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Inquiry into Australia's Defence Relations with the United States

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Department of Industry, Tourism and Resources

Submission to Joint Standing Committee on Foreign Affairs, Defence and Trade.

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Australian industry access to the US Defence Market

As requested by the Secretary of the Defence Sub-Committee of the Joint Standing Committee on Foreign Affairs, Defence and Trade, this submission from the Department of Industry, Tourism and Resources addresses the terms of reference of the inquiry related to "the level of access of Australian industry involvement in the US Defence industry". In particular, it draws on lessons learnt from the experience with the Joint Strike Fighter (JSF) Program.

Lessons from the JSF Experience

The involvement of the Department of Industry, Tourism and Resources in the JSF Program arises out of the Aerospace Industry Action Agenda. Indeed the industry development opportunities provided by the JSF were identified during the development of the Action Agenda and contributed to the Government's decision to buy into the JSF System Development and Demonstration phase. The objectives and organisational structure of Australia's participation in the JSF Program are further explained in Attachment A.

The Action Agenda portrays opportunities to integrate the Australian aerospace industry into the global supply chain of major aerospace programs, such as the JSF Program, as vital to the survival and growth of the industry.

US defence industry

In considering Australian industry access to the US defence market it is useful to remember the nature of the US defence market.

The US defence market was graphically described in a 2002 article in *Foreign Affairs*, which indicated that, "The United States is poised to spend more on defense in 2003 than the next 15-20 biggest spenders combined" ... [and for military research and development]... "the United States spends three times more than the next six powers combined. Looked at another way, the United States currently spends more on military R&D than Germany or the United Kingdom spends on defense in total" (Stephen G Brooks and William C Wohlforth, *American Primacy in Perspective*", July/August 2002, pp20-33).

This perspective indicates that the US military market is large, suggesting great opportunities for exporters, but also that this market is well supplied with domestic suppliers underpinned by very significant R&D expenditures, indicating that exporters should not be complacent about the difficulties of entering the market.

The customers – Government or industry

Ultimately defence industry customers are Governments. However, there are different issues facing companies selling direct to Government and those selling to firms in a global supply chain. The JSF experience relates to the second class of customers, Australian firms seeking to enter the JSF supply chain are selling to firms and not directly to the US Government.

The alternative situation is the direct Government market for military equipment, services and systems. Here the customers are US government agencies such as the United States Navy. Examples of Australian penetration into this market include the Nulka and fast catamarans.

The direct involvement of the Department of Industry, Tourism and Resources mainly relates to the JSF program, where the customers are firms and Australian industry is seeking to enter the global supply chain of US defence companies. There are useful lessons for Australian industry from the JSF project, not least because the US is considering using the JSF approach for other major military procurement exercises, as indicated in the US Government submission to this inquiry.

The Customers – the US defence industry

The US defence industry has been undergoing a period of substantial rationalisation since the end of the cold war. The number of firms has reduced considerably through take-overs and amalgamations. This rationalisation, particularly marked in the aerospace sector, where the big four in the US (Boeing, Lockheed Martin, Northrop Grumman and Raytheon) consist of what were, in the late 1980s, 52 separate companies[1], was driven by a number of inter-related factors.

- The end of the cold war saw a significant reduction in US government spending on defence[2]. Firms did not all shrink proportionately, rather there was shakeout with fewer firms surviving in each market segment.

- US government military and purchasing strategy has been rationalised to focus on fewer platforms in each market segment. For example, the number of different fighter aircraft has shrunk[3].

- Technological changes have increased the minimum scale for production runs for many weapons platforms. For example, fixed costs (such as R&D and software development costs) are now much larger than previously, so amortising these costs over larger production runs has become increasingly important.

