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SPACE MATTERS

MONDAY, 21 AUGUST 2018

**HOUSE OF REPRESENTATIVES,
CANBERRA**

*****CHECK AGAINST DELIVERY*****

I rise to speak on the Space Activities Amendment (Launches and Returns) Bill 2018. One of the objects of the bill describes reducing barriers to participation in the space industry for companies in Australia.

Australia's relationship with space stretches back more than 60 years. It goes back to the very earliest days of the space age. The International Geophysical Year, 1957, was the year in which Sputnik was launched and when the UK Atomic Weapons Research Establishment had activities in Australia, with high altitude launches of sounding rockets. It was the very beginning of Australia's participation in the space industry.

Our friends and our allies have come to Australia and seen us as the perfect place from which to look to the heavens. From ELDO to NASA, and from Honeysuckle Creek to Woomera, there has been a procession of entities which have been friends of this country and which have sought to engage in space activities here in Australia. And it made sense. Firstly, we have a unique geography, being located in the East Asian time zone in terms of our longitude, and also, in terms of our latitude, looking, as we do, on the southern sky. We're a country with a high degree of education and with a workforce that could support the efforts of the space industry. And we are, of course, in a political sense, a stable democracy, one that was a friend and ally of countries like the United Kingdom and the United States. It meant that we were a place in which to do space activities. It is almost as if, from the very beginning of the space age, it was our destiny as a nation to participate in this field of activity.

It was our destiny then, but it's become our reality today. Indeed, today we have a very strong presence in astronomy. The Square Kilometre Array telescope, which is a multinational scientific endeavour based in Southern Africa and in Western Australia, provides the largest array of radio telescopes that humanity has seen. The Giant Magellan Telescope is one of the large new-age optical telescopes. It will be

based in Chile, but Australia is a 10-per-cent stakeholder in the Giant Magellan Telescope through the ANU.

Even going back to the Anglo-Australian Observatory—which began in 1974, so it's into its fifth decade: it is still one of the five top-performing optical telescopes in the world today, and that includes the Hubble Space Telescope. And Tidbinbilla, just on the outskirts of Canberra, forms part of NASA's Deep Space Network.

I say all of this because our history in space activities has led to a large present list of activities in astronomy which, in turn, make astronomy and space part of our national expertise. This is an area in which we should be active, and it's an area where we should play a bigger role as a nation. And yet institutionalising that role in terms of Australia's governments has in fact been a difficult road.

In 1959, the Australian national committee recommended the establishment of a space research proposal, which ultimately did not go ahead. In 1968, the Weapons Research Establishment that I mentioned earlier also came up with a proposal for engaging in space research, which again was rejected by government. In 1970, there was a proposal for an Australian space research agency, which was again knocked back by government. The Hawke government established the Australian Space Office. The Howard government removed it. The Rudd government established the Australian Space Research Program. The Abbott government removed that. There has been a long and difficult history in trying to establish an Australian government role in respect of space.

It's what makes this particular moment in time so significant. On 15 March this year, Labor announced that a Labor government would establish the Australian Space, Science and Industry Agency, which would be an Australian space agency. On 14 May this year, the government announced that it intended to create the Australian Space Agency—which it did—from 1 July this year, with Megan Clark as its first CEO. That should say something about Megan. Megan has been a former CEO of the CSIRO. She is not only an esteemed Australian scientist but an esteemed Australian science administrator. There is no-one better to be leading the inaugural Australian Space Agency than Megan Clark. What it means at this moment in time is that, for the first time, we have genuine bipartisan support for an Australian government space agency that seeks to promote a bigger role for Australia in the space industry. Obviously, the legislation that we are debating this evening forms part of that.

The industry is a big one. It is now estimated to be \$420 billion globally but, by 2040, it's estimated that the industry will grow to \$1.1 trillion. It is a remarkable amount of money. The sad stat for companies—at this point in time, at least—is that Australia's share of that global industry is only 0.8 per cent. Given our history, our expertise and the nature of our economy, we should be batting higher than that. It's why it's really important that we now have a bipartisan approach to space through an Australian space agency and through this legislation: we can promote a much greater Australian role in this industry.

The industry today is very different to what was going on back in 1957. Back then, the activity of engaging with space was so large that only a government could attempt it and so it was almost entirely an activity that was in the public domain.

