

Draft Australia's Satellite Utilisation Policy:

Response from the Australian Centre for Space Engineering Research

Prof Andrew Dempster, Prof Chris Rizos, Dr Elias Aboutanios

This document responds to the draft satellite utilisation policy circulated in September 2012 for comment by 9 November 2012. Two of the authors (Dempster, Aboutanios) attended the forum for discussion on 10 October. At that forum, the Space Policy Unit (SPU) was commended for the all-of-government consultation process that led to the document. Criticisms were also made, some by the authors. This document is limited to criticisms that originate with, or elements of the policy that directly affect, the authors.

1. Money

The SPU was applauded for producing a policy that had, apparently under instruction, no spending commitments in it. We would contend that this constraint has made the policy timid in scope and will limit its effectiveness. It is possible for us to respond such that our responses assume that constraint, but that would be to deny the ineffectiveness that the constraint delivers, and ignore what the policy itself should be.

The policy will have no impact while it has no plans or recommendations for real action. Much can be done with very little money. One need only observe the small space program being developed at the Defence Science and Technology Organisation (DSTO). A civilian program based on that program concept seems entirely appropriate for Australia, even in times of spending constraints.

The policy should not be constrained to a zero spend. Sensible policy outcomes can be achieved with small amounts of money.

2. Vision

The draft policy lacks a unifying vision for what the space industry should be like in Australia. Compare the stated aim for Australia:

“Achieve on-going, cost-effective access to the space capabilities on which we rely.”

with that of the recently established UK space agency:

“... to see the UK's space sector grow ... to 10% of a space economy likely to be worth some £400 billion by 2030”

The UK goal has vision, ambition, is quantifiable, and allows a flow-down of lower-level goals. It gives the industry the confidence to invest. That is not true of the Australian policy.

Without such a vision statement, there is no inspiration or aspiration, and hence many things are simply not possible. There is nothing in the policy that would attract a new graduate into the industry.

3. The Current State of the Art

The policy seems to be based on 20th century assumptions. It does not reflect current technological advances, nor does it account for present and future trends. It seems to be based on and perpetuates the misconception that useful satellites must cost hundreds of millions of dollars to build and launch and so are beyond the realm of the Australian economy. This, however, is not the current state of play. Small satellites, such as the Cubesat standard, have put space even within the reach of educational institutions. As mentioned above, the small DSTO space program is one example where small satellites make it entirely realistic and economic for Australia to participate actively and productively. Another important program under development is QB50 (www.qb50.eu). That program will give three Australian Universities (including UNSW) a satellite in space by 2016. African Universities also have satellites being built in the program. Small satellites in low earth orbit are very suitable for Australia's geography and demography, and capability.

4. An Australian Space Agency

The policy is confused, if not contradictory, as to the ongoing role of the SPU. There was complete agreement at the forum that the role currently performed by the SPU with respect to being the "space" interface of government should continue. This is very important. There was significant agreement that the name of the organisation is inappropriate for its ongoing role and should be changed either to the Space Office, or the Space Agency. These alternate titles would better reflect the organisation's activities (especially once the policy is "out the door", i.e. the unit has no space policy to develop) and give credibility internationally. Examples were given at the forum of international partners wishing to deal not with "policy people", but space people.

One area not dealt with in the policy is how technical the "SPU" (Office/ Agency) should be. It is not in a position, for instance, to evaluate technically the deliverables of the ASRP projects.

Another issue is that of leadership. Once the policy itself is delivered, the role of the SPU will become entirely reactive. Examples were given at the forum of approaches to Australia from other countries and the SPU has been able to deal with these. But there is nothing in the policy to indicate when, why or how Australia might approach other space agencies to promote solutions to Australia-centric problems. Relating again to the lack of vision, there is no recommendation that space activity in Australia should be driven forward in a

proactive way, as agencies do in other countries. Outsourcing the role of a space agency to other agencies, as has occurred with the infrastructure plans, can simply lead to those agencies producing recommendations in their own interest rather than the national interest.

The policy needs a clear statement that a successor to the SPU will continue, and will play a more significant role, both in terms of leadership, and technical capability.

5. The chicken and egg problem: building an industry

Under the Australian Space Research Program, two educational projects were funded (ASRP5 and ASRP12) that educate tertiary students in space and satellite science and engineering. One question asked when proposing new university courses is where these students will find work. The policy does not address the problem that without an industry to work in, students will not choose to educate themselves in space matters, and it is not possible to build an industry without people who are educated in that area.

The point was made at the forum that the average age of people providing input to the policy was quite old. Those old people are concerned about where our next generation of space-qualified engineers is coming from. The forum was held at Mt Stromlo – there is nothing in the policy that might indicate how the national facility, the Advanced Instrumentation and Technology Centre (AITC) will be exploited. Who grows the industry? How is it to be done? What is the natural successor to the ASRP?

The policy needs clear statements as to how Australian space capability is going to be built and sustained.

6. Be Positive

The policy states, “*the Australian Government does not see an Australian satellite manufacturing or launch capability as an essential element of its approach to assured access to critical space-enabled services*”. Is it the place of the policy to say what the government will **not** support? This creates unnecessary barriers for potential businesses. If there were a civilian space program that looked like the DSTO program mentioned above, it would be hampered by statements such as this appearing in the policy. Surely the government’s role is to get out of the way and not to stop good ideas from finding expression?

The policy should contain only positive statements about what the government currently considers its priorities, and any negative statements about other priorities should be removed.

7. Encourage Innovation

Intimately tied with the previous point, the policy should encourage innovation and thinking “outside the box”. Therefore, it should not put a boundary around

what can be done in the area of space. Throughout the rest of the world, countries use their space agencies as engines of innovation. It is well known that Australia faces unique challenges due to its size and population density, making it probably the world's best potential location for the application of space technology. Encouraging technological developments and innovation here means that, driven by the Australian context and its associated challenges, new solutions will emerge.

8. Structure

Section 6 and principle 3 talk of the proposed structure that will be in place in the Federal Government to deal with Space. Figure 1 shows various committees and working groups. Unfortunately, the SPU or its successor is not shown on that diagram and it is unclear where any real work will be done. The policy needs to show clearly where the real work will be done at Federal level.

9. Responsibilities

In the responsibilities section, there seem to be omissions. For instance, Geoscience Australia may be the federal body responsible for positioning, but the bulk of responsibilities in this area reside in the states. Similarly, to say that CSIRO is the only federal body responsible for space science is in fact to ignore most of the space science activity in the country.

If this section is necessary, it should be exhaustive, showing where real responsibilities lie in the Australian context.