

# Regulatory Impact Statement for Amendments to Civil Aviation Rule Part 121: Air Operations (Large Aeroplanes)

## Agency disclosure statement

1. This Regulatory Impact Statement (RIS) has been prepared by the Ministry of Transport with assistance from the Civil Aviation Authority (CAA). It provides an analysis of options to:
  - improve the safety of large aeroplane operations by ensuring flight crew assignment, training and competency requirements align with International Civil Aviation Organization standards (ICAO);
  - ensure a clearer and more transparent application of Part 121 by reducing or removing unnecessarily restrictive rule requirements which, in some cases has forced industry to incur needless compliance costs.
2. There is some uncertainty concerning the analysis because New Zealand has not experienced a significant accident during training or competency assessment in large aeroplanes since 1966<sup>1</sup>. Parts of the regulatory analysis are therefore based on international accident data which has identified human factors as a significant safety risk.<sup>2</sup>
3. The regulatory proposal will impose compliance costs on some operators of large sized aeroplanes. However, the proposed amendment should reduce costs to operators by removing the need to seek exemptions and providing increased flexibility to achieve compliance. Our assumption is that the proposed rule amendments will result in reduced safety risks and improved safety outcomes for New Zealand's travelling public. Industry unanimously support the preferred option to amend Part 121.
4. The proposal will not impair private property rights, market competition, or the incentives on businesses to innovate and invest, or override any of the fundamental common law principles. The proposal is consistent with our commitments in the Government statement *Better Regulation, Less Regulation*.

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<sup>1</sup> On 4 July 1966 an Air New Zealand DC-8-52 crashed at Auckland International Airport when taking part in a routine crew training flight. Two occupants died in the crash.

<sup>2</sup> Human factors involves the study of the human's capabilities, limitations, and behaviours, and the integration of that knowledge into the design of systems to reduce error, enhance safety and improve efficiency.

## Status quo & problem definition

5. Part 121 Air Operations – Large Aeroplanes, prescribes requirements for the operation of aircraft with seating capacities of more than 30 passengers or payload capacity exceeding 3410kg. There are approximately 104 aeroplanes in this category in New Zealand and 1452 flight crew members. There are eight Part 121 operators<sup>3</sup>, with fleet sizes varying between 1 and 49 aeroplanes in the Part 121 category. Operations cover domestic and international flights, and passenger and freight operations.
6. Part 121 includes requirements for flight crew member assignment, training and assessments, as part of large air operators' certification requirements.<sup>4</sup> These apply to pilots, flight attendants, engineers, examiners and instructors, and are in addition to the pilot licensing and rating obligations set out in Part 61 – Pilot Licences and Ratings.
7. Aviation plays a crucial role in New Zealand's economic wellbeing, generating around \$10 billion revenue per annum. The performance of the aviation sector is vital to a tourism sector that accounts for approximately 185,000 jobs and contributes close to 10 percent of gross domestic product.<sup>5</sup>

### ***Safety risks and non-compliance with international safety standards***

8. New Zealand has not experienced a significant accident during training or competency assessment since 1966. This is consistent with New Zealand's relatively low volume of air traffic and the low probability (but high consequence) nature of air transport accidents. For this reason, New Zealand looks to the international community, where a larger set of accident data highlights new and emerging risks.
9. Studies conducted by international aviation organisations such as the National Transport Safety Bureau in the United States and the Australian Transport Safety Bureau have researched incident and accident investigations and found that at least 70 percent of all aviation accidents and serious incidents have human factors as the primary causal factor. ICAO and many leading National Aviation Authorities have, for some time, included human factors as an integral part of crew member training.
10. Under Section 14(b) of the Civil Aviation Act 1990 (the Act), an objective of the Minister of Transport is to ensure that New Zealand's obligations under international civil aviation agreements are implemented. New Zealand is also obligated under Article 38 of the Convention on International Civil Aviation to notify ICAO if New Zealand has different minimum standards than ICAO. Differences are published by ICAO and made available to all member-states. New Zealand has six differences filed with ICAO relating to the assignment, training and competency sections of Part 121.
11. Part 121 is not consistent with ICAO standards relating to crew member training and human factors.<sup>6</sup> The consequences of New Zealand failing to align with relevant ICAO standards include:

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<sup>3</sup> Air NZ, Air Chathams, Air Freight NZ, Air Nelson, Airwork Flight Operations, Jetconnect, Mt Cook Airline and Vincent Aviation.

