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Appendix C – Australian Government Solicitor Advice

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Our ref. 10040569

2 July 2010

Mr Mark Baker
Senior Legal Counsel
Commonwealth Scientific and Industrial
Research Organisation
GPO Box 1483
CANBERRA ACT 2601

Dear Mr Baker

Public Works Commitee Act 1969

1. Thank you for your request for urgent advice dated 30 June 2010 concerning the application of the *Public Works Committee Act 1969* (PWC Act) in relation to the Pawsey High Performance Computing Centre (the Pawsey Project) and the Australian SKA Pathfinder (ASKAP) Radio Telescope (ASKAP Project).

SUMMARY OF ADVICE

2. In our view, the works proposed to be funded under the *Sustainable Energy for SKA* project would not give rise to the need for a new approval process to be undertaken with the Parliamentary Standing Committee on Public Works (PWC) in respect of the Pawsey Project or the ASKAP Project. In this context, in our view, carrying out the works would not have the effect that there is a new or different work to the proposed work that has been the subject of an expediency resolution in the House of Representatives in respect of each of the Pawsey Project and the ASKAP Project.

THE PAWSEY PROJECT

3. On 18 March 2010 the House of Representatives agreed to the following motion:

> That, in accordance with the provisions of the *Public Works Committee Act 1969*, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for consideration and report: Pawsey High Performance Computing Centre for SKA Science at Kensington, Western Australia.

4. In short form the proposed scope of the works for the Project was described in Report 2/2010 of the PWC as follows (at p 33):

- Pawsey Centre building to house the high performance computing facility including:
  - Single story building with 4,000 square metres gross floor area providing working accommodation for administrative and ancillary support, computer hall and plant rooms;

- Mechanical services;
- Electrical services;
- Hydraulic services; and
- Landscaping.

— High performance computing (HPC) facility will comprise:

- High performance computing subsystem;
- Disk storage subsystem; and
- Tape storage subsystem[1]

5. The total estimated out-turn cost for the Project is stated in the Report to be $66 million comprising $26 million in building works and $40 million for the HPC system (see p 33 of the Report).

6. On 24 June 2010 the House of Representatives resolved that it was expedient to carry out the proposed work.

7. It appears from a further submission that has been made by the CSIRO to the PWC in respect of the Pawsey Project - Proposed Extension of Scope to the Pawsey High Performance Computing Centre and the Australian SKA Pathfinder (ASKAP) Projects for the Provision of Sustainable Energy (the further submission) - that certain Commonwealth funding (EIF grant) has become available that would 'support the construction in Western Australia of renewable energy infrastructure for the Pawsey Centre...' (see p 2 of the further submission). The proposed use of this funding has been described in the further submission as follows (at p 3):

> Approximately $20 million of the EIF grant awarded will be invested in a drilling program to access the hot sedimentary aquifer under the Perth basin to power an absorption chillier to meet the significant cooling requirements of the Pawsey Centre supercomputer and the heating/cooling requirements of the adjacent Australian Resources Research Centre (ARRC). The infrastructure will establish the Pawsey Centre as Australia's largest direct-heat geothermal demonstration site.

8. We understand that an issue has arisen whether the activities contemplated by the EIF grant, described in some detail in the further submission, need to be treated as a separate new work for the purposes of the PWC Act rather than as a part of the proposed work that was the subject of the motion agreed to by the House on 24 June 2010.

9. In our view, those activities can properly be regarded as part of the proposed work that was the subject of the motion agreed to on 24 June 2010.

10. In particular, it appears from material in the CSIRO's submission to the PWC (see p 16), from evidence given to the PWC at its hearing on 16 April 2010 (see the

[1] Submission 1, CSIRO, p.10 -11, Report 2/2010

evidence of Dr Harvey at PW 11) and from the PWC's report itself (see paras 6.21-6.23), that the possible utilisation of geothermal energy for the purposes of the Pawsey Centre building was part of the proposed work. For example, at para 6.21 of the PWC's report, after referring to the fact that 'the CSIRO has told the (PWC) that it is looking at utilising the geothermal energy of the Perth basin to reduce the impact of cooling in the building' the report states that 'subsequently, the Government has announced funding for the construction of geothermal and solar power generation and distribution infrastructure...and the Pawsey High Performance Computing Centre'.

11. We note that the further submission also refers to the geothermal component also meeting the heating/cooling needs of the adjacent Australian Resources Research Centre (ARRC) facility. We do not think this feature of the geothermal component means that the work is not the same proposed work that was the subject of the motion agreed to by the House on 24 June 2010. That is to say, we do not think that the fact that the ARRC facility would also be intended to benefit from the geothermal energy has the effect that the work cannot be seen, in substance, as a work concerned with the Pawsey Centre. As we understand the matter, the geothermal component would not take place but for the Pawsey Centre. As between the Centre and the ARRC facility it will be the Centre that will, overwhelmingly, have access to any benefit to be derived from the utilisation of the geothermal energy. In these circumstances, in relation to any possible application of the PWC Act, any access that the ARRC facility will have to the geothermal energy could be seen as merely incidental to the access intended to be enjoyed by the Pawsey Centre.

12. In summary, it appears to us that the EIF funded works would increase the cost of the proposed work the subject of the motion in the House, but would not change it into a different work.

THE ASKAP PROJECT

13. On 18 March 2008 the House of Representatives agreed to the following motion:

> That, in accordance with the provisions of the *Public Works Committee Act 1969*, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for consideration and report: Proposed Australian SKA Pathfinder radio telescope in Geraldton-Greenough and in Murchison Shire, WA.

