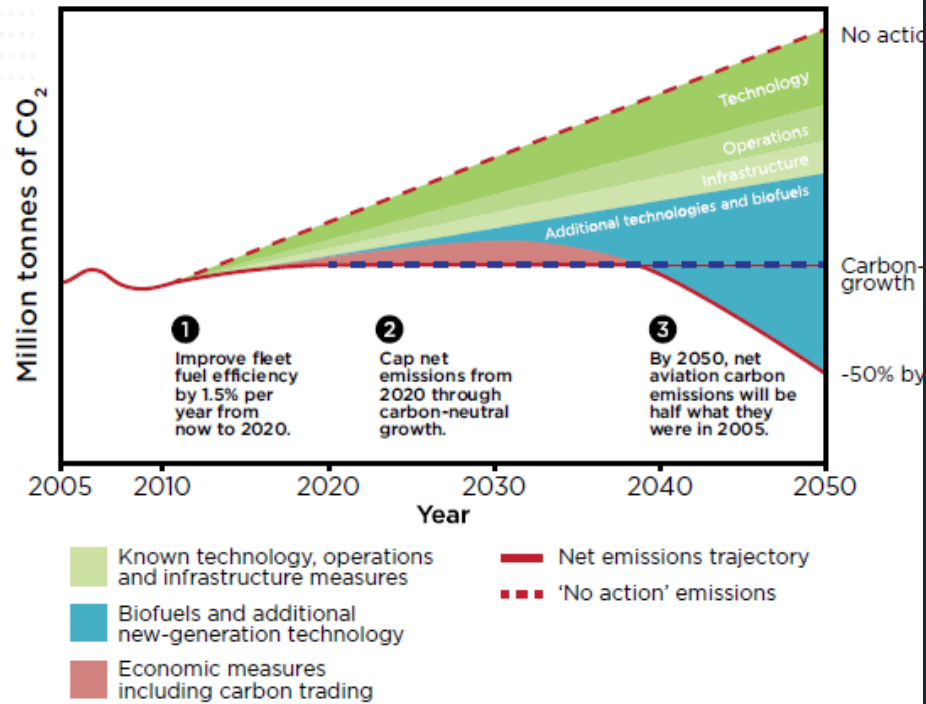


Risks and
Considerations

Assumptions

- Reduce Carbon Emissions
- Goal of project: Full – Electric Aircraft in the 2040's
- IATA technology projection
 - Hybrid- Electric Propulsion
 - Full-Electric Propulsion
- Boeing's Market Outlook
 - 2040 Fleet Size: 49,405
 - 75% of market is Narrow-Body, Single-Aisle
- Sustainable Aviation Fuel is a short-term solution for a long-term problem
- Boeing's Capital Structure





Boeing is Headed in the Right Direction

BOEING DELIVERS SOLID PROGRESS ON 2025 TARGETS

WE'RE MAKING PROGRESS

Boeing is working to preserve clean water, land and air for everyone!

We build, design and service cleaner commercial and military airplanes that reduce fuel use, emissions and community noise.

BY 2025

BOEING IS COMMITTED TO:



Reducing its Greenhouse gas emissions by

25%



Cutting hazardous waste generation by

5%



Lowering water consumption by

20%



Decreasing energy consumption by

10%



Cutting its solid waste to landfill by

20%



- We recognize your recent sustainable efforts
- Business Transformation Efforts
- Net-zero carbon aviation sector by 2050

Our Recommendation: 797G

- Single aisle midsize
- 50 Kerosene 50 SAF/Biofuel Blend
- 230 seats
- 10-12 hours range (5000nm or 9300km)
- Direct competition with A321XLR
- Replacement for 757
- \$200 million list price
- Enter service in early 2028



