

Boeing 777-300ER Economic Impact

How MSG Group's Automated Touchless Washing Technology Creates Value for Airlines, Airports and MROs



Why Clean Aircraft Matter

Contamination Creates Costs

Aircraft accumulate:

- Salt deposits & carbon residue
- Hydraulic fluids
- Insect contamination & pollution

Resulting Operational Impacts:

- ✈ Increased drag & higher fuel burn
- ✈ Elevated corrosion risk
- ✈ Increased maintenance costs
- ✈ Reduced aircraft appearance



Boeing 777-300ER Fleet Profile

Typical Characteristics:

- 365 passengers capacity
- Long-haul global operations
- 5,000–6,000 flight hours/year
- Fuel consumption: 6.8–7.5 tonnes/hour
- Asset value: US\$150–200 million

Why This Matters

"Given the immense scale and operational hours of the B777-300ER, even small fuel savings create substantial annual economic benefits."

MSG Touchless Technology Comparison

Traditional Aircraft Wash

- Takes 4–6 hours
- Requires large teams
- Significant water use
- Aircraft unavailable during cleaning

MSG Technology

- Takes approximately 20 minutes
- Fully automated and touchless
- Approx 300 liters of fresh water & recovery
- Minimal aircraft downtime

Direct Fuel Savings

Example Assumptions:

Annual flight hours: **5,500**

Fuel burn: **7 tonnes/hour**

Annual fuel consumption: **38,500 tonnes**

Improvement from cleaner aircraft: **0.5–1.5%**

**Annual fuel savings: US\$100,000–
300,000**

Annual Fuel Savings range from \$100K to \$300K per aircraft

Estimated Savings per aircraft



A highly impactful economic driver for airline operations.

Maintenance & Corrosion Reduction

Key Benefits:

- Reduced salt contamination
- Reduced paint deterioration
- Reduced corrosion inspections
- Longer coating life
- Improved aircraft residual value

Estimated Annual Value:

US\$ 50,000–150,000

Aircraft Availability

Traditional Wash:

Aircraft unavailable for several hours.

MSG Wash:

Approximately 20 minutes.

Potential additional revenue-generating availability.

"For airlines, availability often matters more than the direct washing costs."

Environmental Impact

For one Boeing 777-300ER:

