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## Quantum

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### **Scale of domestic-focussed quantum initiatives such as the Critical Technologies Challenge Program compared to PsiQuantum**

- My role as Chief Scientist is to provide evidence-based, impartial science advice – not to provide opinion on government policy.
- What I have seen in the workshops we've run is that there are many opportunities for quantum technologies to be beneficial in key sectors for the Australian economy.
- Supporting the development of these opportunities being realised has multiple benefits: not only does it help to address critical national challenges, it also helps to grow our start-up quantum sector.

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**What advice have you provided to the Government about paying for PsiQuantum to build a quantum computer in Australia?**

- I have provided advice to Government about this; as that advice is now a matter for Government I suggest you direct questions about it to them.
- Questions about the Expression of Interest process should be directed to the Department of Industry, Science and Resources.

**When did you provide advice on this matter?****April 2022 – May 2023**

- Attended 4 meetings and presentations relating to PsiQuantum
  - 2 of these meetings involved representatives from PsiQuantum
- August 2022 – provided a brief written assessment of PsiQuantum’s capabilities
- February 2023 – provided comments on technical materials provided by PsiQuantum
- May 2023 – provided advice on the photonics industry in Australia.

**July 2023**

- Invited to join the Technical Advisory Group.

**August 2023 – September 2023**

- Participated in 4 Technical Advisory Group meetings
- Met separately with PsiQuantum representatives in role as a Technical Advisory Group member (on leave when the TAG met PsiQuantum representatives as a group).

**May 2024**

- Participated in briefings with Senator the Hon David Pocock, Senator for ACT
- Participated in a briefing on PsiQuantum for the National Quantum Advisory Committee.

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**Timeline of involvement in PsiQuantum**

April 2022 – May 2023

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## Statement on the role of Dr Cathy Foley in PsiQuantum proposal

May 2024

- As Australia's Chief Scientist I was asked to provide technical advice to the Commonwealth Government on PsiQuantum's proposal.
- I was a member of the Technical Advisory Group established to undertake due diligence on the technology. I joined the Technical Advisory Group in July 2023.
  - If asked: Others on the group were from the CSIRO, the Department of Industry, Science and Resources, and the Defence Science and Technology Group and the Department of Finance.
- The due diligence process involved analysing PsiQuantum's technology roadmap, providing advice on inquiry points to develop a comprehensive understanding of the company's technical capabilities and reviewing the technical data available.
- We were asked to provide advice on whether PsiQuantum's approach to delivering a quantum computer in the near term was technically feasible.
  - PsiQuantum's approach to quantum computing is based on photonics. There are many approaches to developing qubits, this is just one.
  - I have no doubt many kinds of quantum computer will be developed.
  - PsiQuantum's technology is proven and sufficiently advanced that they could achieve the goal in the near term.
  - They have the size, scale and infrastructure necessary.
- I was asked to provide this advice based on my expertise, which is in semiconducting electronics and single photon detectors, thin films and scale up of devices – so I was able to give advice to government in those areas where I'm an expert.

If asked

### Detail of the advice you provided

- The advice I provided before the establishment of the Technical Advisory Group included:



- An assessment of PsiQuantum's capability based on scientific literature, patents and other materials at hand – including material provided by PsiQuantum.
- Comments on technical materials provided by PsiQuantum.
- S 47G(1)

### EOI process

- The Technical Advisory Group was consulted on technical aspects of the EOI process.
- This included reviewing the list of companies invited to participate, supporting the development of the technical criteria and reviewing the assessment of the submissions.
- The EOI tested interest and capability in developing, building and operating a commercial-scale universal fault tolerant quantum computer in Australia by 2030 (or earlier), as well as associated benefits to strengthen Australia's quantum sector and contribute to the national interest.

### Dates and times

- I was made aware that PQ had approached the department in March 2022 (*noting they provided a proposal to the department in late 2022*).
- I provided a brief written assessment of PsiQuantum's capabilities in August 2022.
- I provided comments on technical materials provided by PsiQuantum in February 2023.
- I provided advice on the photonics industry in Australia in May 2023.
- I joined the Technical Advisory Group in July 2023.
- I participated in 5 meetings of the Technical Advisory Group from August 2023 to November 2023.
- In January of this year, I was asked to provide suggestions on the process to monitor PsiQuantum's progress against the contract.

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## Commercial terms

- Questions on the commercial details should be referred to EFA, as the agency responsible for administering the Government's investment.
- Further details will be disclosed by EFA in accordance with its normal reporting requirements and respecting its commercial confidentiality requirements.
  - DISR cannot comment, noting EFA has strict obligations with respect to the confidentiality of client information.
  - DISR understands that within 8 weeks of signing, EFA will disclose details on its transaction register. These will disclose the amount of finance provided and the type of product provided.
  - Contractual Close occurred on 31 May 2024. Further questions are best directed to EFA.
- The transaction is being completed on the National Interest Account and was carefully considered by Government.
- As you would expect, all financial transactions involve some level of risk.
  - In this case, some risk is a consequence of the cutting-edge nature of quantum computing technology.
- The decision made by the Government to enter this transaction was made in awareness of these risks, and with regard to policy outcomes.
- The financing package has been structured to, where possible, minimise risks within the financing structure.
- The package includes debt and equity, which are designed to secure the Government a return on its financing.
- The financial returns to the Commonwealth will depend on a range of variables, including business performance.
- The Government expects to make a financial return from its investment via repayment of the loan and its participating in equity returns.
- The last public valuation reported by PsiQuantum was US\$3.2 billion in 2021.
  - Disclosing the valuation of a private company is at the discretion of the company.

## Debt

- Consistent with project financing principles, drawdowns by PQ AU are subject to various conditions, milestones, and project financing tests being met.
- Government support for PsiQuantum is included in Budget Paper 1, Table 9.3, which lists Australian Government loans estimated to exceed \$200 million.
  - The loan amount, interest rate and repayment period are listed as commercial in confidence.

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- The terms of the debt require PQ US to meet the agreed ecosystem commitments (see page 6).

#### **Access to the computer once it is built**

- PsiQuantum has committed to provide Australian researchers and companies with access to the capability, in line with PsiQuantum's commercial strategy.

