



# **Scenario Analysis of Aircraft Leasing Business**

## Scenario Analysis Details (by Process)

Assess materiality of climate-related risks

Climate Change Risks and Opportunities in the Aviation and Leasing Industries

Only items assessed and identified as having a significant impact on business are shown below.

Items (Risks and Opportunities)	Timeline	Expected Impact on Business			
		Risks		Opportunities	
		Aviation Industry	Leasing Industry	Aviation Industry	Leasing Industry
Carbon emission targets and policies of each country	Medium term (2030)	—	<ul style="list-style-type: none"> <li>Decline in asset value of older aircraft due to lower demand for leasing</li> </ul>	<ul style="list-style-type: none"> <li>Countries with stringent airport entry regulations may set higher barriers to entry into domestic routes. Owning Next Generation Aircraft*1 will be a competitive advantage</li> </ul>	—
	Long term (2050)	<ul style="list-style-type: none"> <li>Potential prohibition of landing and departing for older aircraft due to the carbon emission regulations in each country</li> </ul>	<ul style="list-style-type: none"> <li>Leasing demand impacted by the decline in passengers traffic caused by travelers choosing alternative means of transport</li> </ul>	<ul style="list-style-type: none"> <li>Owning many New Generation Aircraft*2 such as electric aircraft will be a competitive advantage</li> </ul>	—
Aviation industry regulations (CORSIA)	Medium term (2030)	<ul style="list-style-type: none"> <li>CORSIA*3 regulations started in 2021 (1) Improve fuel efficiency by an annual average of 2% to 2050 (2) Cap CO<sub>2</sub> emissions at 2019 level</li> <li>Requires a shift to bio-jet and other fuels to comply with the regulations</li> </ul>	<ul style="list-style-type: none"> <li>Earnings opportunities may decrease unless a sufficient number of Next Generation Aircraft*1 is secured</li> <li>Companies would require a restructuring on its portfolio, while the asset value of older aircraft decline</li> </ul>	—	<ul style="list-style-type: none"> <li>Securing a sufficient number of Next Generation Aircraft*1 will increase earnings opportunities</li> </ul>
	Long term (2050)	<ul style="list-style-type: none"> <li>Potential future CORSIA*3 revisions resulting in a more stringent reduction targets</li> </ul>	<ul style="list-style-type: none"> <li>Potential restrictions on financing/lending and leasing to airline companies that do not meet the standards</li> </ul>	<ul style="list-style-type: none"> <li>Owning more New Generation Aircraft*2 such as electric aircraft will be a competitive advantage</li> </ul>	—
Spread of Next Generation Aircraft*1 and New Generation Aircraft*2	Medium term (2030)	—	<ul style="list-style-type: none"> <li>Earnings opportunities may decrease as competitors rapidly introduce Next Generation Aircraft*1 and New Generation Aircraft*2</li> <li>The spread of Next Generation Aircraft*1 will result in a decline in asset value of older aircraft owned</li> </ul>	—	—
	Long term (2050)	<ul style="list-style-type: none"> <li>Demand for a rapid shift towards New Generation Aircraft*2 will result in a large financial burden</li> </ul>	<ul style="list-style-type: none"> <li>Potential rapid decline in value of current Next Generation Aircraft*1</li> </ul>	<ul style="list-style-type: none"> <li>Many emerging manufacturers begin producing small electric aircraft, resulting in lower prices for competing traditional aircraft</li> </ul>	<ul style="list-style-type: none"> <li>Potential increase in earnings and asset value from an owned portfolio with a sizable number of New Generation Aircraft*2</li> </ul>
Change in evaluation by investors	Medium term (2030)	—	<ul style="list-style-type: none"> <li>Possibility that it may become difficult to procure funds from investors for older aircraft</li> </ul>	—	<ul style="list-style-type: none"> <li>Preferential interest rates (tighter spreads) offered for Next Generation Aircraft*1 and New Generation Aircraft*2</li> </ul>
	Long term (2050)	<ul style="list-style-type: none"> <li>Possibility that the aviation industry will become a divestment target</li> </ul>	<ul style="list-style-type: none"> <li>Lower ESG ratings may lead to difficulties in procuring financings</li> </ul>	—	—

\*1: Next Generation Aircraft: Low-carbon aircraft based on improved fuel efficiency, lighter body, and other features

\*2: New Generation Aircraft: Blended Wing Body (BWB) passenger aircraft, alternative fuel aircraft, electric aircraft, hydrogen-powered aircraft, etc.