14. In short form the proposed scope of the works for the Project was described in Report 9/2008 of the PWC as follows (at p 8):

> **Scope of works**
>
> The proposed scope of works is detailed in Submission 1: CSIR0. The project will provide the infrastructure necessary for the operation of the ASKAP. In short, the project proposes the following works:
>
> - the antenna array, consisting of up to 36 parabolic antennas, mounted on concrete footings, and distributed over the Murchison Radio-astronomy Observatory (MRO) site. Each antenna has a 12 metre diameter reflector. Each antenna site will be provided with lightning protection in the form of

an earth mat and will be provided with in ground power and data connection. The antennas will be equipped with sophisticated phased array feed receivers at the focus of the dish reflector, and beamformer and other electronics in the antenna pedestal;

- a central compound, located within the MRO site, containing a control building, site services and areas for storage;
- a remote power generation facility, adjacent to the central compound;
- renovated facilities within the Boolardy Station homestead precinct to provide accommodation, working, and recreational facilities for additional staff and visitors to the MRO. The facilities will provide for after-hours remote monitoring of the equipment at the MRO;
- an MRO Support Facility (MSF) located at the Geraldton Universities Centre in Geraldton-Greenough, WA. This facility will contain a telescope control room, computer room, monitoring and processing equipment, electrical and mechanical workshops, office and meeting space and amenities. The building will also include an education/ outreach centre;
- access and services infrastructure, including access corridors at the MRO, fencing, power reticulation, data and communications cabling, water and waste water management;
- high bandwidth optic-fibre cabling connecting the MRO to the MSF to provide essential data connectivity; and
- radio telescope infrastructure in NSW to connect to ASKAP in Western Australia to achieve high resolution pictures of the sky and to demonstrate cross-continent connectivity at astronomically useful data rates.[2]

15. The total out-turn cost for the Project is scheduled to be $111 million (excluding GST) (see p 9 of the Report).

16. On 3 December 2008 the House of Representatives resolved that it was expedient to carry out the proposed work.

17. It appears that 'ASKAP is being constructed in the Mid West of Western Australia at the Murchison Radio-astronomy Observatory (MRO)' (see p 7 of the further submission).

18. It appears from the further submission that certain Commonwealth funding (EIF grant) has become available that would 'support the construction in Western Australia of renewable energy infrastructure for the...ASKAP at the Murchison Radio-astronomy Observatory' (see p 2 of the further submission). The proposed use of this funding has been described in the further submission as follows (at p 3):

[2] Submission 1, CSIRO, p.12, Report 2/2010.

> Approximately $27 million of EIF funding will be invested in infrastructure that will deliver a high renewable penetration hybrid power generation system, and will enable an energy efficient MRO control building to be constructed as well as sophisticated geoexchange cooling to be developed and deployed for cooling ASKAP antenna electronics and the data processing system in the MRO control building.

19. We understand that an issue has arisen whether the activities contemplated by the EIF grant, described in some detail in the further submission, need to be treated as a separate new work or works for the purposes of the PWC Act rather than as a part of the proposed work that was the subject of the motion agreed to by the House on 3 December 2008.

20. From the available material (see p 8 of the further submission) it appears that these activities fall into the following areas;

- the development of remote power generation infrastructure (together with an underground power distribution network to minimise radio-frequency interference to the ASKAP receiver systems)
- the development and use of ground coupled cooling systems and
- the enhancement of the energy efficiency of the MRO control building.

21. In our view, these activities can properly be regarded as part of the proposed work that was the subject of the motion agreed to on 3 December 2008. We say that, in particular, because it appears from the material that the funding will be used, in effect, to enhance or further develop aspects of the proposed work that was before the PWC rather than to introduce new components into the proposed work.

22. For example, an important element of the proposed work is 'a remote power generation facility, adjacent to the central compound' (see para 2.13 of the Report).It appears to have been contemplated that there would be a 'mix' of traditional and renewable components in the power generation system (see para 160 of the CSIRO's submission). However, the EIF funding will enable a greater use of renewable technologies over reliance on traditional energy sources for that facility than had previously been contemplated. A possible change to the mix had been 'flagged' with the PWC (see para 199 of the CSIRO's submission to the PWC and the evidence given to the PWC by Dr DeBoer on 1 October 2008 at PW4).

23. Another important element of the proposed work is 'a central compound, located within the MRO site, containing a control building, site services and areas for storage' (see para 2.13 of the Report). The CSIRO's submission underscores the need for buildings and other structures to have appropriate features given the climate and the operations of those structures (see, for example, paras 157 and 201 of the CSIRO's submission). It is intended to use the EIF funding for the purpose of enhancing the control building's energy efficiency without compromising the integrity of the radio frequency.

24. Also, the intended use of funding on development of an underground power distribution network and the development and use of ground coupled cooling

systems relate to aspects of the proposed work dealt with in the CSIRO's submission (see paras 157 and 162-165). In relation to the latter aspect the submission states that 'passive solar design and ground coupled cooling systems will significantly reduce the base load and peak power requirements. Technologies and providers of such systems have been identified'.

25. In summary, it appears to us that the EIF funded works would increase the cost of the proposed work the subject of the motion in the House, but would not change it into a different work.

26. If you have any queries in relation to this matter, please don't hesitate to contact me.

Yours sincerely

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