- Along side this increase in fixed costs, the risks associated with the production of new weapons platforms have increased, thereby increasing the required size of firms to manage these risks. Now even the largest defence companies engage in alliances to manage the risks associated with major platform developments and gain access to the required technologies. For example, in

[1] The structure of the aerospace sector around the world, and the implications for Australian industry, is discussed in the recently released report of the Aerospace Industry Action Agenda, *Partnering in the global context: An Australian aerospace industry for the 21st century* (Department of Industry, Tourism and Resources, Canberra, 2004)

[2] A 1994 paper indicates that the weapons procurement budget of the US Department of Defence fell 60 per cent in real terms between 1986 and 1995 (Kovacic and Smallwood, 1994, p91). However, US defence spending has increased significantly since the terrorist attacks of September 2001.

[3] There were 48 active military aircraft development programs in the 1950s, 16 in the 1960s, 13 in the 1970s, 7 in the 1980s, and only 4 thus far in the 1990s (Kovacic and Smallwood, 1994, p93).

the JSF, Lockheed Martin is partnering with Northrop Grumman and BAE Systems.

One implication of this rationalisation for Australian companies wishing to enter the global supply chain is that the opportunities are fewer but larger, and that companies cannot afford to miss the available opportunities if they want to stay in business.

One expected change from this rationalisation has not occurred. It was initially expected, by at least some Australian industry representatives, that the major US firms would only deal with large firms at the sub-system level and there would not be direct opportunities for Australian small and medium enterprises (SMEs) to engage with the large United States primes. This expectation was based on the notion that the large primes were moving towards being system integrators, rather than manufacturers, and that they would develop a pyramid-like supply chain, with direct relationships only with suppliers of major systems, as is occurring in the global automotive sector.

This has not been the case with the JSF program so far, Australian SMEs have won business directly with US companies, including directly with the large US primes. In fact, the tendency of the primes to move to a system integrator role is not absolute, there are other factors (such as the competitiveness of SMEs and their propensity to be the source of new ideas and products) that makes a direct relationship valuable for the primes. One potential worry for some SMEs is that the relationship may change as the JSF program moves from its initial small scale System Development and Demonstration phase to larger scale production. The SMEs are proud of their direct relationship to the US prime contractors and wish to keep the relationship as it is important selling point for other business opportunities.

Defence contracts and US competition and contracting policies

A US Department of Defence report, *JSF International Industrial Participation: A Study of Country Approaches and Financial Impacts on Foreign Suppliers*, (US DoD June 2003, www.acq.osd.mil/ip) indicates the JSF acquisition strategy differs from previous arrangements. The JSF strategy is to facilitate the selection of foreign suppliers for production of all aircraft via a best value or best athlete approach rather than by traditional offset arrangements. Offset programs are largely limited to short build to print productions runs for a limited quantity of aircraft. As the US Department of Defense notes, typically, due to the inefficiency of this process, they result in increased program price to the customer (US DoD, p13). In Australia, a significant example of this was the local assembly of F/A-18s in a purpose built facility that had no subsequent use.

The contractual and regulatory arrangements between the US Government and the prime contractors can be expected to lead to the firms seeking competitive solutions from the partner countries.

US Government defence purchasing has tended to maintain competition where possible, but for major platforms such as the JSF competition for the platform only

survived as far as the concept development stage, where a competition between Lockheed Martin and Boeing was won by Lockheed Martin[4].

The contractual arrangements between the US Government and Lockheed Martin reward affordability of the aircraft, which encourages Lockheed Martin to seek best value solutions.

The JSD System Development and Demonstration (SDD) contract is a cost-plus-award-fee contract, this type of contract is defined in the Federal Acquisition Regulation (FAR 16.405-2). A cost-plus-award-fee contract is a cost-reimbursement contract that provides for a fee consisting of (1) a base amount fixed at inception of the contract and (2) an award amount that the contractor may earn in whole or in part during performance and that is sufficient to provide motivation for excellence in such areas as quality, timeliness, technical ingenuity, and cost-effective management. In the case of the JSF there are four award fee categories, affordability, management, technical and developmental cost control.

In addition, the US Federal Acquisition Regulation clause, 52.244-5, relating to competition in subcontracting requires contractors such as Lockheed Martin to "select subcontractors on a competitive basis to the maximum practical extent consistent with the objectives and requirements of the contract".