Water Savings

Traditional: 500–1,000 liters

MSG System: **approx 300 liters**

Emissions & ESG

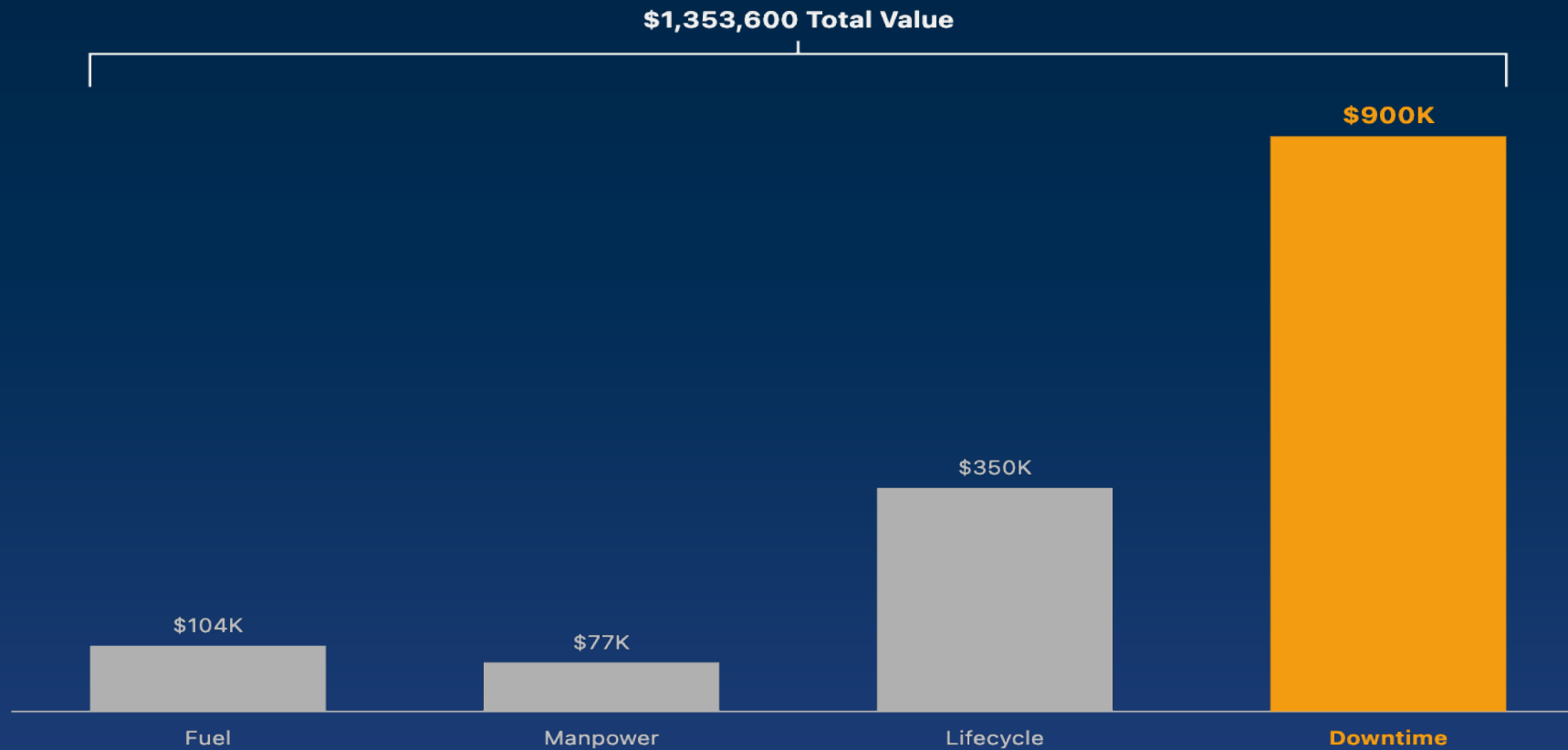
CO₂ Reduction: **~310 tonnes/year**

Sustainability: Supports airline ESG objectives

Total Annual Economic Benefit

Total Annual Benefit: US\$1,353,600 per Aircraft

Total Annual Value per Aircraft reaches \$1,353,600, driven by Downtime



Fleet Impact

Fleet impact scales linearly, reaching \$135M annually for 100 aircraft

Annual Benefit (Millions USD)

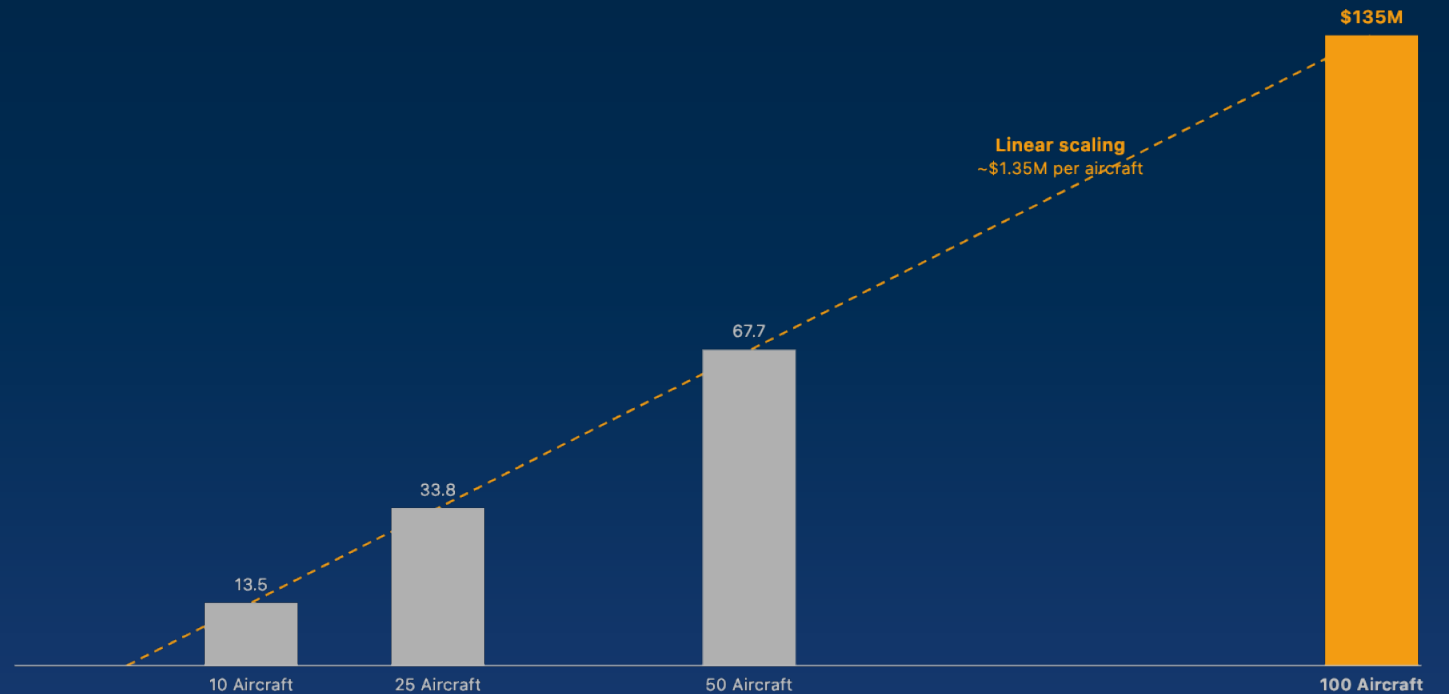
10 Aircraft: **US\$13.5M**

25 Aircraft: **US\$33.8M**

50 Aircraft: **US\$67.7M**

100 Aircraft: **US\$135.0M**

*"This immediately attracts
airline CFOs."*



Why MSG is Different

- ✓ 100% Touchless
- ✓ 20-minute wash cycle
- ✓ Approx 300 liters fresh water
- ✓ Closed-loop recovery system
- ✓ Future AI inspection capability
- ✓ Engine wash capability
- ✓ De-icing capability
- ✓ De-sanding capability

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✈ Transforming Aircraft Downtime into Revenue



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