

10 April 2008

Committee Secretary  
Senate Economics Committee  
Department of the Senate  
PO Box 6100  
Parliament House  
Canberra ACT 2600  
Australia

**RE: Inquiry into the Current State of Australia's Space Science and Industry Sector**

Dear Sir / Madam,

Thank you for the opportunity to submit my ideas to the Inquiry into the Current State of Australia's Space Science & Industry Sector. In presenting my views to the Committee I believe that a good place to start is to focus on what we actually want to achieve ie. a space vision for Australia. Once this vision has been established we can then determine what Australia needs to do to achieve the vision and the subsequent costs and benefits. Fundamentally it was vision that put Sputnik and Gagarin into orbit and Armstrong on the moon. Turning these visions into reality helped create the space technologies so fundamental to our modern way of life.

**Introduction**

To focus purely on apparent direct "economic" benefits of a space programme is, in my view, a wrong way of thinking because many of the benefits are likely to accrue indirectly. When the US put men on the moon in the 1969-1972 period, was there a direct economic benefit from a lunar mission? I would argue no, but there were many spin-off benefits in terms of technological and industrial development, national pride and an enthusiasm for science and engineering that influenced a generation to pursue careers in this field. Indeed seeing the achievements of the space programme had a profound influence upon me and was one of the reasons why I became a professional engineer.

I will begin my submission by presenting my vision for an Australian space programme, discuss its benefits and then focus on its implementation and list possible impediments. Ideas will be presented in point form for brevity and clarity. Please note that this is a brief submission meant to primarily convey a vision and its implementation. It is the result of many hours of thinking, which began with the simple question "what could we *realistically* achieve as a nation in space if we wanted to?". My concern is that without a focus on vision, we diminish the debate and limit ourselves in our thinking regarding possibilities. Having worked for a large multinational company in the marine and aerospace industry in both Sweden and the UK for close to 8 years, I am of the view that Australian talent is equal to that overseas but that Australia diminishes its opportunities by being risk adverse and lacking, unnecessarily, faith in its abilities.

This document is therefore not a detailed research document. Furthermore, this submission will not consider existing or future Australian research capability related to astronomy, apart from the development of systems for space probes.

### **Vision for a Focused Australian Space Programme**

Fundamentally Australia should be an integral part of man's exploration of outer space, as we are a developed and technologically advanced country. Elements of this vision are:

- The establishment of an Australian NASA for developing, managing and regulating an Australian space programme.
- Australia as a globally competitive supplier of spacecraft and launch vehicle systems.
- The development of a corps of Australian astronauts who participate in space missions to the International Space Station and later to the moon (in the 2020+ timeframe). Australian astronauts can fly as part of US or Russian missions.
- Australia as a key space tourism destination.

### **Benefits of an Australian Space Programme**

The benefits to Australia of achieving the above vision are:

- It instils a sense of national pride and belief in Australian engineering and science. This is a psychological benefit which has flow on effects to other sectors.
- Although costly, an Australian astronaut programme has tremendous symbolic and scientific value and generates public support for the space programme as it is a direct visible expression of it.
- It increases the availability of high-end engineering skills in Australia in areas such as systems engineering and spacecraft engineering in both the civilian and Defence sectors.
- It creates high-technology employment and business opportunities and acts as an economic multiplier.
- It facilitates the transfer of technology to Australia from international partners
- It is an opportunity to enthuse the best and brightest of a new generation of students to study engineering and science, thereby increasing both the quality and quantity of the Australian engineering resource pool.

## **Implementation of the Vision**

### 1) Implementation of an Australian NASA (ANASA)

- Function similar to that of NASA and other overseas space agencies.
- Per capita funding similar to that of NASA.
- Responsibility for the programme development and management of an Australian space programme and links to existing astronomy research by CSIRO and Universities.
- Responsibility for the development and coordination of links to other space agencies eg. NASA, ESA, JAXA, etc.
- Responsibility for the coordination of focused Australia-wide University research programmes in space systems related engineering eg. satellite systems, launch vehicle technology and hypersonics.
- Responsibility for the development of curriculum for University space-related engineering course in conjunction with Universities.
- Responsibility for the management of the Australian astronaut programme.
- Responsibility for the development of an innovative low-cost small launch vehicle for placing micro-satellites into orbit. This follows the ideas of the Australian Space Research Institute (ASRI) but differs in that Government funding and professional engineering turns this idea into a practical reality. Such a project would serve as a technology integration project for launch vehicle systems and facilitate the development of valuable skills in Australia. It may also have follow-on Defence applications.

### 2) Development of an Australian space systems industry.

- Development of hardware and software for complete systems, subsystems or components.
- Systems can include: satellites, space probes, launch vehicles, manned spacecraft and stations and planetary surface vehicles.
- Possible development of vehicles for suborbital space tourism.
- Industry should be supported by University research programmes under ANASA programmes.
- Industry funded by ANASA contracts for scientific work.

### 3) Establish regulatory framework for space tourism and economic incentives to develop a space tourism industry.

- Space tourism will soon start internationally and there exists a wave of opportunity for potential development of this industry in Australia.

## **Impediments to Implementation of the Vision**

The following impediments are identified:

- Short-sightedness, lack of vision, lack of faith in Australia's ability and lack of willingness to take technical and financial risks.
- A possible unwillingness of the Commonwealth to fund activities, due to perceived short-term costs, without looking at either direct or indirect long-term benefits, which may be difficult to quantify.
- A possible inability of the Commonwealth to effectively communicate and sell a space programme and its benefits to the Australian people.
- A possible use of space programme funding as a political football by opposition political parties.

Note that the above is not meant as a criticism of the Commonwealth, or specific political parties, but only a list of possible impediments.

-----

Thank you for allowing me to present my ideas. My hope is that they will be given serious consideration for the benefit of Australia.

Yours Faithfully,

Dr Gregory J. Seil

BE (Mech - Hons 1), PhD