The US Department of Defense also performs contractor evaluations that are used in considering contractors for future projects. As a last resort, the Government has the right to terminate the contract.

For the JSF engines, the US government has chosen to maintain competition between two engines through the life of the aircraft. One engine is produced by Pratt and Whitney and the other by an alliance of General Electric and Rolls Royce. The two engines will be interchangeable and the two suppliers will compete throughout the life of the aircraft. The power plant competition starts in 2011, with the winning engines supplied to Lockheed Martin as Government Furnished Equipment. This approach has been used to stimulate technical progress and cost reduction in previous engine programs for military aircraft. Competition between the two engine producers will also encourage both to seek 'best value' suppliers. Engine support costs can be up to one third of the total life cycle cost of a military aircraft (Department of Defence, 2003, *The Australian Defence Aerospace Sector Strategic Plan*, p72) and are therefore an important aspect of the affordability of the aircraft.

Lockheed Martin Best Value Acquisition Strategy

As indicated above, the JSF SDD contracts for the prime contractors are cost-plus-award-fee contracts. The award fee criteria include affordability (of the aircraft, including development production and ownership costs) and developmental cost control.

[4] There are no direct US (or indeed western) competitors for the JSF, other aircraft are in different market segments, see the Australian Strategic Policy Institute report, *A Big Deal, Australia's future air combat capability*.

The prime contractors therefore have incentives to achieve what they perceive to be best value solutions. An issue for Australia then becomes potential differences between perceptions of best value and the reality, and how to change the perceptions and reality of best value as it applies to Australian companies. In other words, Australian firms must offer best value in reality and in the perception of customers if they are to win business.

The best value approach requires industrial partners, whether international or domestic, to qualify for participation through demonstration of world class products and technologies representing cost advantages to the program. The US Defense Department report states that once Lockheed Martin and its top tier partners have chosen a supplier, they will pursue sole-source contracts with these companies based on schedule, performance and cost benchmarks. If the suppliers do not meet these benchmarks, they open themselves to re-competition (US Department of Defense, p13). Indications from Lockheed Martin and its partners suggests that the scale of the program will mean that second sourcing opportunities will become available in many areas, this will of course also imply ongoing competitive pressure on those firms that have won initial contracts.

It is worth mentioning that the competition for System Development and Demonstration (SDD) contracts typically requires providing information about non-recurring costs, SDD costs (for 22 aircraft) and production costs (the Low Rate Initial Production phase has over 400 aircraft and full production will be over 2000 aircraft). Lockheed Martin have cost curve models and they are selecting contractors not just on SDD costs but also on expected future production costs. This is a logical approach by Lockheed Martin to anticipate and minimise the need for opening contracts up for re-competition. Lockheed Martin has an ongoing incentive to provide an affordable aircraft and allowing suppliers to underprice SDD contracts in order to put themselves in a position to exploit incumbency subsequently would not be rational behaviour.

Best Value Strategic Sourcing

In addition to the international competitive process, Lockheed Martin has developed the Strategic Best Value Sourcing (SBVS) Plan – a limited number of air system work packages designated to supplement the industrial opportunities/awards through best value competition. Production MOUs have been generated by Lockheed Martin for these work packages with targeted companies to attain industrial participation on the JSF program. If the targeted company cannot complete the work for the pre-determined cost goal, the work will then be fully competed. The US Department of Defence comments that "although an apparent compromise between directed workshare and a full-and-open competition, SBVS promises to strengthen international partnerships and expand industrial participation" (US DoD, p13).

The impetus for this Strategic Best Value Sourcing plan was the realisation by Lockheed Martin management that the barriers to international sourcing were more significant than they had anticipated. While the top management of Lockheed Martin are aware that it is important to engage with competitive companies in the international partner countries, such as Australia, the people tasked with the job of actually producing the aircraft under an extremely tight schedule are less convinced of

the benefits. There are significant challenges for them to engage with foreign companies, including Australian companies.

