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Agreement between the Government of Australia and the European Space Agency for a Co-operative Space Vehicle Tracking Program Done at Cape Town on 5 October 2011

Introduction

3.1 The *Agreement between the Government of Australia and the European Space Agency for a Co-operative Space Vehicle Tracking Program* (the proposed Agreement) was negotiated as a replacement for the preceding treaty of the same name, which was negotiated in 1979.[1]

3.2 The National Interest Analysis (NIA) states that the parties to the proposed Agreement decided to replace the previous Agreement to enable the relocation of European Space Agency (ESA) space vehicle tracking facilities from one of its current locations, Gnangara in suburban Perth, to a location with less radiofrequency interference. While negotiating the proposed Agreement, the parties also took the opportunity to update the language of the Agreement, the rights and obligations of the parties, and the dispute settlement provisions.[2]

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1 *National Interest Analysis* [2011] ATNIA 30, *Agreement between the Government of Australia and the European Space Agency for a Co-operative Space Vehicle Tracking Program* [2011] ATNIF 23, (hereafter referred to as the NIA), para. 3.

2 NIA, para. 4.

The European Space Agency

3.3 The ESA is an international organisation with nineteen European member states and is one of a suite of space related organisations that manage Europe's space activities. The ESA was formed to enable European nations to undertake scientific programs they could not individually afford. Each member state contributes an annual sum to the ESA based on that member's GDP.[3]

3.4 Because of the ESA's focus on scientific programs, space vehicle tracking is undertaken for the ESA by a subordinate organisation, the European Space Operations Centre (ESOC). ESOC operates the space vehicle tracking facilities that are the subject of the proposed Agreement.

3.5 ESOC defines mission operations as:

> ...the process involving operations planning, satellite monitoring and control, in-orbit navigation, and data processing and distribution, by which the satellite mission objectives are achieved, be they the collection of environmental or scientific data or the provision of a navigation service.[4]

3.6 In other words, ESOC's facilities in Western Australia are for the communication with and management of space vehicles. The facilities are only involved in the science of space exploration to the extent that they receive and transmit scientific data from space vehicles.

3.7 ESOC's focus on monitoring, control and navigation is reflected in Article 2 of the proposed Agreement, which limits the activities of the ESA facilities in Western Australia to the tracking and telecommand of ESA and other space vehicles used for civil space research, and the acquisition of date from these space vehicles.[5]

3.8 ESOC works closely with Arianespace, another of Europe's space related organisations. Arianespace provides launch facilities and space vehicles for the ESA's scientific programs. Arianespace was created in 1980 to relieve the ESA of the financial burden associated with the operation of launch facilities and the manufacture of launch vehicles.

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3 'About ESA,' European Space Agency, <http://www.esa.int/SPECIALS/About_ESA/SEMW16ARR1F_0.html>, accessed 14 February 2012.

4 *ESOC – the European Space Operations Centre*, ESA, 2007, p. 6.

5 NIA, para. 7.

3.9 One of ESOC's core ground stations is collocated with the Arianespace launch facility in Kourou, French Guiana.[6]

3.10 Arianespace has become the world's largest commercial launch facility provider, launching, for example, eleven of the eighteen commercial satellites launched in 2010.[7]

3.11 ESOC's close association with Arianespace means a significant part of the work undertaken by ESOC is commercial in nature.[8]

Space vehicle tracking in Australia

3.12 The proposed Agreement is the second space vehicle tracking agreement reported on by the Committee in as many reports.[9] In its examination of the *Exchange of Notes constituting an Agreement to amend the Agreement between the Government of the United States of America and the Government of Australia concerning Space Vehicle Tracking and Communication Facilities of 29 May 1980, as amended*, the Committee discussed the strategic location of NASA's Deep Space Network of space vehicle tracking stations at three locations around the globe, one of which is located at Tidbinbilla in the Australian Capital Territory.

3.13 ESOC has six space vehicle tracking stations, also in strategic locations:

- Kourou in French Guiana;
- Mas Palomas in the Canary Islands;
- Villafranca in Spain;
- Kiruna in Sweden;
- Redu in Belgium; and
- New Norcia and Gnangara in Western Australia.[10]

6 *Annual Report 2010,* Arianespace, 2011, p. 14.

7 'Service and Solutions,' Arianespace, <http://www.arianespace.com/about-us/service-solutions.asp>, accessed 16 February 2012.

