



FOR: Deputy Prime Minister

INFO: Minister for Defence Industry

CC: SEC CDF, VCDF, ASSOCSEC, FASMECC

**DEFENCE ADVICE TO THE DEPARTMENT OF INDUSTRY, SCIENCE AND RESOURCES ON PSIQUANTUM
PROPOSAL FOR QUANTUM COMPUTER**

Key Issues:

Defence Science and Technology Group (DSTG) has provided advice to the Department of Industry, Science and Resources (DISR) that the technology risk associated **s47E(d) and 47G** received from PsiQuantum to establish a quantum computing facility **s47C and s47E(d)**.

Media Considerations:

Defence does not anticipate any media attention on this matter.

Minister comments:

Cleared by:

Professor Emily Hilder
Acting Chief Defence Scientist
Defence Science and Technology Group

s47E(d)

s22

Contact Officer:

Dr David Kershaw
Chief Science Strategic Planning and Engagement

s22

[REDACTED]

Sensitivity: Yes.

1. DSTG has provided an initial assessment of the PsiQuantum proposal. **s47C and s47E(d)**

2. DSTG advice **s47C and s47E(d)**
s47C and s47E(d)

Financial Impacts: No.

Systems/legislation/deregulation: No.

Consultation: Yes.

3. **s47E(c)** Manager, Technology and Digital Division, Department of Industry, Science and Resources.
4. Air Commodore Matt Hegarty, Acting First Assistant Secretary, Strategic Policy, Strategic Policy and Industry Group
5. Dr Clare Murphy, Assistant Secretary Defence Capability and Innovation, Strategic Policy and Industry Group.

Attachments:

Attachment A **s33(a)(ii)**

Attachment B MB23-000209: Defence advice to DISR on PsiQuantum Proposal.

Background

PsiQuantum proposal for a quantum computing facility

6. PsiQuantum is a technology company founded in 2016 who have developed a scalable manufacturing process for photonics based quantum computers. s47G [redacted], PsiQuantum approached the Government through DISR, s47E(d) and 47G [redacted] seeking support to establish a quantum computing facility. s47B [redacted]
7. s47B [redacted] It was identified that the due diligence and analysis being conducted by DISR could be supported with technical advice from Defence. s47E(d) [redacted] (MS23-000209 refers), DSTG began undertaking an independent technology risk assessment of the PsiQuantum proposal.
8. Since the implementation of the Defence Procurement Review 2003 (Kinnaird Review), DSTG has been the authority for technology risk advice to Defence and the Government on Integrated Investment Program projects. DSTG has applied this existing process to the proposal from PsiQuantum, with subject matter experts in quantum technology (including the Chief Defence Scientist) conducting the assessment.
DSTG assessment of the PsiQuantum proposal technology risk
9. s33(a)(ii), s47C, s47E(d) and s47G [redacted]
10. [redacted]
11. s47C [redacted]
s47C [redacted] Development is being undertaken with materials and systems that are representative of commercial manufacturing scale rather than bespoke laboratory components. PsiQuantum has also developed a number of off-ramp technologies that may deliver commercial value, and provide benefit to Australia, independent of their application to a quantum computer.
12. s33(a)(ii) and s33(a)(iii) [redacted]



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CC: Secretary, CDF, VCDF, Associate Secretary, FASMECC

DEFENCE ADVICE TO DISR ON PSIQUANTUM PROPOSAL

Key Issues:

Defence Science and Technology Group (DSTG) is providing advice to the Department of Industry, Science and Resources (DISR) on the technology risk associated **s47E(d) and 47G** received from PsiQuantum to establish a quantum computing facility in Queensland.

Media Considerations:

Defence does not anticipate any media attention on this matter.

Minister comments:

Cleared by:

Professor Tanya Monro AC
Chief Defence Scientist
Defence Science and Technology Group

s47E(d)

s22

Contact Officer:

Dr David Kershaw
Chief Science Strategic Planning and Engagement

s22

[REDACTED]

Sensitivity: Yes.

1. DISR have requested that the Technology Risk Assessment advice be provided by s47E(d) [REDACTED]. This may be impacted if access to technical information from PsiQuantum on the proposed technology solution and development plan is delayed.

2. The PsiQuantum technology risk assessment creates a precedent case for consideration. s47E(d) [REDACTED]
[REDACTED]
[REDACTED]

Financial Impacts: No.

Systems/legislation/deregulation: No.

Consultation: Yes.

3. s47E(c) [REDACTED] Manager, Technology and Digital Division, Department of Industry, Science and Resources.

Background

PsiQuantum technology risk assessment

4. PsiQuantum are a technology company founded in 2016 who have developed a scalable manufacturing process for photonics based quantum computers. They currently have a Research and Development facility in the United States and are now seeking to build a product site in Australia. PsiQuantum were recently selected by the United States Defense Advanced Research Projects Agency under their Underexplored Systems for Utility-Scale Quantum Computing program, to produce a design concept for a utility-scale quantum computer. The program duration is five years.
5. s47C and s47E(d)
6. s47E(d). This has included the Chief Scientist convening a Chief Scientists roundtable with PsiQuantum s47E(d) to discuss the technology involved in the proposal. Chief Science Strategic Planning and Engagement, Dr David Kershaw, represented the Chief Defence Scientist at that roundtable.
7. s47E(d) working group meeting, coordinated by DISR to consider this proposal and attended by Dr Kershaw, it was identified that the due diligence and analysis being conducted by DISR and the Queensland State Government could be supported with technical advice from Defence.
8. Since the implementation of the Defence Procurement Review 2003 (Kinnaird Review), DSTG has been the authority for technology risk advice to Defence and Government on Integrated Investment Program projects. s47C and s47E(d)
s47C and s47E(d)
- 9.
- 10.
11. A successful, sovereign quantum computing facility in Australia would be expected to deliver benefits to Defence in a wide range of technical areas including data analysis, design of advanced materials and encryption. The associated photonics industry development required for scaling PsiQuantum's technology would have benefits for manufacturing a broader range of advanced Defence technologies. By supporting DISR with technology risk advice, Defence is able to assess the potential for the technology for Defence whilst providing the Australian Government with a technology risk assessment to assist any decision regarding the PsiQuantum proposal.