Meeting the challenges for access to the US defence supply chain

The challenges to participation in the US defence market include the US export licensing process and normal commercial difficulties of international business, such as physical distance, time differences, information costs, risk perceptions and overcoming incumbency advantages.

Addressing US export licensing requirements

The US export licensing process is an impediment to Australian industry pursuing opportunities in the JSF program. It controls the "export" of information from US companies to foreign companies. This information is necessary for Australian companies to bid on opportunities. Essentially, in simplistic terms, companies require access to the design of the relevant part of the aircraft if they are to make a bid on producing it but access to that design must be controlled for national security reasons.

There are a number of specific processes involved under the broad rubric of the International Trade in Arms Regulations (ITAR).

- Australia is currently seeking a treaty level ITAR exemption from the United States, but this appears held up in the US Congress. However, the Canadian experience suggests that an ITAR exemption does not apply to developmental aircraft such as the JSF. Further, Lockheed Martin is anxious to treat their international partners equally. Nevertheless, an ITAR exemption may assist later phases of the JSF program and other (non-developmental) programs.

- The US introduced a Bid and Proposal waiver for the JSF program that has had a number of extensions. This waiver applies to unclassified information and was expected to be replaced by a Global Project Authorisation (GPA). However, the GPA became less attractive through the US congressional process and the Bid and Proposal waiver has been extended.

- The export of classified material requires an export licence, generally in the form of a Technical Assistance Agreement (TAA). These TAAs have to be written by the US company that proposes to export information to a foreign company and have to be approved by the US State Department. The US company requires input from the Australian company to complete the TAA. Not all US companies are experienced in drafting TAAs and many Australian companies have little or no experience. This has required considerable education effort in the US and in Australia. For example, Australia discussed JSF export licensing with US authorities in February 2004 and a team from the US Defence Trade Control Export Licensing program are running an outreach program in Australia in May 2004.

    - An example of the complexity of issues that must be addressed under the export licensing regime concerns Australians with dual nationality. Under ITAR section 124.8(5), information may not be transferred to a

national of a third country except as specifically authorised in the TAA, unless prior written approval of the Department of State has been obtained. This affects Australians with dual nationality, and Australian companies have been required to seek exemptions from relevant anti-discrimination laws to be able to ask their employees if they have dual nationality and to allocate individuals to work on the basis on their nationality.

The United States General Accounting Office (GAO) has reviewed the interaction between the international JSF program and national disclosure policy (United States General Accounting Office, Report to the Chairman, Subcommittee on National Security, Emerging Threats, and International Relations, Committee on Government Reform, House of Representatives, *Joint Strike Fighter Acquisition: Cooperative Program needs Greater Oversight to Ensure Goals are Met*, 2003, www.gao.gov).

The GAO recommended that the Secretary of Defense direct the JSF Program Office (JPO) to ensure that Lockheed Martin finalises its required international industrial plan and ensure that the plan;

- Identifies current and potential contracts involving the transfer of sensitive data and technology to partner countries:
- Evaluates the risks that unfavourable export decisions could pose for the program; and
- Develops alternatives to mitigate those risks, such as using US suppliers.

The GAO also recommended that the JPO should ensure that information concerning the prime contractor's selection and management of suppliers should be collected, closely monitored, and used for program oversight. This oversight should identify potential conflicts between partner expectations and program goals and use the award fee process to encourage Lockheed Martin to resolve these conflicts.

The GAO emphasised that the benefits of international cooperation, such as affordability goals, "must be considered in the context of protecting some of the most sensitive US technologies – those vital to maintaining US technical superiority."

In summary, US export controls remain an important impediment to Australian industrial participation in the US defence industry. The JSF Program has established processes to assist firms in overcoming these issues, and there are clear indications that experience is overcoming many of the difficulties, but there is an ongoing challenge to be addressed.

Overcoming commercial barriers to accessing the US defence market

Much of Australia's aerospace industry has historically relied on meeting domestic Defence requirements. Some firms will need to develop a global focus where previously they have looked only domestically for opportunities. Those firms may need to improve their marketing prowess and export readiness, where previously they could rely on their technical excellence and established relationship with Defence.