Market Trends

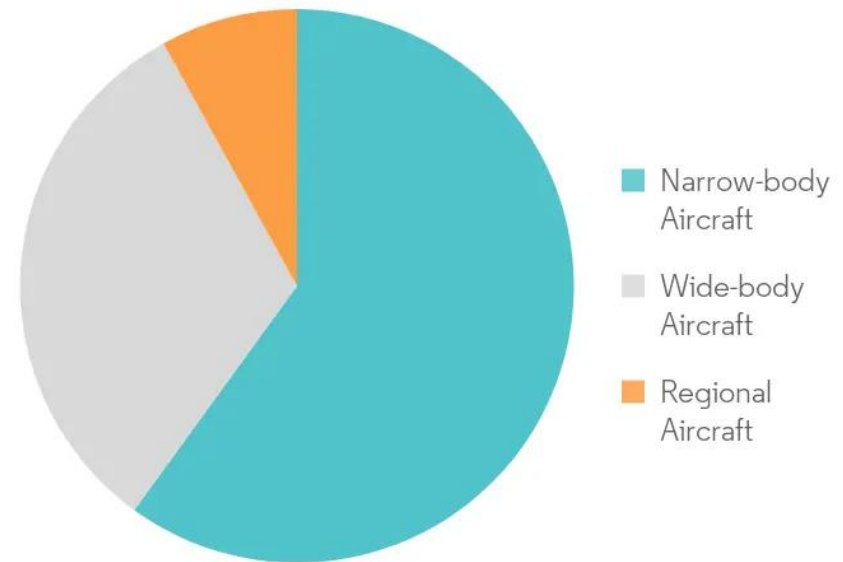
- Narrow body predicted to grow to 65%-70% by 2031
- Airbus controls 60% of Narrow Market
- \$7.2 trillion in predicted contracts through 2031
- Boeing becomes strong competitor

Boeing product line-up vs. the competition

Superior value, efficient market coverage



Commercial Aircraft Market - Revenue Share (%), by Aircraft Type, Global, 2020



Source : Mordor Intelligence



Financial Analysis of the 797G

| in millions | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|----------|------------|------------|------------|------------|------------|------------|----------|------------|------------|------------|------------|
| Initial Program Costs | \$6,667 | \$6,667 | \$6,667 | | | | | | | | | | | | | | | |
| Continued R&D | | | | \$1,500 | \$1,500 | \$1,500 | \$1,500 | \$1,500 | | \$1,500 | \$1,500 | | \$1,500 | \$1,500 | \$1,500 | \$1,500 | \$1,500 | \$1,500 |
| Continued Development | | | | | | | | | \$3,000 | | | \$6,000 | | | | | | |
| Planes Delivered | | | | 180 | 220 | 340 | 460 | 450 | 500 | 500 | 500 | 500 | 300 | 340 | 400 | 450 | 500 | 500 |
| Sale Price | | | | \$120 | \$120 | \$120 | \$120 | \$120 | \$120 | \$120 | \$120 | \$120 | \$134.40 | \$134.40 | \$134.40 | \$134.40 | \$134.40 | \$134.40 |
| Cost of Goods Sold | | | | \$132 | \$126 | \$120 | \$114 | \$108 | \$102 | \$102 | \$102 | \$102 | \$134.40 | \$127.68 | \$120.96 | \$114.24 | \$114.24 | \$114.24 |
| Profit/Loss Per Plane | | | | (\$12.00) | (\$6.00) | \$0.00 | \$6.00 | \$12.00 | \$18.00 | \$18.00 | \$18.00 | \$18.00 | \$0.00 | \$6.72 | \$13.44 | \$20.16 | \$20.16 | \$20.16 |
| Revenue/Loss from Operations | | | | (\$2,160) | (\$1,320) | \$0 | \$2,760 | \$5,400 | \$9,000 | \$9,000 | \$9,000 | \$9,000 | \$0 | \$2,285 | \$5,376 | \$9,072 | \$10,080 | \$10,080 |
| Annual Cash Flow | (\$6,667) | (\$6,667) | (\$6,667) | (\$3,660) | (\$2,820) | (\$1,500) | \$1,260 | \$3,900 | \$6,000 | \$7,500 | \$7,500 | \$3,000 | (\$1,500) | \$785 | \$3,876 | \$7,572 | \$8,580 | \$8,580 |
| Present Value of Cash Flow | (\$6,376.00) | (\$6,098.01) | (\$5,832.14) | (\$3,062.24) | (\$2,256.56) | (\$1,147.97) | \$922.25 | \$2,730.12 | \$4,017.06 | \$4,802.39 | \$4,593.01 | \$1,757.10 | (\$840.25) | \$420.45 | \$1,986.00 | \$3,710.60 | \$4,021.25 | \$3,845.92 |
| NPV | | | | | | | | | | \$7,192.99 | | | | | | | | |