Today that is very different. We are now in a world where space has become much more accessible, where there are far smaller satellites being put into space—CubeSats, as they are described—with more options in terms of being able to launch those satellites into space. New Zealand now has a launch site at Mahia on the North Island of New Zealand. There are a range of options for getting these much smaller satellites into space, which in turn do a whole range of global observations and participate in connectivity. They are a huge part of the industry.

As a result, a big difference now compared to 1957 is that, whereas back then almost the entire engagement with space was done publicly, now three-quarters of the industry is in the private sector. The role for an Australian space agency, the role for legislation of this kind, has to be about encouraging private Australian companies to engage in this very large global industry and to be playing a much bigger role in it. That is actually a very different vision of engaging with space than was had 60 years ago, when Australia first started its participation in space. That said, the skills that we picked up in those 60 years exist within both our public and private sectors and so, done right, place us in a very good position as a nation to participate in this industry.

Of course, this industry is also burgeoning now in the private sector because of an absolute understanding about the role that space plays in our everyday lives. Back in the fifties and sixties, it was an exotic activity which described the furthest frontiers of the human experience; today, it is the backbone of our telecommunications sector and, in many respects, it is the backbone of global interconnectivity through the internet and the internet of things. As shadow defence minister, I can say it plays an incredibly important role in the connectivity of the way in which our armed forces engaged in their business. So the role that space plays is not just there on the margins but absolutely central to the way in which we are living our lives today—and that is why the industry is growing at such a significant rate.

This bill, as I said, makes it easier to participate in the space industry. It does so by streamlining a number of processes, particularly around reducing the insurance burden on those participating within the industry. It also increases penalties for those engaging in the space industry in an unlicensed way. There is some criticism that the bill is not broader in its statement of purpose. Given the moment that we are in, we think there was opportunity here to have a more expansive statement of purpose. Nor is the role of the Australian Space Agency in respect of the operation and oversight of this legislation made clear. It is also not clear in the legislation how Australia engages with its obligations under a range of international treaties such as the UN Outer Space Treaty. That said, it is a first step down a path that, as a nation, we need to travel. In that sense, it is very important that it passes this parliament.

For all that, there is a final reason why, in my view, it is so important that we become more engaged in space. I was in year 10 in 1982, which means I was born in 1967. I had just turned two when Neil Armstrong first stepped on the moon. I don't remember it, but the backdrop of my education was very much the activities of Apollo, which were deeply inspiring—and hugely public. It wasn't just a scientific endeavour; it was a matter of popular culture. Not surprisingly, 1982 is the peak of the graph of those making a decision to study science, as I did. I pursued science from that time through to completing a science degree at the University of Melbourne. From 1982 until now, the number of children at school deciding to study science has been on the decline.

Big science is really important in terms of inspiring people to study science—and that's what Apollo was. But we have big science going on right now—through the square kilometre array telescope and through the giant Magellan telescope, which I mention earlier. There is the likelihood that, by the end of the 2020s, we will be able to see planets elsewhere in the universe which have biomarkers in their atmospheres. That is a pretty significant moment. It is not a moment when we will be able to communicate with life elsewhere in the universe. It is not a moment when we will know exactly what that life is or whether it exists now—because the information is thousands of light years away, so what we will be seeing happened thousands of years ago. But, between now and 2030, it is likely that the question of whether we are alone in the universe will be answered. That is a profound moment in the human experience, yet we do not see the square kilometre array on the front page of our newspapers, nor what is going on with the giant Magellan telescope. Indeed, it baffles me that this is not something that forms a bigger part of our popular culture.

As a nation we desperately need to change our cultural relationship with science. It has to become something more mainstream in terms of what's reported and, particularly, what our kids digest. Engagement in space, I think, is central to that. It is a deeply inspiring activity and it can play a huge role in encouraging more of our young people to take up science, because infusing our economy with science and technology is not just an imperative; in my view it is the single most important piece of microeconomic reform facing Australia today. If we do not climb the technological ladder, we will find countries around us doing it at a much faster rate and we will be doing things very differently in the second half of the century, as a nation in the global economy, than we are doing now. Science matters. Space has a really important role in encouraging more Australians to pursue science. With that I support the bill.

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