#### **IP**

- Arrangements for IP ownership and use are commercial-in-confidence
- **S 47G(1)**

## Reason for the investment

- The Government's investment in PsiQuantum aims to deliver on the ambition set out in the National Quantum Strategy - for the world's first error-corrected quantum computer to be built in Australia.
  - This will deliver large and broad-based economic, industry-development and employment benefits.
  - This is a decisive investment aimed at ensuring we remain in front of the global technology wave.
  - As the Chief Scientist has said, "this investment shows Australia is serious about its quantum industry development, by ensuring we remain at the front of the pack in the global race to build the first useful quantum computer".
- Through its Future Made in Australia agenda, the Government has highlighted the need to invest in innovation and technologies that will help ensure we remain globally competitive.
  - Future Made in Australia is focused on crowding in private investment at scale, to develop priority industries and align economic incentives with Australia's national interest.
- This investment is about securing the first commercial-scale fault-tolerant quantum computer in Australia.
  - As the Chief Scientist has noted – the future of quantum computing will be diverse, and likely involve multiple technologies.
- The Government continues to pursue a diverse investment approach into various quantum technologies and modalities.
  - This includes the Government's investment in Silicon Quantum Computing, a range of measures under the National Quantum Strategy, and \$1 billion in funding under the NRF for critical technologies (including quantum).
- As the Minister has said, "PsiQuantum are a global leader who are attracting private capital as a result of their ability to meet their technology milestones"
- Australia will also benefit from all the broader benefits of the project, which will produce value independently of a direct return on the investment:
  - PQ US has committed to supporting the development of Australia's quantum ecosystem and to maximising local advanced manufacturing opportunities.
- PsiQuantum has committed to provide Australian researchers and companies with access to the capability, in line with PsiQuantum's commercial strategy.
  - End-user applications will drive significant value to the Australian economy.

## Why PQ

- The Government determined that, of the available potential opportunities, PsiQuantum offered the best prospect of delivering on the National Quantum Strategy's objective to build the world's first commercial quantum computer in Australia. This was assessment was made following:
  - Comprehensive technical due diligence, undertaken by quantum computing experts and overseen by an advisory group including Australia's Chief Scientist, which concluded that the company had a credible technology roadmap to secure a first mover advantage in industrial quantum computing for Australia.
  - Rigorous testing of PQ's commercial position through extensive due diligence undertaken by DISR with support from the Department of Finance and external commercial and legal advisers
  - An EOI process through which the Department tested the international and domestic quantum computing sector's capability and interest in developing, building and operating a commercial-scale, universal quantum computer in Australia.
- PsiQuantum is one of the most advanced developers of quantum computing, globally. By 2021, it had already raised over US\$700 million in equity from a range of highly experienced investors including Blackrock, M12 (Microsoft), Blackbird Ventures and Temasek, and has continued to meet its technology development milestones since then.
- PQ has committed to supporting the development of Australia's quantum ecosystem and to maximising local advanced manufacturing opportunities (see page 6).
- As noted by [Dr Cathy Foley](#), PsiQuantum is unlikely to build Australia's only quantum computer. Australian companies, such as Silicon Quantum Computing, Diraq and Quantum Brilliance, are world leaders in their field, and have longer-term road maps for what will be the next generation of quantum computers.

## Quantum investment in relation to the FMIA National Interest Framework

- Quantum is a key part of the Critical Technologies Statement, and our approach is laid out in the National Quantum Strategy
- The investment in PsiQuantum had the kind of rigour and due diligence that will characterise future transformational investments, including under the National Interest Framework.
- DISR applied an integrated national interest approach – including evaluation of economic security and national security implications
- The Government's quantum investment was agreed ahead of the finalisation of the National Interest Framework, but is aligned with the objectives of the framework – attracting private investment in areas that will be important to our economic security and resilience
- DISR provided input to the framing of the National Interest Framework, informed by a variety of previous investments made by government, including its recent investment in PsiQuantum.

## Support for the Australian quantum industry

### SQC

- The Australian Government (through DISR) holds about 30 per cent of shares in SQC, an Australian company developing world-leading quantum computing technology. The Government invested:
  - \$25 million when SQC was created in 2017.
  - Further \$15 million on 28 July 2023, in SQC's Series A capital raising round.

### The Government is investing in the growth of the quantum industry

- The investment in PsiQuantum is the latest in a series of government initiatives that are prioritising investment in quantum technologies in Australia. This includes through:
  - Targeting \$1B of the National Reconstruction Fund to drive Australian based investments in enabling technologies like quantum.
  - \$3.4B Advanced Strategic Capability Accelerator has targeted the full range of quantum technologies in its Emerging and Disruptive Technologies program.
  - The most recent round of the \$1.6B Australia's Economic Accelerator, which includes enabling technologies like quantum.
  - Funding of up to \$18.5 million to establish the Australian Centre for Quantum Growth, will support the growth of the quantum technology industry in Australia and catalyse demand for quantum technologies.
  - The Critical Technologies Challenges Program, which will provide up to \$36 million in grant funding to test solutions to market-led challenges of national significance using quantum technologies, accelerating quantum technologies from an early-readiness phase when private capital is hard to secure.
- Collectively, the Government's investments in quantum are aimed at advancing Australia's competitive advantage, crowding in talent, creating opportunities for advanced manufacturing, and attracting additional investment. [Aligns with the [Prime Minister's Capital Brief interview](#).]

### EOI

- The department tested market capability by inviting 21 companies – domestic and international – to demonstrate interest and capability to deliver an FTQC by 2030 or earlier.
- Details about individual companies' participation are confidential.

### Audit of Quantum Infrastructure

- The department is conducting an audit of infrastructure supporting quantum research to deliver action 2.1 of the National Quantum Strategy. The audit will identify capability gaps and areas for dedicated investment, including access to quantum computing capabilities.

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- Stakeholders have identified a range of potential areas for dedicated investment, including quantum computing testbeds.
- We expect to complete the audit in the coming months and any future decisions on investment would be matters for Government.

### How will the Australian quantum sector benefit from this investment?

- PsiQuantum has committed to supporting the development of Australia's quantum ecosystem and to maximising local advanced manufacturing opportunities.
- The company has said publicly it is on an aggressive plan to have the site operational by the end of 2027.
- **[Ecosystem commitments]** As part of this investment, PQ US will:
  - establish its Asia-Pacific Headquarters and regional hub in Brisbane, along with facilities to build and operate the FTQC;
  - deliver successive generations of a utility-scale FTQC and maintain the product site as a flagship global facility over an expected 20-year economic life;
  - proactively build opportunities for partnerships with local industry and government, including supporting creation of advanced manufacturing clusters;
  - leverage its existing relationships with global leaders in technology to bring additional expertise and experience to the Australian quantum ecosystem;
  - create up to 400 highly skilled local jobs by 2032;
  - create a dedicated climate research centre in Brisbane to identify quantum applications for climate fields. The centre will focus on direct air capture; green ammonia; solar cells and high-density electric batteries;
  - open new digital and advanced tech supply chain opportunities;
  - collaborate with Australian-based operators in quantum-related fields in capacities including:
    - R&D projects;
    - Commercial hardware suppliers;
    - Applications development;
    - Software tools
    - System validation, testing and cryogenics;
  - partner with university labs for testing; provide academic institutions access to cryogenic facilities for experiments;
  - invest in university and research collaborations, including PhD positions, mentoring and internship opportunities.
- PQ has also committed to providing Australian researchers and companies with access to the capability, in line with PQ's commercial strategy.