\*3: CORSIA: Carbon Offsetting and Reduction Scheme for International Aviation

## Identify and define range of scenarios

Our analysis is based on the following scenarios adopted by the Intergovernmental Panel on Climate Change (IPCC) and International Energy Agency (IEA).

Climate Change Scenario	4°C Scenario	Well Below 2°C or 1.5°C Scenario
Reference Scenario	SSP5 adopted by IPCC*1	SDS adopted by IEA (ETP 2020)*2
Scenario World View (Image of Future Society)	Transportation needs of people and goods rise, leading to an expanded demand in airline operations and an increase in the number of leased aircraft	Stricter regulations such as carbon taxes and emissions trading requirements imposed, increased number of leased New Generation Aircraft, while the shift to alternative means of transportation may reduce demand
Main Parameters	GDP growth rate and rate of increase in the number of aircraft	Growth rate of passenger transport volume, and rate of increase in the number of aircraft

### \*1: IPCC Shared Socio-economic Pathways (SSP)

Different socio-economic assumptions (such as population, GDP growth rate, level of education) are designated for each scenario from SSP1 to SSP5 to determine the feasibility of climate policies and degree of temperature rise under each scenario.

SSP5 (fossil-fueled development) is a scenario based on the following socio-economic assumptions.

Economic and social development is driven by placing greater faith in rapid technological progress, competitive markets, innovation, and participatory societies. Growth under this scenario is tied to developing fossil fuels and choosing a lifestyle that consumes massive amounts of resources and energy.

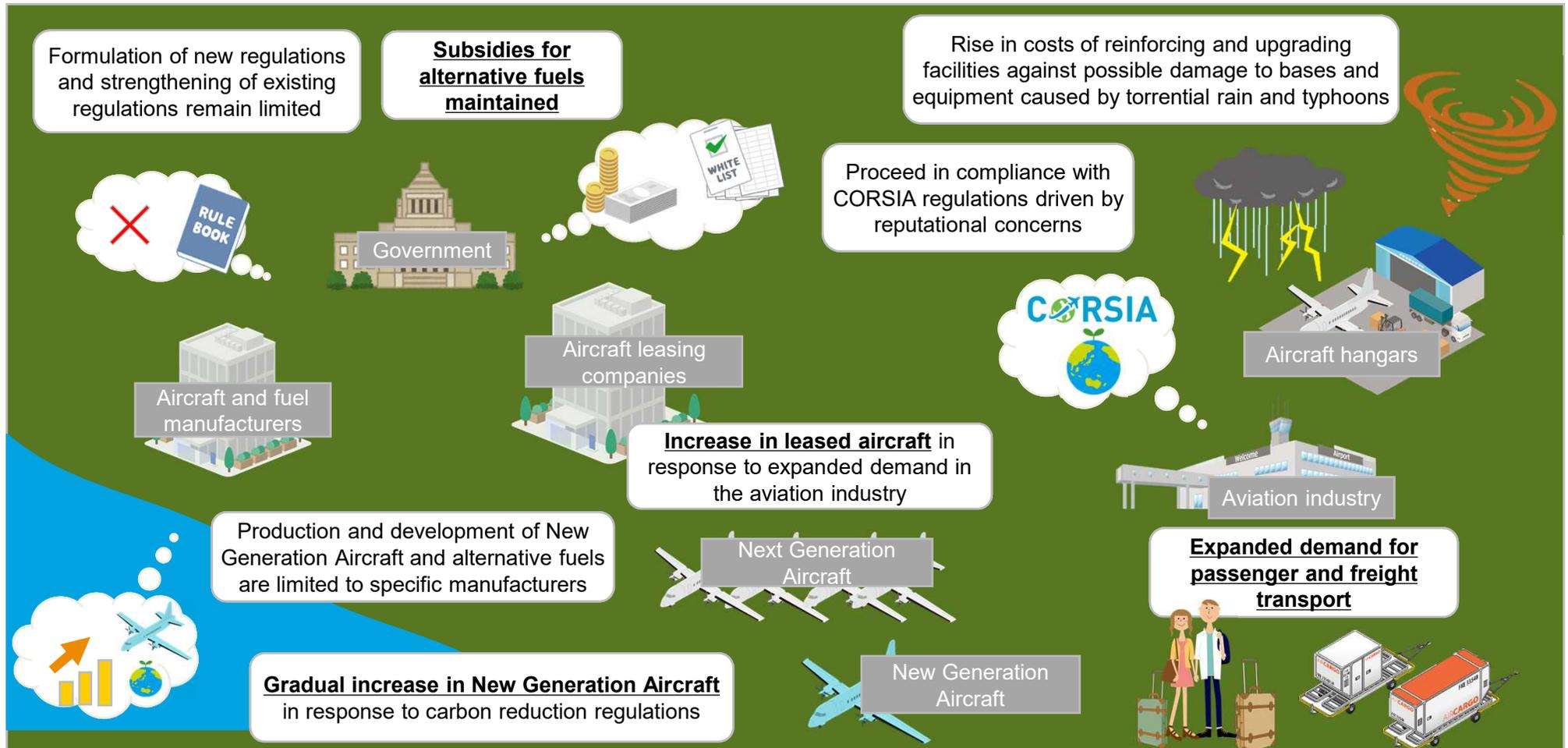
### \*2: Sustainable Development Scenario (SDS) for a temperature rise of up to 1.5°C adopted by the IEA's Energy Technology Perspective (ETP) 2020