<sup>4</sup> Subparts H, I and J of Part 121.

<sup>5</sup> Tourism Industry Association New Zealand (2011) Key Tourism Statistics, available online at: <http://www.tianz.org.nz/main/key-tourism-statistics/> (last accessed 24 November 2011).

<sup>6</sup> ICAO standards reflect what international regulators agree constitute a minimum requirement for responding to actual and emerging risks common to all member states.

- Direct risks to passenger safety, from a higher probability of accidents. The consequences of an accident involving a large passenger transport aeroplane would be extremely high, in terms of human life, social cost, and impact on tourism.
- Damage to the New Zealand aviation sector's reputation and the perceived reliability of New Zealand-operated aeroplanes overseas. A poor reputation can have significant consequences. For example, the United States Federal Aviation Authority downgraded Mexico to "Category Two" in July 2010 and suspended all Mexican air carriers from establishing new services to the United States until it was able to fully comply with all international safety standards.<sup>7</sup>
- Safety concerns about New Zealand airspace. Tourism may be threatened if domestic airspace is viewed as dangerous by overseas consumers.
- Safety concerns from other airlines in partnership with New Zealand airline operators who may consider New Zealand's airspace is unsafe.
- The overseas employability of New Zealand-trained flight crew is potentially limited as their training is less comprehensive compared to their overseas counterparts.

12. While ICAO standards do not apply to domestic aviation, it would be impractical and undesirable to have a separate set of rules for domestic and international operations in Part 121 aeroplanes. As an example, a passenger who travels from Los Angeles to Nelson on Air New Zealand will travel two sectors; the first on a Boeing 777-300 and the second on a Bombardier Q300. The passenger could reasonably assume that the operating standards and thus the level of safety in aircraft operated by the same airline or a subsidiary will be consistent.

*Some requirements are unnecessarily restrictive and poorly drafted*

13. Certain Part 121 requirements are overly restrictive and impose unnecessary compliance costs on operators. For example, experience requirements for certain crew member roles were drafted with specific technology and operating practices in mind, which are no longer current or in use. This has resulted in the CAA processing over 144 exemptions since 1999.<sup>8</sup> While exemptions relieve operators from overly restrictive requirements, applications cost money and create uncertainty, particularly where an operator is waiting to use a pilot whom they consider to be sufficiently qualified and experienced for a certain type of aircraft. Costs include:

- Costs to affected operators, either through implementing internal changes to comply with an unnecessary requirement or through applying for exemptions.
- Cost to potential entrants who may view the requirement as complex and an unnecessary compliance cost and not enter the sector.
- Cost to consumers as operators' costs are passed on to transport users.
- Cost to the CAA through reviewing exemption requests and notifying decisions.

<sup>7</sup> Federal Aviation Administration, 30 July 2010 Press Release, available online at:

[http://www.faa.gov/news/press\\_releases/news\\_story.cfm?newsId=11657](http://www.faa.gov/news/press_releases/news_story.cfm?newsId=11657) (last accessed 24 November 2011).

<sup>8</sup> The Act permits the Director of Civil Aviation to grant exemptions from any requirement in civil aviation rules, provided that the risk to safety will not be significantly increased.

14. Some requirements in Part 121 are poorly drafted or contain drafting errors that in some situations have led to operators complying with unintended restrictions.

### **Objectives**

15. The policy objectives of the regulatory proposal are to provide a safe and secure aviation system, with clearer rules and minimised compliance costs for operators.

### **Impact analysis**

16. In light of the recognised safety risks, the importance of New Zealand complying with ICAO standards, and the unnecessary compliance costs faced by some operators, the status quo has been rejected. The CAA identified and evaluated a number of interventions that could potentially remedy the problems and meet the objectives. A comparative summary of these options is presented in Appendix A.

- Option one: Enhancing the status quo and notifying ICAO of any differences. Under this option the exemptions process would be streamlined to reduce the costs incurred from requesting, processing and granting exemptions and approvals, clear guidelines would be developed to explain how exemptions are granted, and the advisory circular on human factors would be published. It does not however, set an enforceable standard.
- Option two: Linking Part 121 requirements to the corresponding ICAO standards. This option could ensure Part 121 requirements are consistent with ICAO standards by developing a reference system to point operators towards the relevant ICAO standard. This would however impose monitoring costs on the CAA and operators to ensure any updates to relevant ICAO standards and recommended practices are reflected in practice. The standards would not be contextualised for New Zealand circumstances.
- Option three – Preferred option: Update Part 121 to meet ICAO standards and ensure the use of more precise language to promote clarity and transparency. To improve flexibility and reduce the regulatory burden, several minor changes are proposed to enable alternative methods of complying with some requirements.

