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Submission to the Senate Foreign Affairs, Defence and Trade Legislation Committee regarding the Defence Trade Controls Amendment Bill 2023.

About S3B

The Semiconductor Sector Service Bureau (S3B) is a not-for-profit organisation tasked to support and grow the semiconductor sector from bare materials all the way through to end-user products.

S3B supports Australian organisations who design, produce, or use semiconductors by enabling access to supply chain capabilities and eco-system, market intelligence, expertise, and talent. While our stakeholders are engaged across multiple sectors and verticals, the provision of products and services addressed in the Defence Strategic Goods List, particularly the inclusion of dual use, impacts a significant number of our stakeholders within industry and academia.

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About the Semiconductor Sector

Semiconductors are an ultimate “enabling” capability. Advances in semiconductor products and technologies drive advances in all seven areas identified in the Australian Government’s List of Critical Technologies in the National Interest as well as many other areas.

While a significant portion of Categories 3 (Electronics) and 6 (Sensors and Lasers) in the DSGI will impact the semiconductor industry, the reach of semiconductors is so significant that all 10 categories in Part 2 of the DSGI have an impact on Australia’s competitiveness in the industry.

As examples:

- Advanced semiconductors enhance defence capabilities for detection including advanced information and communication technologies and autonomous systems.
- Advances in power semiconductors enable clean energy generation and storage technologies through more efficient wind turbines, extending the range of electric vehicles, reducing energy consumption in electric trains and appliances, and reducing losses in electric power generation and distribution.
- Advances in semiconductor sensor technology enable new types of biotechnologies and medical devices.
- Enabling capabilities, such as AI (Artificial Intelligence), quantum computing and robotics, rely fundamentally on semiconductor products and technologies, including sensors, processing units and memories, materials, and manufacturing technologies. These capabilities are currently not specifically referenced in the DSGI.

As such, it is essential that Australia continue to develop its semiconductor capabilities to enable the development of new semiconductor products and technologies that drive progress in ways that directly benefit Australia and further its interests.

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Issues concerning the Semiconductor Sector

1. Limited consultation period and unclear process has raised doubts within industry.

As has been noted in S3B's response to the exposure draft of the bill in November 2023, S3B and our members note that the consultation period was short and details of the bill were unclear to industry and academic participants. S3B's submission to the November call for comment is included as an attachment to this submission.

Commentary around the Bill suggests that industry bodies were consulted leading up to the reading of the Bill however, to our knowledge none of our industry stakeholders took part in this consultation.

Given S3B's focus on supporting and developing the semiconductor industry, S3B would be a key organisation to work with Defence regarding technical details of the Bill and the execution of key processes if the Bill is passed. Similarly, S3B can support future consultation for any proposed revisions to the DSDL list.

2. Limiting access to and collaboration with world class talent and technology.

The provision that would make it an offense to provide DSDL services, including assistance and training, to foreign persons without a permit raises concerns about the impact on collaborations, especially with universities.

Leading edge technologies typically rely on international expertise and collaboration due to the limited talent pool in Australia. Given the criminal penalties, complexities of the reach of the Bill and with absolute liability and a burden of proof on the individuals, we know of organisations that are holding back recruitment and choosing not to apply for funding for new projects as they are still unsure of the risks. Similarly, delivery of industry talent programmes have stalled due to the unclear impact on training programs.

While the amendments may assist with US and UK collaboration, there are several countries not on the foreign country list that are heavily involved in the semiconductor industry, including many countries within Asia and Europe.

S3B strongly urges changes to the proposed amendments to clarify exemptions to the R&D community, particularly where industry works closely with academia and in aspects of training and education. The exemptions should be clearly detailed to avoid any doubt for the organisations involved and to reduce the burden on the companies to self-regulate.

3. Impact to Australia's participation in global supply chains.

The semiconductor sector operates in a global market. Australia does not have an end-to-end supply chain for the design and manufacture of a broad range of semiconductor components, hence must rely on international collaboration.