Participation in SDD phase of the JSF program has allowed Australian companies to compete for work on the JSF. This project has been welcomed by the industry as

providing unprecedented access to business opportunities in the US defence field. For example, a number of individuals who have won JSF business are quoted as making this point in a recent article in the aviation business magazine, Aircraft and Aerospace, *JSF galvanises Australian industry* (January February 2004, pp 52-56).

As a potential JSF customer, the Australian Government has been able to open doors for Australian companies. A number of SMEs, as well as larger companies, have indicated that they have gained considerably more access than previously to senior people and to opportunities through Government facilitation, and that this has been vital in winning work. This facilitation has been provided to help overcome barriers to participation arising from lack of incumbency, distance, perceptions of risk and so on.

Incumbent US contractors on other Lockheed Martin projects (F-22, F-16) have major advantages over Australian companies as they have established business relationships with the customer, intimate knowledge of the requirements of the customer, and understanding of the contractual issues and risks and often have technology and experience from other projects (for example, the F-22 has stealth and network centric warfare capabilities that will be used on the JSF). These US companies have a better view of the risks associated with specific requirements of the aircraft, based on prior experience, and their bid and proposal costs are lower. For the customer's point of view they are a lower risk solution than an unknown, small foreign company that has not done business with them before. These are substantial competitive disadvantages that must be overcome.

The creation of industry capability teams (ICTs), facilitated by staff from the Defence Material Organisation (DMO) and the Department of Industry, Tourism and Resources (DITR), has promoted a *"Team Australia"* approach that has enabled firms to understand that their main competition is overseas rather than down the road. The ICTs have facilitated various teaming arrangements amongst SMEs and between SMEs and larger Australian companies that have allowed the firms to win work that they would not otherwise have won.

The creation of the industry capability teams has been welcomed by the US prime contractor, Lockheed Martin and its partners. In seeking to do business with 8 partner countries, many of whose firms were unknown to Lockheed Martin and its partners, Lockheed Martin faces significant difficulties in developing an understanding of the capabilities of partner country industries in a timely way. The creation of ICTs has significantly reduced the search and transaction costs faced by companies in considering Australian suppliers and made it much more attractive for them to seek those Australian suppliers by increasing the efficiency of their search.

For example, the physical distance, and the time that imposes for face-to-face meetings and for the inspection of facilities, is a significant barrier to overcome in facilitating Australian industry access to the US market[5]. Government facilitation and organisation of industry into ICTs, has minimised those costs by making travel more efficient (not by providing any subsidies). This has made it easier to persuade relevant personnel to travel to Australia to evaluate industrial capabilities.

[5] The time zone difference has been marketed as a positive attribute, allowing follow-the-sun engineering to be considered.

Similarly, many US companies are unfamiliar with Australian companies. The incentive for people to avoid perceived risk by dealing with known local companies, who may already be incumbents in particular segments of the US aerospace supply chain, makes it difficult to consider Australian or other foreign suppliers. By ensuring firms are put in touch with the right potential suppliers in Australia, we are trying to minimise these perceived risks. Australian companies have taken on some small initial contracts to prove their capability on the basis that they need to get some work to prove themselves. This has proved an effective strategy. For example, GKN Engineering Services has very quickly established itself as a preferred supplier and their work has expanded significantly.

Through experience, and by sharing lessons learned, Australian firms are developing their capacity to respond appropriately to Requests for Proposals (RFPs). They are developing an understanding of the information required by the prime contractors, and of the opportunities they have for clarifying the proposal. Firms are learning that they must comply fully with all elements of the RFP: they must provide financial and project management information; they must identify their risk mitigation strategies for the current SDD contract and for growth to full production. A number of these firms have already discovered that their success on JSF program contracts has also certified them for non-JSF work with their US customers.

