Submission to Senate Economics Legislation Committee on the Space Activities Amendment Bill 2002

August 2002

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1 INTRODUCTION

The Australian Space Industry Chamber of Commerce (ASICC) is a nationwide organisation formed to promote the growth of the Australian space industry. By formulating an industry position on national policies and strategies, ASICC speaks with authority and credibility on behalf of its members on issues connected with the development of the Australian space industry.

The space industry in Australia consists of individuals and organisations involved in the provision and use of space related technologies or services. These technologies and services include the following:

- Telecommunications
- Remote Sensing
- Environmental monitoring and meteorology
- Launch services
- Satellite development
- Satellite components and sub-systems
- Ground systems for space technology
- Global Positioning
- Space Science
- Space Exploration
- Space Education
- Professional services to support the above (legal, financial, insurance etc)

ASICC's membership represents the diverse character of the Australian space industry. Our corporate and individual members include satellite operators, launch providers, engineers, scientists, researchers, university students, lawyers, policy analysts, insurance experts, financiers, consultants, and others.

In its role as advocate for a viable Australian space industry, ASICC has consistently argued that any regulatory framework for Australian space activities must:

- establish a constructive and supportive environment to attract and foster investment in Australian space activities

- ensure that any obligations imposed on business entities attempting space activities from Australia are clear, unambiguous, workable and free from arbitrary determination

- be no more onerous for participants than is the case in other space-faring nations.

The Government's stated intent when introducing the Space Activities Act was to 'minimise and where possible prevent duplication of effort, decrease turnaround time for launch operations approvals while protecting… obligations of the Commonwealth'.

This submission is specifically directed to the Issues for Consideration referred to the Senate Economics Legislation Committee in relation to the Space Activities Bill 2002.

2 GENERAL SUBMISSIONS

ASICC's policy position on the domestic regulation of space launching is that Australia needs a workable system of space launch licensing, taking into account the need for launch providers to be internationally competitive as well as observing a high standard of safety and commercial prudence.

The Space Activities Act 1998 and the Regulations under that Act have established one of the most stringent launch licensing regimes in the world. While the Australian space community welcomes the Government's initiative in implementing a detailed and transparent system of launch licensing, it remains to be seen whether proposed commercial launch providers in Australia will be able to satisfy the stringent safety and financial requirements imposed under the Act and Regulations, while competing for customers in the international satellite launch market.

In previous submissions to the Government on the regulation of launches from Australia[1] we have emphasised the practical impact of the launch licensing system on proposed launch providers. In particular we have drawn attention to the high capital costs and high risks associated with establishing a new launch service in a competitive international market.

The history of the establishment of commercial launch services in other countries demonstrates the importance of government policy and government support. In the United States it was necessary for Congress to intervene on more than one occasion with industry assistance measures before the industry became viable.[2]

ASICC therefore argues that the establishment of a viable commercial launch industry in Australia needs more than a detailed regulatory system. In particular, we need to be seen as

- a country that facilitates, rather than discourages commercial launches
- a country that imposes safety and financial requirements for the licensing of a launch facility and individual launches that are fair, transparent and not more onerous than under other national launch licensing regimes.

This submission focuses on the insurance requirements of launch operators under the Australian launch licensing system and the role of the Australian government.

3 SUBMISSION ON SPECIFIC ISSUES

- **The basis for the $750m cap on liability insurance**
- **The rationale for the Federal Government's commitment to insure for amounts above $750m up to $3b**
- **The adequacy of the 3.75 billion dollar total liability insurance coverage**
- **The methodology used in arriving at total liability insurance coverage**
- **Whether a Regulatory Impact Statement needs preparation considering the extent of the Government's Financial commitment.**

As a party to the Outer Space Treaty 1967 and the Liability Convention 1971, the Australian Government, like the majority of the world's nations, has international responsibility for the liability to compensate for its 'national activities' in outer space, regardless of whether they are conducted by governmental agencies or by non-governmental entities (Outer Space Treaty, Article VI). The Outer Space Treaty further provides that, as the 'appropriate State', a government is required to undertake authorisation and continuing supervision of the activities of non-governmental entities, which is generally understood to include private and commercial entities (Outer Space Treaty, Article VI). Should a space object be registered in the registry of a country, that country retains jurisdiction and control over that space object (Outer Space Treaty, Article VIII).

For example, if a country launches or procures the launching of a space object into outer space which causes 'damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in outer space', that country is liable for the damage caused (Outer Space Treaty, Article VII). While the issue of third party liability is more particularly addressed by the Liability Convention, this is a general principle of space law that binds States that are party to the Outer Space Treaty, even if they are not parties to the Liability Convention.