**Definition:** An integrated scenario that clearly expresses the policies and measures necessary for achieving three of the 17 Sustainable Development Goals (SDGs) of ensuring healthy lives and promoting well-being for all at all ages (SDG 3); ensuring access to affordable, reliable, sustainable, and modern energy for all (SDG 7); and taking urgent action to combat climate change and its impacts (SDG 13).

**Objectives:** To demonstrate a plausible path to concurrently achieve universal energy access, set a path toward meeting the objectives of the Paris Agreement on climate change and significantly reduce air pollution.

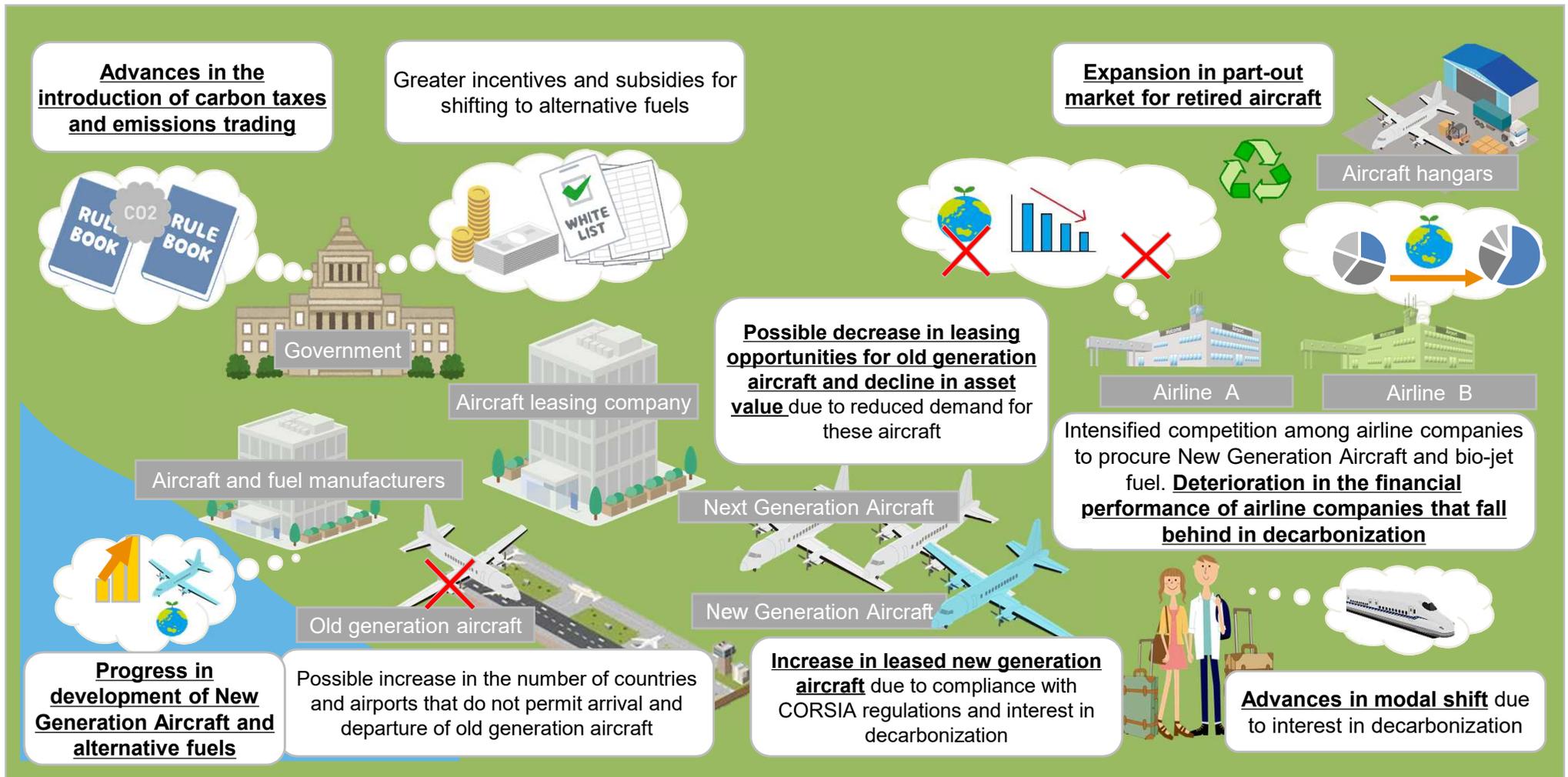
## World View of the 4°C Scenario

### Transportation needs of people and goods rise, leading to expanded demand in airline operations and an increase in the number of leased aircraft



## World View of the Well Below 2°C or 1.5°C Scenario

Stricter regulations such as carbon taxes and emissions trading requirements imposed, increased number of leased New Generation Aircraft, while the shift to alternative means of transportation may reduce demand



## Evaluate business impacts

To assess the impact of climate change on the aircraft leasing business, we adopted the IPCC's SSP scenario and the IEA's SDS (ETP 2020) to calculate the impact on business profit (ordinary income) in 2050. Our 2050 pro-forma pre-scenario-based business profit (ordinary income) has been estimated taking into account our business plan as well as GDP growth rate and other factors.

### 4°C Scenario

Under the IPCC's SSP5/fossil-fueled development scenario, which is equivalent to the 4°C Scenario, the expansion in demand for aircraft brought significant positive impact on leasing income, while the impact of impairment losses due to, among other things, the creditworthiness of airlines remained immaterial. The calculation result showed greater business profit (ordinary income) from the aircraft leasing business compared to that of pre-scenario-based business.