## Investment in a US company

- The Commonwealth expects to make a financial return from the repayment of loans, interest and sharing in equity (shareholder) returns.
- Australia will also benefit from all the broader benefits of the project, which will produce value independently of a direct return on the investment:
  - PQ US has committed to supporting the development of Australia's quantum ecosystem and to maximising local advanced manufacturing opportunities.
- PsiQuantum has committed to provide Australian researchers and companies with access to the capability, in line with PsiQuantum's commercial strategy.
  - End-user applications will drive significant value to the Australian economy.



## Timeline and process conducted by the department

- PsiQuantum's first substantive engagement with the Commonwealth was through contact with Austrade officials in 2021 [the first contact recorded by Austrade was in 2019]. Austrade's role is to attract foreign investment to Australia.
  - Austrade facilitated discussions with other parts of Government, including DISR.
  - Austrade also made introductions to state governments.
- PsiQuantum submitted a proposal to DISR in November 2022.
- Like other departments, DISR has an established way of dealing with approaches.
  - Initially, this includes assessment of whether there are existing programs that are relevant.
  - Where proposals are not eligible for existing programs but are aligned with Government policy priorities, they may be assessed for other funding opportunities.
- In PsiQuantum's case, a decision was taken to explore the proposal further.
  - There were multiple phases of due diligence, of increasing intensity, and with Government decision-points / gateways along the way.
  - Robust governance arrangements were put in place, with a Commonwealth Band 3 interdepartmental committee, a Band 2 Steering Committee and a Technical Advisory Group.
- DISR established the Technology Investment Taskforce in June 2023 to progress detailed assessment of the proposal commensurate with its scale, scope and complexity. The Department of Finance provided support to the Technology Investment Taskforce.
- The Taskforce undertook the following assessments:
  - in-depth analysis of PsiQuantum's technology and its feasibility by quantum experts.
  - extensive commercial, financial and legal due diligence by expert commercial, financial and legal advisers.
- DISR engaged an independent probity adviser to oversee the project.
- Boston Consulting Group assessed the quantum computing opportunity in Australia for the Australian and Queensland governments. This examined the potential impact of investment in quantum computing capability on job creation and economic growth, including across related industries.
- Following Government's decision to test the market, DISR ran an EOI process from August to September 2023.
  - This process was designed to ensure any investment represented an effective, efficient, economical and ethical use of Commonwealth funds.

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- It was consistent with the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and informed by the Commonwealth Investment Framework.
- The approach was designed with advice from relevant portfolios, including the Department of Finance.

### Government advice to PsiQuantum

- PsiQuantum has been aware that it could receive Government funding since we acknowledged receipt of its unsolicited proposal in November 2022.
- Negotiations and due diligence were on a without prejudice basis ahead of the Government's final investment decision, earlier in 2024.

### Confidentiality agreement in place with PsiQuantum

- A mutual non-disclosure agreement was signed by both parties on 21 March 2023.
- This protects the disclosure of sensitive information provided to the department by PsiQuantum.

### National security implications

- Government considers the national security implications of many issues, including critical technologies.
- A spokesman for Minister Husic has [said](#) that the PsiQuantum investment was “subject to rigorous and comprehensive due diligence across several areas, including national security”.
- The Prime Minister has [noted](#) that “This wasn't a decision taken lightly. This was examined in all of its aspects – economic security, all of the aspects went through an enormous amount of work, and many hours of many meetings, at every level of our cabinet processes, to make sure that it was the right thing to do. And the government's absolutely convinced that it was, as were all of Treasury and Industry and other agencies as well.”
- It would not be appropriate to comment further on national security or defence matters.

### Government agencies \$30 million to oversee the investment

- Additional funding of \$27.7 million over 11 years from 2023–24 is being provided for the Department of Foreign Affairs and Trade, the Department of Industry, Science and Resources and the Department of the Treasury to manage and provide oversight of this investment. The Department of Finance received \$0.9 million for 2023-24.
  - This includes funding of \$16.1 million over 11 years from 2023-24 for the Department of Industry, Science and Resources to manage and provide oversight of the investment.

### Australian consultation with the US

- Australia has close ongoing engagement with the US on matters of critical and emerging technology, as would be expected of a key strategic and likeminded partner.
- We did consult with the US Government as part of consideration of this investment.
- This proposal is an opportunity to advance Australia-US shared interests, particularly as they relate to critical technologies, including quantum.
- The project provides an opportunity for practical cooperation, helping us to deliver on our joint commitments and furthers shared objectives amid geostrategic competition.
  - The US and Australia recognise the transformative nature of quantum technologies and are committed to practical cooperation to develop capability [[Joint Leaders' Statement](#) (20 May 2023), the [Joint Statement on Cooperation in Quantum](#) (19 November 2021)].
- US Ambassador Caroline Kennedy [expressed](#) warm remarks on the investment at the announcement in Brisbane on 30 April 2024.
  - This investment is evidence that, as Ambassador Kennedy stated that, 'the US and Australia are partnering every day on doing things that are hard, on doing things that are important for the future, from advanced manufacturing to innovation tech.'

## Market testing

### EOI confidential

- A confidential EOI was considered most appropriate under the circumstances, following advice from advisers as well as consultation with relevant departments, including the Department of Finance
  - The key objective was ensuring adherence to the PGPA Act and the Commonwealth Investment Framework, including testing value for money by identifying the market's capacity for potential alternative sources of supply.
  - In this case, the department was satisfied that the technology could only be supplied by particular businesses and that there were no reasonable substitutes.
- The decision to conduct market testing was made by Government; the Minister agreed to the confidential EOI.
- Preliminary due diligence on PsiQuantum's proposal provided a decision-point for Government to consider the merits of proceeding with a more detailed assessment of PsiQuantum's proposal, including testing the market.

### Follow-up to the EOI responses

- Based on the information provided in the EOIs, the Assessment Panel had sufficient information to form a view on the level of confidence of the likelihood that each participating organisation could develop, build and operate a commercial-scale universal fault-tolerant quantum computer in Australia by 2030 and preferably earlier.
- The Assessment Panel found that each of responding organisations would require a significant change in their current roadmap to deliver on the objective of the EOI, without having clarity on how that significant change could be achieved.
- This assessment did not detract from the positive impression that was taken by the Department of the capability of each EOI respondent.
- The Commonwealth's assessment panel for this EOI process comprised, and was supported by, a range of experts with relevant quantum computing and other expertise.
  - The Panel's assessment was also supported by the Commonwealth's Technical Advisory Group, which brought further technical expertise to the consideration of the EOIs.
- All respondents have been given the opportunity to seek feedback on their submissions from the EOI panel.

### PsiQuantum participation in the EOI process

- PsiQuantum approached the Government with a proposal in late 2022. It was not invited to participate in the EOI.
  - Preliminary due diligence on PsiQuantum's proposal provided a decision-point for Government to consider the merits of proceeding with a detailed due diligence assessment of PsiQuantum's proposal, including testing the market.
  - Government decided to undertake market testing as part of ensuring an effective, efficient, economical and ethical use of Commonwealth funds consistent with the *Public Governance, Performance and Accountability Act 2013 (PGPA Act)* and the *Commonwealth Investment Framework*.