Any additional administrative burden, uncertainty, or chilling effects on international customers' willingness to purchase dual-use technologies from Australian firms may affect our ability to secure customers, revenue, and maintain a competitive edge in the global supply chain. Companies noted that they may benefit from proposed changes reducing red tape when seeking to engage with US and UK markets. They however raised apprehensions about the potential impact on a wider range of

technologies than currently covered by regulations such as ITAR, indicating a perceived expansion in the regulatory scope over and above what is required.

The amendments should consider the design processes as well as goods and services. In some cases, the designs of end components require the development of unique intellectual property to develop the products and provide services. The reach of these controls needs to be reviewed to not limit Australia's access and contribution to supply chains.

There is concern that companies will prefer to operate outside of Australia because of these new laws and restrictions and that the negative impacts of those decisions will not be offset by increased collaboration inside the USA/AUS/UK regions.

4. Burdening organisations and Defence regarding permits and controls to ensure the laws are being correctly followed.

If this Bill is passed as written, it is expected a significant number of permits will be required within the semiconductor industry, as companies already have existing projects and staff involved that will necessitate the need for additional permits. This will put a burden on the Department of Defence to process such permits and we expect there will be significant delays and costs to projects as a result, impacting Australia's competitiveness in the semiconductor sector. Companies may choose to relocate their offices and projects overseas to avoid such costs and delays.

The DSGL, as it pertains to electronics in particular, lists specific criteria per item that must be reviewed and understood in detail to determine if a piece of technology requires a permit. This will require staff with appropriate legal expertise, processes to review and determine which part or parts of projects need permits. This must also include controls to monitor any changes that might require a new permit or might exceed the scope of an existing permit.

We suggest a review of the DSGL by industry experts or educational material to provide appropriate summaries and guidance for organisations to understand if their technology or goods fall under the specific controls.

Organisations are unclear how they will be able to control the usage and export of DSGL goods or technology outside of Australia. A large part of the global semiconductor industry deals with specific intellectual property, levels of integration and aggregation and the usage of technical components or IP in larger systems. Once a component has been legally exported according to the proposed amendments, it is unclear how to track the usage of the component in more complex technical systems.

The reach of these controls and the extent to which they can be monitored needs to be considered and appropriate changes be made to the amendments to limit exposure, cost, and impact to companies.

For example, Altum RF is a fabless semiconductor company headquartered in the Netherlands but with an experienced design capability in Australia. They currently have permits for intangible transfer of IP to their HQ in the Netherlands. The Dutch office then deals with exports to customers. It was their understanding they would now need an additional Australian export permit to their customers in other countries and that this will be seen as a supply chain risk by their customers unless additional exemptions are made for re-exports to 'low risk' countries on the foreign countries list.

Similarly, Millibeam is a fabless semiconductor company based in Sydney, developing RF and millimetre-wave chipsets for low-cost and low-power 5G/6G networks. They noted that many of their customers were ODMs in Taiwan, who then sell onto manufacturers in Japan and US. They did not have a good understanding of the impact to their ability to grow their business. They also have several staff who would not be exempt according to the foreign country list, hence will require additional individual permits.

In defining the permit process, we suggest the scope of the permits be applicable to cover teams and projects that are likely to put Australia on the world stage for semiconductor development. Rather than individual permits, entire teams and full systems could be considered as one step of a permit process.

5. Effect of criminal laws, controls, and regulations within a fast-paced and rapidly-changing eco-system.

Our members have concern about slow-moving legislation and lack of clarity around processes, given the far-reaching impact of proposed changes. The additional administrative burden required to review proposed changes and add additional controls may impact the speed of technical development and an organisation's ability to compete at the leading edge.

We suggest a more detailed review of the impacts and proposed amendments with a semiconductor-specific working group to identify areas of change to support organisations who lack subject matter expertise required to implement changes.

Conclusion

In Summary, S3B is recommending closer interaction between the Department of Defence, Parliament, and key industry bodies such as S3B and to utilise S3B's expertise in the semiconductor sector for proposed changes.

The points outlined in this document should be considered as part of the review and changes should be made to provide industry members with clear direction on understanding the Bill, the application of the DSGI and implementing the necessary controls and processes to adhere to the law.

Exemptions should be considered in relation to R&D, training, and education and to reduce the impact that strict laws outside of AUKUS may have on Australia's position in the global technology sector.

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