The Liability Convention imposes a liability for damage incurred by another State in the form of 'loss of life, personal injury or other impairment of health, or loss or damage to property of States or of persons, natural or juridical, or property of international governmental organisations' (Liability Convention, Article 1). This liability is imposed on a 'launching State', expressly defined as 'a State which launches or procures the launching of a space object or a State from whose territory or facility a space object is launched,' regardless of whether or not the launch is in fact successful.

There are two distinct areas of liability under the Liability Convention. If the damage was caused by the space object on the surface of the Earth or to an aircraft in flight, the liability to compensation is absolute. However, if the damage caused by a space object to another space object not on the surface of the Earth, then the launching State is liable only if it can be

established that the damage is caused due to fault on the part of the launching State or its nationals.

How the mechanisms for settling such international claims would work under the Liability Convention has been actively debated in academic circles but has never really been put to the test in practice. The only notable international compensation claim for damage to date, the case of Cosmos-954 in 1978 when a Soviet spacecraft unexpectedly re-entered and landed in Canadian territory, was resolved between the two governments by agreement without explicit reference to any particular provision of the Liability Convention.

The Space Activities Act sets out rules applicable to damage caused by a space object if the object is launched from or returned to Australia or Australia is a launching State in relation to the object. These rules only apply during the liability period for the launch or return. They are based upon principles set out in the Liability Convention.

- For a **launch**, the liability period commences at the time of launch and continues for 30 days.

- For a **return**, the period commences when the relevant re-entry manoeuvre begins and ends when the object has come to rest on Earth.

The responsible party for a launch or a return is **strictly** liable (except as set out below) for damage the space object causes to a third party on Earth or as a result of damage to aircraft in flight. This is subject to the qualification that if the third party is responsible for gross negligence or intentional conduct, the responsible party is not liable to that extent.

The responsible party for a launch or a return is liable (except as set out below) **according to that person's degree of fault** for damage to another space object or damage to the property of a third party on board a space object.

However, providing the responsible party holds and was not in breach of the relevant space licence and launch permit, the responsible party is not liable to pay compensation in excess of the amount of insurance required under the legislation.

It should be pointed out that there are some scenarios in which there is no limitation on the level of a launch provider's liability under the Act if damage is caused by that person's space object:

- Where an Australian national is involved in carrying out a launch or is the owner of all or part of a payload and where the required space licence, launch permit or overseas launch certificate has not been obtained

- Where the Australian national is in breach of a condition of the licence or permit

- Where the responsible party or a related party is guilty of gross negligence or conduct intended to cause the damage

- Where the object was not launched from Australia and the responsible party for the return is not an Australian national, the responsible party is strictly liable for any damage the space object causes to a third party during the liability period.

Under the Space Activities Act, regulatory approval for the launch facility and the launch vehicles covered by a Space Licence is required. In order to proceed with the launch of a space object, a launch provider must also obtain a Launch Permit.

The criteria for the grant of a launch permit under the Act include the following:

- The launch operator must already hold a valid space licence for the facility and the launch vehicle intended for use.

- The launch operator must demonstrate its competence in launching space objects.

- The launch operator must satisfy the insurance requirements for the launch.

- The launch operator must show that procedures and safeguards are in place to ensure that risks to public health and safety are minimised, if these have not already been demonstrated during the space licence application process.

Under the current Act, in Australia, as in the case of the United States, launch operators must insure up to the amount of the **maximum probable loss** (MPL). Other countries with commercial space launch capability are France, China, Russia and Japan.

A summary of the domestic law arrangements that govern the liability risk sharing regimes in each of these countries, obtained from a recent report to the US Congress of the US Federal Aviation Administration[3], is as follows:

United States

There are six companies licensed in the United States to provide commercial launches. There is a three tiered system of liability risk sharing between the launch licensees and the government:

Tier 1 – The launch licensee is required to have third party insurance up to a MPL of US$500,000, *or the maximum insurance cover available on the world market at reasonable cost*. In practice the MPL's of currently licensed Expendable Launch Vehicles range from US$0.25 million to US$261 million.

Tier 2 – The US Government provides third party liability indemnification above the MPL up to US$1.5 billion.

Tier 3 – The launch licensee or the legally liable party remains responsible under US law for third party claims in excess of US$1.5 billion.

Cross-Waiver of Liability – The US Government requires that parties participating in the launch enter into cross-waivers of liability where each agrees to accept the risk of damage to its own property and waive claims against other parties. This minimises insurance costs.

France/Europe - Arianespace

Arianespace operates the Ariane family of vehicles from a launch site at Kourou, French Guiana and has captured the largest market share of commercial launch operators.