### PsiQuantum's proposal was considered separately to the EOI process

- The government sought advice from legal and probity consultants to ensure that the market testing process offered a fair opportunity to all proponents.
- The market testing process did not directly compare companies against each other or against PsiQuantum. All proposals from the EOI process and PsiQuantum's unsolicited proposal were assessed against the same criteria.

### Timing of EOI

- The EOI process opened on 11 August and closed on 11 September.
- The government gave proponents 1 month to submit proposals in the EOI process to accommodate the complexity of the requested submissions.

### National Quantum Advisory Committee (NQAC)

- It would have been inappropriate to consult with the National Quantum Advisory Committee, as the committee includes individuals that were potential respondents to, or otherwise had a commercial interest in, the EOI process.

## Technology

- Technical due diligence was undertaken by Commonwealth scientists from DISR, DSTG and CSIRO, with input from external experts, consultation with international experts and overseen by the Technical Advisory Group.
  - It would not be appropriate to identify specific individuals. There were multiple representatives of each organisation.
- The Technical Advisory Group comprised Australia's Chief Scientist, Dr Cathy Foley, and senior Australian Government experts from the Commonwealth Scientific and Industrial Research Organisation and the Defence Science and Technology Group.
- In addition to Australia's Chief Scientist, the Technical Advisory Group included senior executives from scientific government agencies, with PhD level qualifications in relevant subjects including quantum computing, and broad scientific expertise.
- The technology due diligence group included staff from multiple government agencies with doctorates in areas including quantum computing and photonics.
- The working group included expertise in assessing laboratory capability as part of the National Association of Testing Authorities (NATA). NATA is the national body responsible for accrediting laboratories in Australia and contributing to international accreditation standards.
- The Government considered that of the available potential opportunities, PsiQuantum offered the best prospect of delivering on the National Quantum Strategy's objective to build the world's first commercial quantum computer in Australia.
- The government recognises there are multiple quantum computing modalities. The government carefully assessed PsiQuantum's proposal before reaching a decision to invest.
- Consistent with project financing principles, drawdowns by PsiQuantum are subject to various conditions, milestones, and project financing tests being met.
  - The completion of these milestones will be verified by an independent technology adviser, with input from scientific experts representing the Commonwealth and Queensland governments.

## Collaboration with Chinese researchers

- PsiQuantum has said that it has not collaborated with any Chinese universities, companies or government bodies.
- PsiQuantum's employees (in particular PsiQuantum's four co-founders) have been cited on papers with reference to contributions performed prior to the formation of the company.
- As is standard academic etiquette, papers frequently reference former professors, heads of department and notable individuals as a sign of approbation to past contributors on a subject.

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- PsiQuantum’s co-founders have together written hundreds of papers, several of which are considered influential for various approaches to quantum computing and photonics.
- While at University of Bristol, Professors O’Brien and Thompson both taught and worked on research projects with international students from across the world, including China.
- This is the same experience of leaders of quantum computing companies in Australia and around the world, during their academic careers, as China develops a large share of the graduates in these fields.
- 47G(1)
- During Treasury’s Estimates appearance on 3 June 2024, Minister Gallagher pointed out, in response to questions on this issue:
  - The article (*PsiQuantum saga’s Chinese twist*) quotes PsiQuantum as stating it has not had any collaborations with Chinese universities, companies or government bodies since its inception in 2016.
  - The article further notes it is not suggesting any direct links or collaboration between PsiQuantum founders and Chinese researchers.
  - The article points out that PQ holds multi-year US Government partnerships with the US Defense Advanced Research Projects Agency, Department of Energy and the Airforce Research Laboratory.

## National Quantum Strategy and the quantum ecosystem

### PsiQuantum comment or advice on Australia's National Quantum Strategy

- No.

#### Is PsiQuantum contractually bound to deliver benefits for the quantum ecosystem?

- Consistent with project financing principles, drawdowns by PQ AU are subject to various conditions, milestones, and project financing tests being met.
- 47G(1)
- PsiQuantum's presence will help Australia to reach critical mass and achieve a globally competitive industry by unlocking private capital to support innovation.
- It will generate activity and scale, secure supply chains, spur "brain regain" by attracting additional global talent to our shores, which will enrich our local talent pool through knowledge sharing and collaboration with international experts.
- As part of this investment, PsiQuantum has committed to supporting the development of Australian talent and has committed to funding PhD placements and mentoring undergraduate students.
- This investment will provide an opportunity for knowledge transfer, skills development and the creation of new job opportunities in the domestic market.
  - It is expected to drive greater uptake of relevant study opportunities to grow the pool of available talent. PsiQuantum has committed to invest in domestic education and training programs.
- We are working to grow Australia's quantum talent pipeline through a number of other activities such as:
  - The \$3.6 million Next Generation Quantum Graduates Program – which will fund up to 20 PhDs in quantum technology through nationally competitive scholarships. Students will participate in industry-led research projects and placements to build career-ready skills, ensuring that we are attracting and training Australia's next generation of quantum technology specialists.
  - The \$1 million National Quantum Collaboration Initiative – awarded to Sydney Quantum Academy to undertake a research study about quantum technology and workforce needs in Australia. Specifically, the study will identify how Australia can scale up academia and industry collaboration, to coordinate and advance education and research efforts to grow Australia's quantum ecosystem, and create a pipeline of quantum skills to address Australia's skills shortage and ensure Australia retains relevant specialised expertise and talent.
  - We are also working across government to understand and plan for current and future quantum workforce needs, ensuring that we have the education and skills policy settings right to support the growth of the sector over the long term and build an inclusive, thriving Australian quantum ecosystem.



## Technology explainer

### What is a quantum computer?

- Quantum computers will be able to solve certain kinds of problems much better than classical computers. This includes chemistry applications like modelling new medical compounds, and optimising resource distributions.
- A classical computer stores information as either a one or a zero in a “bit” and runs calculations by changing bits according to a set of instructions called an algorithm. A quantum computer stores information in a quantum bit, or “qubit”. Qubits use quantum mechanics principles to store information as both one and zero at the same time. This allows a quantum computer to simultaneously test many possible solutions to a problem.
  - When a quantum computer finishes a calculation, the qubits are measured. Measuring a qubit sets it to one or zero like a classical bit. The quantum computer outputs this measurement result as the solution to the calculation.
  - Quantum computers solve problems by using a quantum algorithm to manipulate the possible outcome of measuring qubits to ensure that the measurement will produce a correct solution instead of a random output.