NOTES

| |
|---|
| 1) Initial Program Cost Spread of 3 Years |
| 2) Rework Cost is due to innovation of new technology |
| 3) Planes sold ramp up with each new release |
| 4) Initial COGS +10% of sale price due to start up costs for 797G (constructing of facilities that manufacture parts for the 797G). Expect with innovation and improvements to process, incremental 5% decrease Y-o-Y |
| 5) COGS of 797Gx breaks even with incremental decrease of 5% Y-o-Y |

| in millions | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|------------|------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Initial Program Costs | \$6,667 | \$6,667 | \$6,667 | | | | | | | | | | | | | | | |
| Continued R&D | | | | \$1,500 | \$1,500 | \$1,500 | \$1,500 | \$1,500 | | \$1,500 | \$1,500 | | \$1,500 | \$1,500 | \$1,500 | \$1,500 | \$1,500 | \$1,500 |
| Continued Development | | | | | | | | | \$3,000 | | | \$6,000 | | | | | | |
| Planes Delivered | | | | 180 | 220 | 340 | 460 | 450 | 500 | 500 | 500 | 500 | 300 | 340 | 400 | 450 | 500 | 500 |
| Sale Price | | | | \$200 | \$200 | \$200 | \$200 | \$200 | \$200 | \$200 | \$200 | \$200 | \$224.00 | \$224.00 | \$224.00 | \$224.00 | \$224.00 | \$224.00 |
| Cost of Goods Sold | | | | \$220 | \$210 | \$200 | \$190 | \$180 | \$170 | \$170 | \$170 | \$170 | \$224.00 | \$212.80 | \$201.60 | \$190.40 | \$190.40 | \$190.40 |
| Profit/Loss Per Plane | | | | (\$20.00) | (\$10.00) | \$0.00 | \$10.00 | \$20.00 | \$30.00 | \$30.00 | \$30.00 | \$30.00 | \$0.00 | \$11.20 | \$22.40 | \$33.60 | \$33.60 | \$33.60 |
| Revenue/Loss from Operations | | | | (\$3,600) | (\$2,200) | \$0 | \$4,600 | \$9,000 | \$15,000 | \$15,000 | \$15,000 | \$15,000 | \$0 | \$3,808 | \$8,960 | \$15,120 | \$16,800 | \$16,800 |
| Annual Cash Flow | (\$6,667) | (\$6,667) | (\$6,667) | (\$5,100) | (\$3,700) | (\$1,500) | \$3,100 | \$7,500 | \$12,000 | \$13,500 | \$13,500 | \$9,000 | (\$1,500) | \$2,308 | \$7,460 | \$13,620 | \$15,300 | \$15,300 |
| Present Value of Cash Flow | (\$6,376.00) | (\$6,098.01) | (\$5,832.14) | (\$4,267.06) | (\$2,960.74) | (\$1,147.97) | \$2,269.02 | \$5,250.23 | \$8,034.11 | \$8,644.30 | \$8,267.41 | \$5,271.30 | (\$840.25) | \$1,236.49 | \$3,822.37 | \$6,674.38 | \$7,170.76 | \$6,858.12 |
| NPV | | | | | | | | | | \$35,976.36 | | | | | | | | |