There are two tiers of liability:

Tier 1 - Arianespace obtains primary third-party launch liability insurance on behalf of its customer in the amount of 400 million French francs (US$53 million). Insurance covers the liability of the French Government, The French Space Agency, the European Space Agency, Arianespace, their contractors and subcontractors, in addition to the launch customer and its contractors, arising out of the launch. This indemnification coverage is in effect for a period of three years following the launch.

Tier 2 – Any third-party claims exceeding this insurance coverage are the responsibility of ESA (ultimately, the European government owners, principally France).

Cross-Waiver of Liability – The French Government requires cross-waivers of liability where each agrees to accept the risk of damage to its own property and waive claims against other parties. This minimises insurance costs.

People's Republic of China

All international commercial space launches performed by the PRC are offered by the China Great Wall Industry Corporation (CGWIC), founded in 1980, and authorized by the PRC Government.

Tier 1 - Insurance is obtained through an indigenous PRC insurance company, the Peoples' Insurance Company of China, which seeks coverage from underwriters in Europe. Third-party liability insurance is in effect for a period of two years following launch.

Tier 2 -The PRC Government will cover any claims above $100 million.

Cross-Waiver of Liability – Cross waivers of Liability are required. This minimises insurance costs.

Russia

Russia operates ten launch vehicles from 4 launch sites in Russia and Kazahkstan.

Tier 1 - The minimum amount of launch liability insurance is determined by an order of Rosaviakosmos (the Russian Aviation and Space Agency), depending on the specific Russian launch vehicle. Typically, the launch service customer purchases the third-party launch liability insurance.

Typical levels of compulsory insurance range from $US 80 million for Start launch vehicles to US$ 300 for Soyuz and Proton.

Tier 2 - If specified in the launch services contract, the Russian Government will pay for damages in excess of the insurance coverage if claims exceed it. However, if not specified in the launch contract, the launch services customer would be liable for claims above the insurance coverage.

Cross-Waiver of Liability – Cross waivers of Liability are required. This minimises insurance costs.

Japan

Private or commercial launching services are provided by the Rocket System Corporation (RSC). RSC, funded by 73 Japanese space-oriented companies, was founded in 1990.

Tier 1 - A Japanese law, the Space Development Enterprise Corporate Law, was first enacted in 1969 and later revised in 1997 and 1998. This law specifies that the launch operator, RSC, must have third-party liability insurance and defines cross-waiver provisions. A launch requires government approval, with Japanese Space Agency (NASDA) setting the required amount of third-party launch liability coverage on a case-by case basis considering launch vehicle size and launch site. NASDA is charged with responsibility for setting a conservative value for the primary insurance that RSC obtains for each launch in order to provide victim compensation and financial soundness of NASDA. NASDA has applied the third-party launch insurance requirements for different Japanese launch vehicles ranging from about US $50 million to US$200 million.

Tier 2 - NASDA is responsible for paying losses exceeding these insurance amounts. This law does not specify how the government would appropriate funds to cover losses exceeding the insurance amounts.

Cross-Waiver of Liability – Cross waivers of Liability are required. This minimises insurance costs.

Australia

The Space Activities Amendment Bill 2002 proposes a two tier system as follows:

Tier 1 – Section 48 currently requires holders of licenses under the Act to take out insurance up to the Maximum Probable Loss (according to the methodology set out in the Regulations) or to demonstrate capacity to self-insure. The insurance must cover both the Commonwealth (against claims by foreign nationals under the Liability Convention or otherwise under international law) and the responsible party against claims by all third parties.

This proposed amendment would cap the insurance required for each launch and return at A$750 million but would not change the methodology required under the Regulations for calculating the MPL.

Tier 2 - Subject to existing conditions outlined in section 69 of the Act, the Commonwealth will be liable for claims by Australian nationals where the damage exceeds the amount of insurance required by the applicant, and where the responsible party for the activity has paid compensation equal to the amount of insurance. The Commonwealth's acceptance of liability above the insured amount is capped at A$3 billion. This cap will not apply to international claims against the Australian Government under the Liability Convention.

The relative insurance cover requirements in the five countries conducting commercial launches (in US dollars and assuming an exchange rate of US 0.54 cents to A$1) are as follows:

	Tier 1 (Launch operator)	**Tier 2 (Government)**	**Tier 3 (Launch operator)**	**Cross Waiver of Liability**
US	$500m max	US$1.5b	Above US$1.5 billion	Yes
France	$53 million max	No limit	N/A	Yes
China	$100 million	No limit	N/A	Yes
Russia	$80-500 million	No limit	N/A	Yes
Japan	$50-200 million	No limit	N/A	Yes
Australia	$405 million max	US$1.62 billion for claims by Australian nationals. No limit for international claims	N/A	No

4 SPECIFIC SUBMISSIONS

1. The proposed maximum insurance requirements for Australian launch operators are higher than all other countries offering commercial launch services except the US. ASICC submits that this disadvantages Australian launch providers and submits that the Australian maximum insurance standards should be less than that of commercial market leader, France.