### What is a fault tolerant quantum computer (FTQC)?

- Qubits are usually encoded in a single particle, so tiny variations in the environment can disturb the qubit and change its information, creating an error. Currently available quantum computers cannot manage these errors and are therefore much more prone to errors than classical computers. This means that they cannot be used to reliably perform complicated calculations.
- A fault tolerant quantum computer is a quantum computer that can identify and correct all the errors that occur in individual qubits, without generating errors in the overall calculations.
- Developing fault tolerance is necessary to tap the potential of quantum computing and perform complex calculations.

### What makes an FTQC utility-scale / commercially useful?

- A utility-scale quantum computer will be able to solve problems with meaningful real-world applications that are beyond the capacity of classical supercomputers.
  - For example, some chemical modelling problems would take hundreds of years to solve using classical computers, even supercomputers. A commercial-scale FTQC would be able to solve problems much more quickly – potentially in a matter of days or even hours.

### How will PsiQuantum’s computer work?

- PsiQuantum uses photons to make qubits. Photonic qubits are less prone to errors that change the information in the qubit but are very prone to errors that erase the qubit (“loss”). In order to minimise loss, PsiQuantum uses a process called “multiplexing”. This

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process uses many loss-prone photons to get a single reliable photon to use in calculations.

- PsiQuantum’s photonic components, including single photon sources, single-photon detectors, and an ultra-high-performance optical switch, are fabricated in a high-volume semiconductor foundry on standard silicon wafers. This allows the company to leverage the existing reliability, volume and precision of standard semiconductor manufacturing processes to build its FTQC.
- PsiQuantum uses a method called “fusion based quantum computing”. This method combines small sets of entangled qubits and fuses them into a large network with many qubits. This large network is a logical qubit that can perform calculations and correct errors. PsiQuantum also calls these networks “Fusion Networks”.

## OFFICIAL

## Fact Sheet – Process

## Key points

- PsiQuantum approached the Commonwealth and Queensland Governments in late 2022 with a proposal to build its world-leading utility-scale Fault Tolerant Quantum Computer, and establish its Asia-Pacific headquarters, in Brisbane.
  - Prior to that (from 2019 with the first substantive engagement in 2021), Austrade led early engagement between the company and the Commonwealth.
- Following preliminary assessment of the proposal, the Department of Industry, Science and Resources (DISR) established the Technology Investment Taskforce in June 2023 to undertake a rigorous assessment of the proposal commensurate with its scale, scope and complexity.
- The Taskforce collaborated across Government to assess the proposal, drawing on expertise from across the system, including the Department of Finance, Export Finance Australia (EFA), Treasury 47G(1) the Department of Foreign Affairs and Trade, the Department of the Prime Minister and Cabinet, the Department of Defence and the national security community.
- Robust governance arrangements were put in place, with a Commonwealth Band 3 interdepartmental committee, a Band 2 Steering Committee and a Technical Advisory Group.
- The Taskforce was also supported by expert legal, commercial, probity and infrastructure advisers to comprehensively evaluate PsiQuantum's proposal, including rigorous testing of its commercial position. The evaluation included:
  - Extensive commercial, financial and legal due diligence over several phases of consideration.
- Technology due diligence was undertaken by quantum experts, who undertook in-depth analysis of PsiQuantum's technology and its feasibility. This process included onsite due diligence to assess PsiQuantum's operations.
- A technical advisory group (TAG) provided advice and oversight on technology matters.
  - The TAG consisted of Australia's Chief Scientist and senior Commonwealth experts from the CSIRO and Defence Science and Technology Group (DSTG). Senior officials from the Department of Industry, Science and Resources (DISR) and the Department of Finance were also part of the group.
  - The TAG provided advice on whether PsiQuantum's path was technically feasible; and on whether the company had the size, scale, infrastructure and capability in place to build a commercial-scale, fault-tolerant quantum computer in the near term.
- The evaluation was further informed by a market assessment (conducted via a confidential Expression of Interest (EOI) process) to test the international and domestic quantum computing sector's capability and interest in developing, building and operating a commercial-scale universal fault tolerant quantum computer in Australia by 2030, and delivering associated benefits to strengthen Australia's quantum sector and contribute to the national interest.
  - The EOI did not identify any companies that competitively demonstrated the capability to deliver this suite of objectives.

- PsiQuantum's proposal was evaluated multiple times through the Australian Government's Cabinet process.
- The Commonwealth's financing is being provided by Export Finance Australia on the National Interest Account.
  - Consistent with its requirements, EFA undertook appropriate due diligence on the project before it was referred by the EFA Board to Government for final consideration.
  - EFA will disclose details in accordance with its normal reporting requirements and in a manner that respects the commercial confidentiality of the company.
  - DISR will continue to work closely with EFA on policy aspects of the transaction.
- The department (and Queensland) also commissioned an economic assessment to evaluate the potential impact of investing in a quantum computer on job creation, economic growth and technological spillover effects across related industries.

## Fact Sheet – Technology Investment Taskforce Resourcing & Procurements

### Key points

- DISR established the Technology Investment Taskforce in June 2023 to progress detailed assessment of the proposal commensurate with its scale, scope and complexity, including:
  - o In-depth analysis of PsiQuantum’s technology and its feasibility by quantum experts.
  - o Extensive commercial, financial and legal due diligence supported by the Department of Finance and expert commercial, financial and legal advisers.
  - o The Commonwealth engaged an independent probity adviser to oversee the project.
- The 2024-25 Budget provided funding for the PsiQuantum investment through the measure *Future Made in Australia: Investing in Innovation, Science and Digital Capabilities* ([2024-25 Budget Paper No. 2, p66](#)).
- As outlined in the measure description, this includes funding of \$27.7 million over 11 years from 2023-24 for the Department of Finance, the Department of Foreign Affairs and Trade, DISR and the Department of the Treasury to manage and provide oversight of the investment.
  - o DISR will receive \$16.1 million of this funding over 11 years from 2023-24 to manage and provide oversight of the investment (this amount was nfp in the Budget, but release of this detail has been agreed with Dept of Finance).
  - o This includes additional ASL of around 9.0 ASL from 2024-25, which will reduce over the 11 years in line with expected level of activity.
- Funding to be provided to agencies for management and oversight of the investment over the forward estimates is outlined below.

	2023-24 (\$m)	2024-25 (\$m)	2025-26 (\$m)	2026-27 (\$m)	2027-28 (\$m)	Total (\$m)
DISR - Payments	<i>nfp</i>	<i>nfp</i>	<i>nfp</i>	<i>nfp</i>	<i>nfp</i>	<i>nfp</i>
Finance - Payments	0.9	-	-	-	-	<b>0.9</b>
DFAT - Payments	0.1	0.3	0.3	0.3	0.3	<b>1.5</b>
Treasury - Payments	-	0.7	0.7	0.7	0.7	<b>2.7</b>

- As at 31 March 2024, the Taskforce’s year-to-date expenditure was \$5.7m (\$5.4m + \$0.332 extra KWM).