Arranging Australian industry into teams has also allowed firms to learn from each others successes and mistakes and to facilitate the early transfer of information on issues such as US Government export licensing requirements and responding to US companies' requests for proposals (RFPs). They have also facilitated access to technical information that may be required in the military environment. For example DSTO has assisted firms in understanding Nuclear, Biological and Chemical (NBC) requirements for military equipment.

The ICTs have also started to act as a way of improving access to financial support for firms that are expected to grow as a result of their JSF successes. A number of SME have already made significant investments in new equipment as a result of JSF work, these firms will have significantly larger growth challenges if they are to convert SDD contracts to LRIP and full production contracts. In providing financial support, for investment, or for exchange rate hedging for example, banks and other financial companies require due diligence information to evaluate risks.

We are exploring ways of making financiers aware of the due diligence undertaken by Lockheed Martin and other major primes before they provide a contract to an Australian SME. Understanding that Lockheed Martin will not offer contracts before they are confident of the capacity of the SME to deliver could help financiers to make the decision to provide financial support and to limit margins imposed due to perceived risks. One JSF briefing for financiers has already occurred and others will be planned as required.

Access of Australian R&D to the US defence market.

The JSF program provides an opportunity for Australian R&D to contribute to the subsequent development of the aircraft.

The JSF Program Office has established the Joint Strike Fighter Science and Technology Board (JSTAB) process to guide its long-term science and technology strategy. The JSTAB will review emerging technologies as well as addressing identified future technical needs for JSF upgrades.

The JSTAB process was not formally implemented until early 2003. The process is as follows:

- Solicitation of S&T priorities from the JSF Integrated Product Teams (IPTs);
- Distribution of JSF S&T priorities to US and Partner nations;
- Technology survey visit and review of available technologies;
- IPT evaluation of selected projects; and
- Formal selection through the JSTAB.

In 2003 the JSTAB received 280 proposals from the US and the other 8 partner nations. Of these, 21 proposals received support from the IPTs to be presented to the JSTAB review board. It is understood that from the 21 presented to the JSTAB review board seven of the proposals were from Australia, one from The Netherlands and the rest were from the United States.

From our JSF perspective, the JSTAB process identified that there is significant work being undertaken within the Defence Science and Technology Organisation (DSTO) and industry that could potentially benefit from Australia's approach to facilitating Australian industry commercial involvement in the JSF Program.

A JSF Industry Technology Conference has been organised. It will communicate research and development advances to industry, with the intention of increasing industry opportunities in later phases of the JSF Program. The conference is jointly supported by the Department of Defence and the Department of Industry, Tourism and Resources.

The conference, *JSF Opportunities – Leveraging Our R&D*, will be held on 21-22 April 2004. The objective of the conference is to improve communication between the R&D and industry sectors with the aim of facilitating technology transfer to industry to win future JSF opportunities.

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Australian participation in the Joint Strike Fighter Program

The Australian Government joined the Systems Development and Demonstration (SDD) phase of the Joint Strike Fighter (JSF) program with the expectation that the JSF will replace current combat aircraft and to secure Australian industry participation in its development, production and support. Industry opportunities are enhanced by the sheer size of the JSF program, the preferential treatment of SDD partners, Australia's announced intention to acquire the aircraft, its 'best value' business model and the early stage of development of the aircraft.

Pursuing Australian industry participation in the JSF program is consistent with the objectives of the *Aerospace Industry Action Agenda*, which seeks to integrate Australian industry into global supply chains of major aerospace programs. It is consistent, too, with the objectives of the Defence Aerospace Sector Plan (consultation document), which concludes that growing the Australian aerospace industry will enhance its capability and its ability to support the ADF. A globally integrated industry would support a broader and deeper skill base and be more able to provide Defence with value for money solutions.

Objectives

The Government's JSF industry development strategy has three primary objectives. The first objective is to ensure that the Australian Defence Force requirements for in-country operational support are met. The second objective is to enure that these requirements are available at lowest possible cost. The third objective is wealth creation, to capture opportunities to build competitive sustainable aerospace industries in Australia.