8 'About ESA,' European Space Agency, <http://www.esa.int/SPECIALS/About_ESA/SEMW16ARR1F_0.html>, accessed 14 February 2012.

9 The Committee reported on the *Exchange of Notes constituting an Agreement to amend the Agreement between the Government of the United States of America and the Government of Australia concerning Space Vehicle Tracking and Communication Facilities of 29 May 1980, as amended* in *Report 122*.

10 *ESOC – the European Space Operations Centre*, ESA, 2007, p. 14.

3.14 Australia is used by both NASA and the ESA because of its location below the equator between Europe and the Americas. According to Dr Michael Green of the Department of Industry, Innovation, Science, Research and Tertiary Education:

> You will appreciate that once a satellite gets beyond the earth's orbit, you need to have sites around the world in order to track it because the earth turns around. Basically, you need to have one every third of the way around the world. Australia is about a third of the way around the world from both Europe and the United States, so there is a lot of interest in such facilities being in Australia.[11]

Radiofrequency spectrum issues

3.15 As indicated above, encroaching radio frequency interference at the ESA's Gnangara site was the motivating factor for negotiating a new Agreement.

3.16 Dr Green advised the Committee that:

> The facilities that they have been operating at Gnangara in Perth have been subject to increasing radio spectrum availability concerns.[12]

3.17 Perth's expansion in recent years means that Gnangara is now part of suburban Perth. Consequently, radio frequency interference from nearby suburbs and the increase in use of mobile devices means that the range of frequencies available to the Gnangara ESA site is diminishing.[13]

3.18 Unlike the previous Agreement, the proposed Agreement does not specify the location of the ESA facilities. According to Dr Green, under the proposed Agreement, ESA facilities will be specified in a subordinate

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11 Dr Michael Green, General Manager, Innovation and Space Branch, Manufacturing Division, Department of Industry, Innovation, Science, Research and Tertiary Education, *Committee Hansard*, 6 February 2012, p. 8.

12 Dr Michael Green, General Manager, Innovation and Space Branch, Manufacturing Division, Department of Industry, Innovation, Science, Research and Tertiary Education, *Committee Hansard*, 6 February 2012, p. 7.

13 Dr Michael Green, General Manager, Innovation and Space Branch, Manufacturing Division, Department of Industry, Innovation, Science, Research and Tertiary Education, *Committee Hansard*, 6 February 2012, p. 7.

implementing arrangement, negating the need for treaty level negotiations when it becomes necessary to relocate ESA facilities.[14]

3.19 The proposed Agreement obliges the Australian Government to use its best endeavours to protect the ESA facilities from harmful radiofrequency interference.[15]

3.20 Dr Green stated that this provision was specifically intended to apply to the ESA's New Norcia site, and would provide some security out until about 2025.[16] However, Dr Green pointed out that:

> ...the spectrum is under pressure generally, particularly around metropolitan Australia. As you will have no doubt been aware, the last 10 to 15 years have seen an absolute explosion of mobile devices. They are all bandwidth hungry and other telecommunications applications have also been growing...[17]

Conclusion

3.21 Hosting the ESA facilities has provided employment for Australians as well as providing Australian scientists access to technology they would not have otherwise had. The proposed Agreement will strengthen Australia's close working relationship with the ESA, which in turn will allow Australia to leverage the expertise and leadership of the ESA for the future benefit of Australia's space-dependent capabilities, science and research communities and emerging space sector.[18]

3.22 On this basis, the Committee supports the ratification of this treaty.

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14 Dr Michael Green, General Manager, Innovation and Space Branch, Manufacturing Division, Department of Industry, Innovation, Science, Research and Tertiary Education, *Committee Hansard*, 6 February 2012, p. 7.

15 NIA, para 14.

16 Dr Michael Green, General Manager, Innovation and Space Branch, Manufacturing Division, Department of Industry, Innovation, Science, Research and Tertiary Education, *Committee Hansard*, 6 February 2012, p. 8.

17 Dr Michael Green, General Manager, Innovation and Space Branch, Manufacturing Division, Department of Industry, Innovation, Science, Research and Tertiary Education, *Committee Hansard*, 6 February 2012, p. 9.

18 NIA, para 8.

Recommendation 2

The Committee supports the *Agreement between the Government of Australia and the European Space Agency for a Co operative Space Vehicle Tracking Program done at Cape Town on 5 October 2011* and recommends that binding treaty action be taken.