### ASL

- At 31 March 2024, the Taskforce’s year-to-date ASL actual was 12.0, against a year-to-date budget of 14.0.
  - o The current staffing profile comprises: 0.5x SES B2, 2x SES B1, 2x EL2, 6.5x EL1 and 1.5x APS5

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## Fact Sheet – The PsiQuantum Investment

## Key points

- The estimated global value created by quantum computing in the next 15-30 years could be as high as US\$850 billion according to Boston Consulting Group, with the main share of the value created going to early adopters.
  - PsiQuantum is one of the most advanced developers of quantum computing, globally. By 2021, it had already raised over US\$700 million in equity from a range of highly experienced investors including Blackrock, M12 (Microsoft), Blackbird Ventures and Temasek, and has continued to meet its technology development milestones since then.
    - The last public valuation reported by PsiQuantum was \$3.2 billion in 2021.
  - The Commonwealth will invest an estimated A\$466.4 million in PsiQuantum, via a combination of equity investments and loans, to build a world-first Fault-Tolerant Quantum Computer (FTQC) in Brisbane and deliver a range of benefits in the national interest.
    - The Queensland Government will contribute the same amount of funding.
    - The Commonwealth's financial support package will be administered by Export Finance Australia (EFA) on the National Interest Account.
      - Further details will be disclosed by EFA in accordance with its normal reporting requirements and respecting its commercial confidentiality requirements.
  - Consistent with project financing principles, drawdowns by PQ AU are subject to various conditions, milestones, and project financing tests being met.
    - Conditions and milestones have been informed by technical, legal and commercial due diligence by experts.
    - Security arrangements will also reduce the commercial exposure and secure performance under the contract.
    - 47G(1)
  - 47G(1)
- 
- PQ US has committed to supporting the development of Australia's quantum computing ecosystem and to maximising local advanced manufacturing opportunities. As part of this investment, PQ US will:
    - establish its Asia-Pacific Headquarters and regional hub in Brisbane, along with facilities to build and operate the FTQC;
    - deliver successive generations of a utility-scale FTQC and maintain the product site as a flagship global facility over an expected 20-year economic life;

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- proactively build opportunities for partnerships with local industry and government, including to support the creation of advanced manufacturing clusters;
  - leverage its existing relationships with global leaders in technology to bring additional expertise and experience to the Australian quantum ecosystem;
  - create up to 400 highly skilled local jobs by 2032;
  - create a dedicated climate research centre in Brisbane to identify quantum applications for climate fields. The centre will focus on direct air capture; green ammonia; solar cells and high-density electric batteries;
  - open new digital and advanced tech supply chain opportunities;
  - collaborate with Australian-based operators in quantum-related fields in capacities including: R&D projects; commercial hardware suppliers; applications development; software tools; and system validation, testing and cryogenics;
  - partner with university labs for testing; provide academic institutions access to cryogenic facilities for experiments;
  - invest in university and research collaborations, including PhD positions, mentoring and internship opportunities.
- Having the world's first successful FTQC could equip Australia to develop leadership in:
    - The development of programmable applications and software and quantum consulting (e.g., education and industry preparation).
    - Design, testing and delivery of core quantum computer hardware.
    - Enabling technologies such as the manufacture of components and services to support the delivery of the FTQC.
  - Australian industry also stands to benefit as end-users of the FTQC and PsiQuantum has PQ has also committed to providing Australian researchers and companies with access to the capability, in line with PQ's commercial strategy.
    - The Government will continue to work closely with industry to build 'quantum readiness' so that industry can grasp the opportunities this capability will bring.
    - Without this commitment from the Governments, Australian researchers and companies will be 'at the back of the queue' to access run time on any FTQCs developed in other countries.
  - This investment advances Australia-US shared interests, particularly as it relates to critical technologies including quantum.
    - Australia has engaged substantively with the US Government as part of this investment.
  - PsiQuantum has also engaged with other governments internationally as part of its ambitions to build the world's first utility scale quantum computer, including the United States and United Kingdom Governments.
    - In December 2023, the Defense Advanced Research Projects Agency (DARPA) [announced](#) PsiQuantum as one of only two companies to progress to Phase 2 of its Underexplored Systems for Utility-Scale Quantum Computing program alongside Microsoft.
    - In October 2023, PsiQuantum [opened](#) its first international research and development facility for developing advanced cryogenic technology in Daresbury (UK), co-funded with a £9 million contribution from the UK Government.

- This investment aligns with the Government's priorities and commitments, including:
  - the National Quantum Strategy, which outlines a long-term vision to unlock the immense potential of quantum technologies and includes an ambition to build the world's first error-corrected quantum computer in Australia.
  - the Government's Future Made in Australia agenda, bringing advanced manufacturing, jobs and skills onshore, attracting world-leading talent and bringing Australian innovators and entrepreneurs back home.
  - supporting critical technologies that have the potential to transform the economy, as outlined in the Critical Technologies Statement.



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## Timeline: Market testing / EOI process

This timeline summarises key milestones and dates associated with the Commonwealth's Expression of Interest process to test the market's interest and capability in developing, building and operating a commercial-scale universal fault tolerant quantum computer in Australia (ideally by 2030 or preferably earlier).

Date	Engagement Purpose
June 2023	The Government decided the Department of Industry, Science and Resources (the department), supported by the Department of Finance (Finance), would undertake a market testing process consistent with an Expression of Interest (EOI).
29/06/23	Band 3 Interdepartmental Committee (IDC) meeting – initial discussion on market testing process.
12/07/23	Band 3 IDC meeting – discussed options for the market testing process.
21-28/07/23	The IDC provided out of session advice and endorsement of the approach to the EOI.
Late July / early August 2023	Minister Husic briefed and decision taken to proceed with a confidential sounding of the market. Other Ministers advised of proposed approach.
07/08/23	First Technical Advisory Group (TAG) meeting held. The TAG agreed to review the EOI statement of requirements, list of companies to approach and EOI timelines for discussion in a subsequent meeting.
08/08/23	B3 IDC meeting – discussed progress on market testing process.
09/08/23	TAG meeting – discussed EOI requirements. Members endorsed the list of companies to approach to respond to the EOI.
11/08/23	The department invited 21 companies to participate in the EOI.
14/08/23	EOI documentation (including the statement of requirements) endorsed by TAG out of session.
11/09/23	EOI closed.
12 – 18/09/2023	Submissions assessed by a panel, overseen by the project's probity adviser. Additional advice sought from Commonwealth quantum experts in CSIRO, NMI and DSTG.
18/09/23	TAG meeting to discuss EOI evaluation. TAG members supported the panel's assessment of the submissions.
21/09/23	B3 IDC meeting – DISR provided an update on the results of the market testing process, which were subsequently included in advice to Government.

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## PsiQuantum (PQ) Investment Process Outline

This timeline summarises key milestones and activities associated with the process supporting the Commonwealth's decision to invest in PsiQuantum. It is intended to serve as an internal reference document, and to ensure consistency in responding to any future queries.