### ***Impact of preferred option***

17. The preferred option is a pre-emptive move to reduce safety risks by enhancing the human factors skills of flight and cabin crew in the New Zealand aviation industry. This option would meet ICAO standards and effectively remove the six differences previously filed for Part 121.
18. A summary of the proposed changes is presented in Appendix B. In practical terms the rule change will mean operators need to update existing operating and training manuals, educate staff on changes, upgrade or acquire new equipment and conduct more frequent training. The costs associated with these requirements are explained in the costs section below.
19. While all proposed changes impact Part 121 operators, not all involve an easily quantifiable cost or benefit. Changes to improve clarity and transparency by rewording, restructuring, or merging requirements do not impose any additional costs, but should assist in providing certainty to operators and potential entrants.

### Costs

20. Operators anticipate implementation costs ranging from nil to \$35,000 per operator, and on-going compliance costs to be no more than \$10,000 per annum. One operator anticipates a reduction of \$20,000 in on-going compliance costs as a result of the changes to Part 121. The table below presents the maximum expected increase in costs over ten years and calculates its present value using a discount rate of eight percent.

#### *Estimated costs to industry over ten years*

	<b>Implementation costs</b>	<b>On-going compliance costs (per year)</b>	<b>10 year Present Value</b>
Maximum expected cost	\$280,000	\$80,000	<b>\$721,992</b>

21. These expected costs reflect the fact that in some cases operators already adhere to the ICAO standards that Part 121 will implement. Industry has been closely involved in reviewing Part 121 and suggesting amendments according to best practice. This is particularly the case where a requirement is to be relaxed or removed, eliminating the need for an exemption. However, CAA acknowledges that any additional compliance costs as a result of new requirements in Part 121 may vary between operators. The cost impact on operators will not, however, be significant.

### **Benefits**

22. The most substantial (but difficult to quantify) benefits are likely to have three different dimensions:

- Economic benefits of integration with the international civil aviation system
  - Compliance with ICAO standards and alignment with international practise allows New Zealand operators to develop and maintain strong links with other ICAO contracting nations. Maintaining the confidence of foreign aviation bodies in the New Zealand aviation system will support the domestic aviation sector's performance, maintain confidence in the tourism sector by being seen as a country with a safe aviation industry, align New Zealand's civil aviation regulation with major trading partners, and improve the overseas employability of New Zealand pilots and flight crew.
- Improving consumer and crew member safety
  - The proposed changes to Part 121 prescribe additional safety standards. Incorporating these into the existing safety standards will enhance the ability of New Zealand-trained crew members, providing a higher level of safety for passengers.
- Reducing regulatory costs and entry barriers through greater rule clarity
  - By updating the language and terminology in Part 121, information about best practice will be more effectively communicated to industry. Remedying drafting anomalies and out of date provisions will clarify compliance and increase certainty for operators, and reduce barriers to new entrants.

23. Part 121 will remove a number of requirements. Industry has indicated that this should reduce annual costs, due to a reduction in exemption application costs and administration, and increased flexibility for operator compliance.<sup>9</sup>

### **Consultation**

24. The rule development project for Part 121 was undertaken in consultation with a project working group that consisted of technical experts from the aviation industry. A Notice of Proposed Rule Making (NPRM) was issued for public consultation in December 2010. Submissions were received from Air NZ and Jetconnect. Industry unanimously supports the preferred option. Several minor amendments to the proposal in the NPRM were suggested and have been incorporated. A full summary of the submissions is available online [http://www.caa.govt.nz/rules/nprms/NPRM\\_10-03\\_Sum\\_Sub.pdf](http://www.caa.govt.nz/rules/nprms/NPRM_10-03_Sum_Sub.pdf).

### **Conclusion**

25. The preferred option to update Part 121 presents the best improvement on the status quo by ensuring New Zealand meets its international aviation safety obligations and by reducing the regulatory burden operators' face to be Part 121 compliant. Our assumption is that the proposed rule amendments will result in reduced safety risks and improved safety outcomes for New Zealand's travelling public.