### Well Below 2°C or 1.5°C Scenario

Under the IEA's SDS, which is equivalent to the Well Below 2°C (preferably to 1.5°C) Scenario, air passenger transport volume is expected to grow by an annual rate of 2.8% (from 2019 to 2050) despite the underlying stricter assumption on energy regulations. Impact from the introduction of carbon taxes and stricter regulations on CO<sub>2</sub> emissions is expected to reduce leasing income and raise the impairment rate and therefore the result showed a decrease in business profit (ordinary income) from the aircraft leasing business compared to that of pre-scenario-based business. However, we view that it is possible to maintain a reasonable level of profit owing to the rise in air passenger transport volume.

The result of the scenario analyses showed that climate change will have a limited impact on the aircraft leasing business. Nevertheless, based on these analyses, we will continue to strengthen our resilience against climate change and capture business opportunities therein toward achieving sustainable growth.

## Identify potential responses

Given the results of analysis for our aircraft leasing business, we will pursue the following initiatives (countermeasures).

Issues	Major Ongoing Initiatives	Initiatives (Countermeasures) for Future Consideration
<p><b>Contraction of demand</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Capture opportunities for expanding assets that are in high demand through orderbook and other sources (orderbook delivery slots available through 2028)</a></li> <li>• Expand part-out and P to F conversion businesses</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Invest in new assets related to bio-jet fuel, hydrogen-powered aircraft, electric aircraft, and other assets and participate in related businesses</a></li> </ul>
<p><b>Rise in impairment rate</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Restructure portfolio by addressing asset risk (focus on narrow-body aircraft with low average age and high liquidity, diversify expiration dates, and other measures)</a></li> <li>• Conduct periodic monitoring of asset value volatility through Value at Risk (VAR) model on a consolidated basis</li> <li>• Setting the ratio of Next Generation Aircraft (fuel-efficient aircraft) in the portfolio as a KPI (FY2020 result: 41%)</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce portfolio risk by diversifying and expanding lessee base and shifting towards Next Generation Aircraft</li> <li>• Enhance the asset turnover business to realize the early sale of owned aircraft and improve profitability</li> <li>• Expand asset management business extended to third parties post sale of aircraft</li> </ul>