<b>Initial engagement and AusTrade facilitation</b>	
<b>March 2019</b>	Austrade records first interaction with PsiQuantum at the Austrade office in San Francisco. Austrade staff maintain a relationship with PQ, providing information on the market opportunity in Australia and relevant government programs, and introducing PQ to State & Territory Governments.
<b>September 2021</b>	Austrade introduces PQ to the Global Business and Talent Attraction Taskforce (Austrade-led).
<b>December 2021</b>	The Prime Minister's Special Envoy for Global Business and Talent Attraction meets PQ during a mission to the US (Austrade-led).
<b>Early-mid 2022</b>	Initial meetings between PQ and Austrade officials to discuss the company's proposal to establish in Australia.  Austrade introduces PQ to Commonwealth officials, including DISR.
<b>August 2022</b>	DISR meet with PQ to discuss PQ's proposal to establish in Australia.
<b>Unsolicited proposal and Stage 1 due diligence</b>	
<b>November 2022</b>	PsiQuantum provides an unsolicited proposal to government, including Queensland as proposed facility location.
<b>January 2023</b>	DISR engages external probity adviser.
<b>February-May 2023</b>	<p><b>Stage 1 due diligence</b></p> <ul style="list-style-type: none"> <li>• Deloitte engaged on 30 January to undertake initial commercial, technical and economic analysis of PQ for Commonwealth and QLD, including: <ul style="list-style-type: none"> <li>- Validity of PQ's project plan and business model</li> <li>- PQ funding and financing strategy</li> <li>- Economic benefits and costs of the project to Australia</li> <li>- PQ's technology approach and comparison to alternatives</li> <li>- Commercialisation potential</li> <li>- Risks and risk mitigation</li> <li>- Engagements with technical experts; investors including current PQ investors; and industry, including PQ partners and potential customers.</li> <li>- An independent technical assessment on PQ's technical progress and maturity of offering</li> </ul> </li> <li>• Initial technology due diligence conducted by Commonwealth quantum experts (DSTG and Chief Scientist).</li> </ul>
<b>Stage 2 due diligence, market testing and non-binding commercial negotiations</b>	
<b>June 2023 – August 2023</b>	<ul style="list-style-type: none"> <li>• Government decides to commence non-binding commercial-in-confidence negotiations and progress additional due diligence (June)</li> <li>• Technology Investment Taskforce established, led by DISR, supported by Finance (June).</li> </ul>

	<ul style="list-style-type: none"> <li>• SES Band 3 interdepartmental oversight committee (IDC) established. First meeting held on 29 June.</li> <li>• Lazard Australia engaged as Commonwealth's commercial/financial adviser on 19 July.</li> <li>• King &amp; Wood Mallesons engaged as Commonwealth's legal adviser on 24 July.</li> <li>• Sententia engaged as external probity adviser for Stage 2 on 25 July.</li> <li>• Technical Advisory Group (TAG) established to provide oversight of the technology assessments. Initial TAG meetings were held on 7 and 9 August.</li> </ul>
September 2023 – February 2024	<p><b>Detailed commercial, legal and technical diligence</b></p> <ul style="list-style-type: none"> <li>• <b>Commercial due diligence:</b> assesses PQ's business and financial models; investment options and structure; types of funding and the most appropriate mix of funding; infrastructure capital expenditure; and structure of appropriate technical and infrastructure milestones.</li> <li>• <b>Legal due diligence:</b> assesses potential investment options and structures; domestic legal issues; export controls and other regulatory issues; intellectual property arrangements; and the structure, form and content of the term sheet.</li> <li>• <b>Additional technical due diligence:</b> including site visit by Commonwealth experts to PQ US headquarters</li> <li>• External probity advisor oversees entire process.</li> </ul> <ul style="list-style-type: none"> <li>• Boston Consulting Group engaged in September to provide economic analysis of the quantum computing opportunity in Australia</li> </ul> <p><b>Consideration of national security implications</b></p> <p><b>Negotiation of non-binding indicative commercial term sheet</b></p>
August-September 2023	<p><b>Market testing via confidential expression of interest process</b></p> <ul style="list-style-type: none"> <li>• 21 companies invited to respond on 11 August 2023. The EOI closed on 11 September 2023.</li> <li>• The EOI tested "interest and capability in developing, building and operating a commercial-scale universal fault tolerant quantum computer (FTQC) in Australia (ideally by 2030 and preferably earlier), and delivering associated benefits to strengthen Australia's quantum sector and contribute to the national interest".</li> <li>• Interdepartmental assessment panel supported by Commonwealth technical experts and TAG.</li> <li>• None of the submissions received were found competitive against the EOI requirements.</li> <li>• External probity advisor oversees process.</li> </ul>
February 2024	Government agrees to invest jointly with Queensland in PQ's proposal to build and operate successive generations of its FTQC in Brisbane, establish its Asia-Pacific headquarters and deliver ecosystems commitments.
February 2024 – April 2024	<p><b>Contractual negotiations and finalising due diligence</b></p> <ul style="list-style-type: none"> <li>• Advisers as above.</li> <li>• In addition, Aurecon engaged for due diligence on construction and delivery of physical infrastructure for the project.</li> </ul>
30 April 2024	<b>Final investment decision and announcement</b>

## INVESTMENT IN PSIQUANTUM

### Headline Statement

- On 30 April 2024, the Australian and Queensland Governments announced they would invest almost \$1 billion into frontier technology company PsiQuantum to build its world first fault tolerant quantum computer in Brisbane.

### Key Points

#### *Details of the transaction*

- The Commonwealth will provide \$466.4 million through a mix of debt and equity.
  - This structure is designed to secure the Government a long-term return on its investment, via repayment of loans and participation in equity (shareholder returns).
- PsiQuantum is required to meet milestones and deliverables as part of the package.
  - Funding obligations are managed against agreed technology and infrastructure milestones.
  - Conditions and milestones have been informed by technical, legal and commercial due diligence by experts. These are contractually binding. Details are commercial in confidence.
  - Security arrangements will also reduce the commercial exposure and secure performance under the contract.
- PsiQuantum is expected to raise additional funding from existing and new investors as part of its contributions toward the project.
- Commonwealth financing is being provided through Export Finance Australia.
  - EFA will disclose details in accordance with its normal reporting requirements and in a manner that respects the commercial confidentiality of the company.
- The terms and conditions of the financial package are commercial in confidence.