### **Implementation**

26. If the rule amendment is approved, the affected operators will be notified and the updated version of Part 121 will be made available on the CAA's website, along with general guidance on how to achieve compliance with the new requirements. A two-year transition period is proposed. A new Advisory Circular will be published at the same time to provide guidance on the new requirements for crew resource management and human factors training.




### **Monitoring, evaluation and review**

27. A review of the changes to Part 121 will be conducted following implementation as part of on-going ICAO commitments, through continued monitoring and evaluation against the CAA's objectives, and through regular audits of operators.

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<sup>9</sup> The proposed changes to Part 121 include revisions to requirements that currently specify a particular crew member role or item of training equipment. These will be replaced with more general terms to remove unnecessary restrictions, and give operators more flexibility to comply through a method that suits—such as investment in alternative training equipment.

## Appendix A: Summary of Options Analysis

	Consistency with ICAO requirements	Safety	Clarity, transparency, and minimised compliance costs
<p><b>1. Enhancing the status quo.</b> Streamline existing processes for exemptions to reduce costs. Establish guidelines (Advisory Circulars, promotion, awareness, information-based interaction with industry) to explain exemption process.</p>	Part 121 will remain inconsistent with ICAO minimum standards and the differences NZ has filed with ICAO standards would remain.	This will not ensure international best practice is followed by operators. In addition it does not provide guidance towards best practice because any exemptions or approvals will pertain to an outdated minimum safety standard.	Minimum requirements remain unclear and create unnecessary costs. Streamlining processes may enable cost savings in the exemptions process but will not eliminate the need to seek exemptions.
<p><b>2. Link Part 121 requirements to corresponding ICAO standards</b> Introduce a referral system into Part 121 which explicitly links with corresponding ICAO requirements.</p>	Linking Part 121 by reference to ICAO standards will ensure compliance with ICAO requirements. It would be reliant on operators interpreting the standards appropriately and keeping up to date with changes. This is more onerous than having the requirements directly in Part 121. The ability to signal best practice to operators would be limited.	Knowledge of ICAO standards alone does not ensure best practice. Some standards will not be contextualised for New Zealand conditions, which would impose unintended restrictions and potentially perverse outcomes.	This option would rely on the development of ancillary processes that provide guidance around interpretation and inform operators of any changes to the relevant ICAO requirements. Operators and CAA will incur ongoing monitoring costs to ensure that their interpretation of ICAO requirements correctly reflects best practice applied in the New Zealand context, and that references to ICAO requirements are valid.
<p><b>3. Preferred Option: Update Part 121</b> Revise the relevant requirements in Part 121 as proposed in the Notice of Proposed Rule Making (NPRM).</p>	Updating Part 121 as proposed in the NPRM will provide consistency with ICAO requirements.	By complying with ICAO standards, our assumption is that this will reduce safety risks around human factors and improve safety outcomes.	Updating Part 121's language and terminology will provide clarity and transparency on the intent of the requirements. It will remove the need for operators to seek exemptions, thereby reducing costs to some operators.
	 = Meets objective	 = Might meet or partially meets objective	 = Does not meet objective

## Appendix B

### Summary of proposed changes

Subpart	Proposed changes
Subpart H: Crew member assignment	<ul style="list-style-type: none"><li>• Relocation of all rules for crew member assignment to this subpart</li><li>• Update experience requirements for certain crew member roles including cruise pilot relief, line supervisory pilot, ground instructor, operators of multiple aeroplanes or variants, and flight attendant trainer and assessor</li></ul>
Subpart I: Crew member training	<ul style="list-style-type: none"><li>• Inclusion of human factors and crew resource management in all training segments</li><li>• Inclusion of training relating to the handling of abnormal and emergency situations caused by engine, airframe, system malfunctions, fire or other abnormalities</li><li>• Amendment of pilot line training to suit aeroplane types, and training segments</li><li>• Amendment of 'consolidation' rule to suit applicable supervision</li></ul>
Subpart J: Crew member competency	<ul style="list-style-type: none"><li>• Inclusion of human factors and crew resource management as part of the flight crew member competency assessment programme</li><li>• Inclusion of a requirement for operators to use an acceptable safe flight practice guide when conducting training in an aeroplane if a flight simulator is not available</li></ul>