2. There is always a risk that there may not be sufficient insurance capacity available to meet the minimum insurance requirements in which case no launch could occur under the proposed legislation. ASICC submits that this situation be avoided by allowing flexibility as in the US system where the required insurance is set at the MPL, which is not to exceed the lesser of a) the liability cap, or b) the maximum insurance available on the world market at reasonable cost.

3. The proposed limit on the indemnity provided by the Australian government of $3 billion (USD $1.62 billion) above the required insurance is the second lowest in the world and will soon be the lowest because the US indemnity is indexed for inflation while Australia's is not. All other nations provide no limits on the indemnity above the required insurance. ASICC submits that the Australian government indemnity should also be without limit consistent with the commercial market leader, France. The risk to government is low as very few third party launch-related claims have been made and all such claims have been below USD $10 million.[4]

4. ASICC is very concerned about limiting Australian government indemnity provisions to "Australian Nationals" in the proposed subsection 4 of Section 69. This will result in no indemnity for Australian launch operators for common law claims brought in Australian courts by Foreign Nationals. ASICC submits that it is not the Government's intent to indemnify against claims by Foreign Nationals brought under the Liability Convention but not for claims by Foreign Nationals brought under common law in Australian courts. ASICC thus submits that this anomaly be rectified by extending the indemnity to common law claims by Foreign Nationals in Australian courts.

5. Australia is the only country that does not require cross waivers of liability among launch participants. This is a universally accepted means of reducing potential insurance liability and insurance costs. Australian launch providers will be disadvantaged compared to their international competitors without similar provisions in the Australian liability regime. ASICC submits that cross-waivers of liabilities should be included in the Australian regulatory regime.

6. ASICC has no strong view on whether or not a Regulatory Impact Statement is required, other than to observe that based upon the international history of third party claims related to commercial space launches, the statical probability of a claim against the government for an amount in excess of the MPL is very low.

7. The proposed amendments now require a launch operator to ensure that the risk of causing substantial harm to the public or property damage is as low as reasonably practicable (ALARP) in addition to the mandated safety standards. The safety standards mandated by the Flight Safety Code significantly exceed acceptable ALARP based safety measures in other high-risk industries. ALARP provides no appreciable additional safety margin for the public above the already extremely high mandated safety standards yet imposes an additional compliance burden on the launch operator. It raises the possibility that a launch operator with a proposed flight path that meets the strict mandated safety standards may be denied a launch permit as a result of subjective judgement on ALARP. ASICC submits that ALARP principles are unnecessary on top of the mandated safety standards since they provide no additional public safety above the mandated safety standards yet impose an additional compliance burden on the launch operator, and hence should not be imposed.

8. The proposed amendments now authorise an annual review of a space licence. This seems unnecessary given that the right of review already exists in relation to suspected breaches of license conditions, or for national security, foreign policy or international obligations reasons. In practice effective review procedures are built into the Launch permit process and the Launch Safety Officer's review of safety parameters prior to authorisation of each launch. ASICC is concerned about the compliance impact that an annual review might have on commercial operations. ASICC submits that reviews should be based on need rather than time periods and hence the proposed annual review of a space licence is unnecessary and should be removed.

9. ASICC is concerned about the provisions in the Act and the proposed amendments that make the launch operator responsible for the intended return of a space object. This is appropriate when the space object is under the control of the launch operator as in the case of a Re-usable Launch Vehicle (RLV). It is not appropriate, however, when the launch operator does not own and does not control the object to be returned. ASICC submits that the liability responsibility should be placed on the party responsible for the intended return rather than the party responsible for the launch. A return permit, obtained by the returning party, as part of the launch authorisation process, could be a method to adequately shift the responsibility to the appropriate party.

5 REFERENCES

[1] See ASICC's *Submission on Proposed Launch Safety & Insurance Regulations, Submission on Proposed Space Activities Regulations 2001 and Submission on Proposed Flight Safety Code and Maximum Probable Loss Methodology,* available for download at ASICC's website – *http://www.asicc.com.au*

[2] *Liability Risk Sharing Regime for US Commercial Space Transportation:* Report of the US Federal Aviation Administration dated April 2002, Chapter 1

See also M. Davis, *Establishing a Space Launch industry: The Political and Regulatory Considerations,* The Space Transportation Market: Evolution or Revolution?, Kluwer Academic Publishers, 2000.

[3] *Liability Risk Sharing Regime for US Commercial Space Transportation (*above*)*

[4] See *Liability Risk Sharing Regime for US Commercial Space Transportation,* Sections 2.3 and 3.5.5