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Last updated: 5/07/2024 2:24:00 PM

*Ecosystem benefits*

- The Government is committed to ensuring Australia's quantum sector remains a global leader, as outlined in the National Quantum Strategy.
  - The strategy presents the Government's vision to unlock the potential of quantum technologies, including an ambition to build the world's first error-corrected quantum computer in Australia.
- PsiQuantum's Australian operations will include:
  - Establishing its Asia-Pacific headquarters in Brisbane, along with facilities to build and operate the quantum computer. The company has said publicly that it is on an aggressive plan to have the site operational by the end of 2027.
  - Delivering successive generations of a commercial scale quantum computer and maintaining the product site as a flagship global facility over an expected 20-year life.
- The investment in PsiQuantum shows the Government is serious about delivering a world-leading quantum ecosystem. It is designed to crowd in talent, create opportunities for advanced manufacturing and supply chains, and seed more investment.
- PsiQuantum will deliver on a number of commitments over the life of the agreement. These include:
  - Proactively building opportunities for partnerships with local industry and government, including to support the creation of advanced manufacturing clusters and participate in the development of an innovation precinct adjacent to the quantum computing site
  - Collaborating with universities and research institutions on R&D
  - Funding PhD positions and operating dedicated internship and mentorship programs
  - Creating hundreds of direct, local, high-skilled jobs
  - Leveraging its existing relationships with global leaders in technology to bring additional expertise and experience to the Australian quantum ecosystem
  - Establishing a dedicated climate-related research centre in Brisbane.
- PsiQuantum has committed to providing Australian researchers and companies with access to the capability (in line with PsiQuantum's commercial strategy).
  - The Government will continue to work closely with industry to build 'quantum readiness' so that industry can grasp the opportunities this capability will bring.

## Process

- PsiQuantum’s initial engagement with the Commonwealth Government was via Austrade, commencing in 2019.
  - Austrade’s role is to attract direct foreign investment.
  - Austrade provided information on market opportunity in Australia and relevant government programs, and introduced the company to state and territory governments.
  - The company provided a proposal to government in late 2022.
- There were multiple phases of due diligence, increasing in intensity, with Government decision-points / gateways throughout.
  - Deloitte was engaged in February 2023 to lead an initial phase of commercial, technical and economic due diligence on PsiQuantum’s proposal.
  - The department subsequently engaged commercial, legal, economic and external probity advisers to support this work (Lazard Australia, King & Wood Mallesons, Sententia Consulting).
  - The Commonwealth and Queensland governments jointly engaged Boston Consulting Group (economic analysis of the quantum computing opportunity in Australia), Deloitte (financial) and Aurecon (independent infrastructure experts).
- There was appropriate governance with a Commonwealth Band 3 interdepartmental committee.
- Australia’s Chief Scientist, a quantum physics and semiconductors expert, is a public champion of Australia’s quantum opportunity:
  - “...it’s important to remember that this won’t be Australia’s only quantum computer. As the developments already underway in Australia demonstrate, the future of quantum computing is likely to be as diverse as classical computing is today...” [AFR Op Ed, 7/5/24]
  - “To reach critical mass and achieve a globally competitive industry, we need to crowd in quantum companies, big and small.” [AFR Op Ed, 7/5/24]
  - “We must take advantage of the quantum technology wave to reach the industry scale needed by attracting quantum companies to set up manufacturing here. This investment shows Australia is serious about its quantum industry development by ensuring we are at the front of the pack in the global race to build the first useful quantum computer.” [PM/Minister media release, 30/4/24]
- As the Prime Minister has said:
  - “This wasn’t a decision taken lightly. This was examined in all its aspects.... All of the aspects went through an enormous amount of work and many hours of many meetings, at every level of our cabinet processes, to make sure it was the right thing to do.”

- “And the government’s absolutely convinced that it was, as were all of Treasury and Industry and other agencies as well.”
- “... there is in this case, an example of a first mover advantage as well. If we get ahead of the pack this is an extraordinary breakthrough.” [*Capital Brief, 13/5/24*]
- In Minister Husic’s words:
  - “...we’re bringing PsiQuantum home...to build the world’s first fault-tolerant quantum computer in Brisbane, and it will give our industries and our economy the power needed to stay ahead of the pack. Quantum computing is vital to both our economic and our national security.” [*Question Time Hansard, 16/5/24*]
  - “We are investing in multiple quantum computing technologies, having provided continued backing for (former Australian of the Year Michelle Simmons’ company) Silicon Quantum Computing...” [*The Australian, 20/5/24*]
  - “We are covering all bases to ensure Australia can develop onshore its own fault tolerant quantum computer.” [*The Australian, 20/5/24*]
  - “We have gone through a rigorous process of market testing, and then subjecting that to technical analysis, backing it in with legal and commercial advice to structure a deal... and also with commitments to the local economy. It’s not just investing in them and saying that’s that, they’ve got to work with the local community and economy as well.” [*Interview, Sky News, 17/5/24*]
- Extensive technical diligence was undertaken by Commonwealth experts.
  - Technical assessments were supported by oversight from a Technical Advisory Group, which included senior representatives with relevant expertise from DSTG and CSIRO, as well as Australia’s Chief Scientist.
  - Queensland engaged its own expertise.
- An EOI process was run from August to September 2023 to test the market to ensure an effective, efficient, economical and ethical use of Commonwealth funds consistent with the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and the Commonwealth Investment Framework.
  - The EOI was released in August 2023 to 21 companies identified based on market research and advice from technical experts, with review by the Technical Advisory Group.
  - The EOI tested interest and capability in developing, building and operating a commercial-scale universal fault tolerant quantum computer in Australia, as well as associated benefits to strengthen Australia’s quantum sector and contribute to the national interest.
  - The Department of Finance is responsible for the Commonwealth Investment Framework and the department has worked closely with Finance on this transaction.
  - Details of who responded to the EOI are confidential.

- The Government will provide \$466.4 million for a financing package of equity and loans for PsiQuantum to construct and operate its quantum computing capabilities and associated investment in industry research and development in Brisbane.
- Additional funding of \$27.7 million will be provided over 11 years from 2023-24 for the Department of Finance, the Department of Foreign Affairs and Trade, the Department of Industry, Science and Resources and the Department of the Treasury to manage and provide oversight of the investment.
  - This includes funding of \$16.1 million over 11 years from 2023-24 for the Department of Industry, Science and Resources to manage and provide oversight of the investment.
- The financial implications are included in the 2024-25 Budget measure *Future Made in Australia: Investing in Innovation, Science and Digital Capabilities*. The impact over the Forward estimates is set out in the table below:

	2023-24 (\$m)	2024-25 (\$m)	2025-26 (\$m)	2026-27 (\$m)	2027-28 (\$m)		Total (\$m)
Export Finance and Insurance Corporation – National Interest Component	nfp	nfp	nfp	nfp	nfp		<b>nfp</b>
Department of Industry, Science and Resources	nfp	nfp	nfp	nfp	nfp		<b>nfp</b>
Department of Finance	0.9	-	-	-	-		<b>0.9</b>
Department of Foreign Affairs and Trade	0.1	0.3	0.3	0.3	0.3		<b>1.5</b>
Department of the Treasury	-	0.7	0.7	0.7	0.7		<b>2.7</b>
<b>Total</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>		<b>5.1</b>