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40%
Discount

No
Discount

Initial Project Costs: **\$20 Billion**

Discounted List Price: **\$120 Million**

Profit Margin: **15%**

R&D Costs: **\$1.5 Billion**

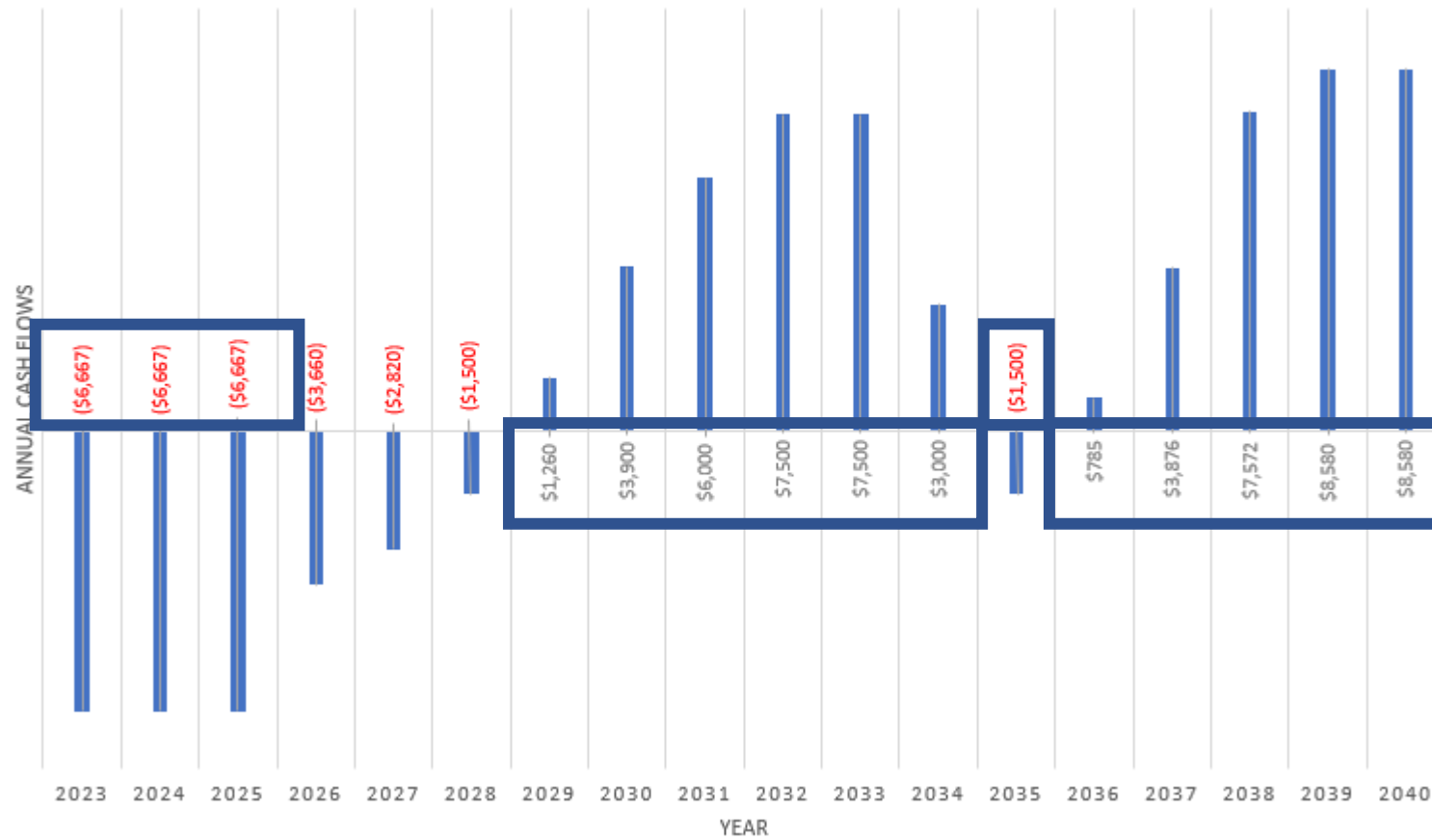
Cost of Innovation:

**Cost of New Facilities, Manufacturing
of machines, new technology, etc.**

Net Present Value:

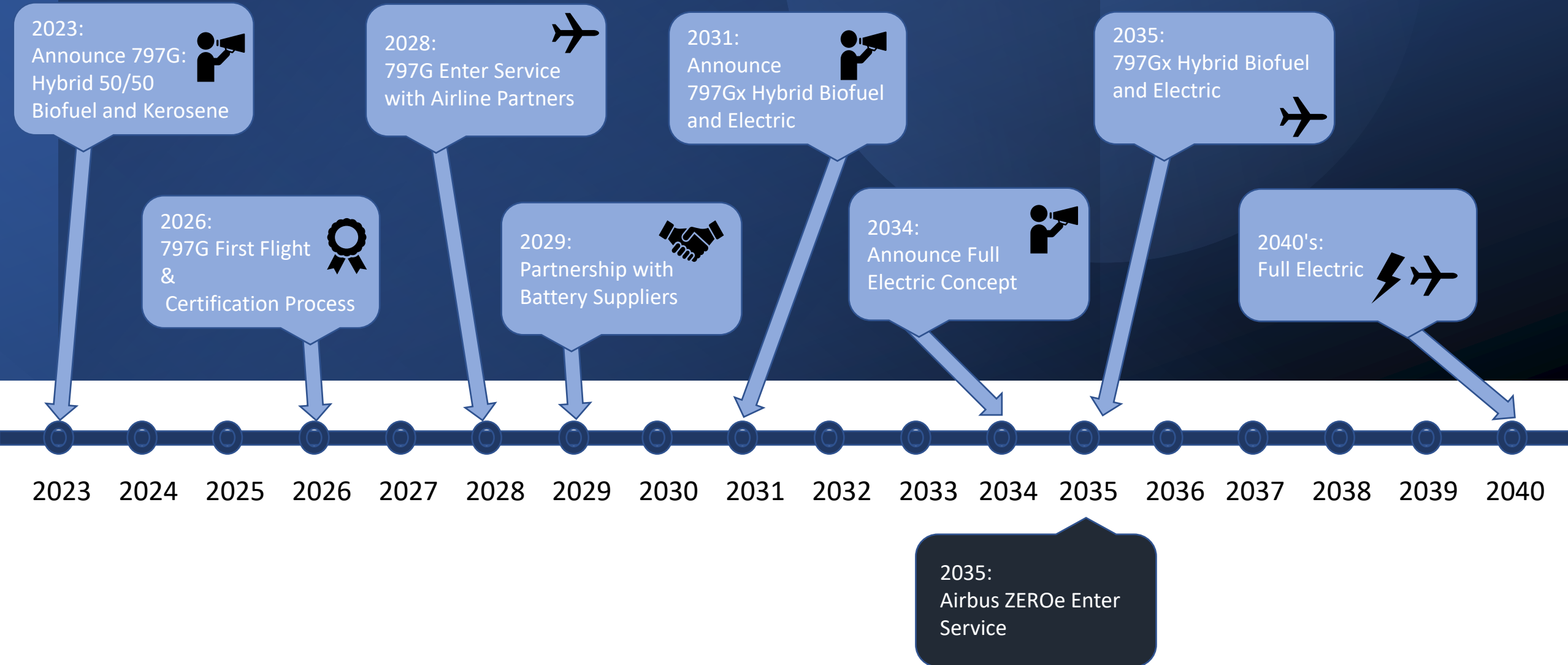
About \$5.5 Billion

BOEING 797 ANNUAL CASH FLOWS (IN MILLIONS)



Payback Period: 11.2 Years

Implementation Timeline



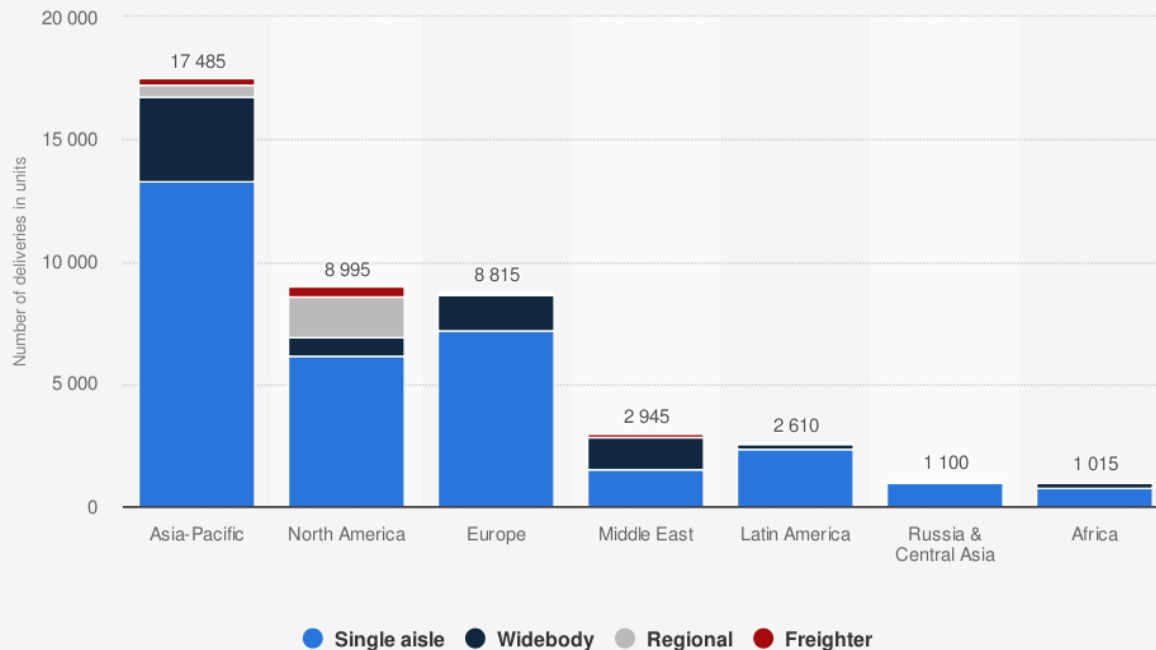
Performance: Goals & Measurements

- First to market with Commercial Hybrid in 2028
- "100% SAF" 2035 to compete against Airbus ZEROe
- "Full-Electric" 2040's
- Claim Narrow Body Market Share of at Least 30% by 2031
- 80 Debt 20 Equity by the end of 2034



Risk & Considerations

Projected aircraft deliveries in the global commercial aircraft fleet from 2020 to 2039,
by aircraft type and region (in units)



Source
Boeing
© Statista 2020

Additional Information:
Worldwide; Boeing; 2019

Competing against Airbus in their Territory

- Introducing an aircraft with 230 Seat Capacity

Global Markets – China

- 2nd Largest Aviation Market
- Boeing China Delivery Centers

In conclusion...



Connect, Protect, Explore, and Inspire the world through aerospace innovation

Engineering Excellence | Accountability | Lean Principles | Eliminate Traveled Work | Reward Predictability and Stability

...and thank you for your time!