It is not the place of DITR to identify the Australian Defence Force's future requirements for operational support, that is a matter for the Defence Department and the requirements will change as technologies change. But as an example of the Government's approach, it is clear, for example, that the Air Force will require certain capabilities in electronic warfare and mission systems to be available domestically for strategic reasons. This may mean that Defence could need to ensure that these strategic capabilities are available in country if this does not occur through the facilitation efforts in the competitive process of joining the global supply chain.

The Government is keen to ensure that these strategic requirements are met at minimum cost to the taxpayer. To the extent that Australian providers can be linked into global supply chains they will be providing these capabilities at world competitive prices. A particular feature of the JSF program is the very large scale of the program. Firms that win business in the program will have access to significant economies of scale with resulting benefits for their customers, including the Australian Defence Force.

The Government is also keen to promote Australian industry involvement in the program simply to create wealth, by encouraging the development of a sustainable competitive aerospace sector in Australia. There are a number of niches where Australia has world class capabilities and world competitive cost structures. These

range across a number of aspects of the program. For example, our engineering strengths are world class and significantly cheaper than many countries. These skills and others have contributed to significant Australian capabilities across the range of JSF related business, from smelting alloys for engine parts or creating composite materials for aerostructures to developing smart software for electronic warfare or training systems. The Australian Government is determined to promote all these capabilities into the JSF program on the basis that Australian companies can win business in a best value competition.

The Government's objectives are spelled out in public document entitled Australian Industry Engagement Strategy for the Joint Strike Fighter Program, Overview, which was released by the Minister for Defence and the Minister for Industry, Tourism and Resources in June 2003.

Government's facilitation role supporting industry

The Australian government has invested US$150m to join the JSF SDD phase. Through the JSF Industry Team, the government has taken the lead in introducing Australian industry to the JSF program and its prime contractors, Lockheed Martin and partners Northrop Grumman and BAE Systems. It is now engaged in helping Australian industry to develop and build relationships with those companies' Integrated Product Teams (IPTs) and their subcontractors.

The Government is helping to maximise the quantity and quality of Australian industry participation in the JSF program. The Government's facilitation efforts include:

- Ensuring fair and equitable access to JSF contracts;
- Consolidating critical mass around key Australian capabilities;
- Fostering Australian industry capabilities for the support of Australia's JSF fleet;
- Proactive marketing of Australian capabilities to the JSF contractors; and
- Opening necessary paths through US technology export and intellectual property controls.

JSF Industry Advisory Council (JIAC)

An industry council known as the JSF Industry Advisory Council (JIAC) has been established to provide advice to industry (through the ICTs), and to Government (through the joint Defence/DITR Industry Strategy Group), on strategies to assist competitive Australian industry to secure JSF work.

Mr Ken Peacock is the current chairman of the JIAC, a role assumed because of his chairmanship of the Defence Industry Advisory Council's Aerospace Working Group and the Aerospace Industry Action Agenda Strategic Leaders Group.

Industry Capability Teams (ICTs)

Under the leadership of the JIAC, ICTs have been formed to network and coordinate the marketing of Australian industry capabilities on a cooperative basis into the JSF program. Currently there are teams covering Airframe, Vehicle and Propulsion

Systems; Mission Systems; Electronic Warfare; Training and Simulation; Autonomic Logistics and a Regional Support Capability working group.

The ICTs are composed of Australian companies with relevant capabilities and membership of the ICTs is open, with individual companies free to join or leave an ICT at any time. The ICTs are commercially driven, self supporting and self managed, and the government facilitates their activities.

The Government sought expressions of interest from Australian companies. These firms were invited to join Industry Capability Teams in a number of areas comprising Airframe, Vehicle and Propulsion Systems, Mission Systems, Electronic Warfare, Autonomic Logistics and Simulation and Training. A capability directory of Australian firms has been prepared and marketed to potential customers and a number of inwards and outwards scoping and marketing visits with partner countries have been organised.

The ICTs provide a mechanism for the Government to facilitate access by Australian companies to the JSF program. The major US contractors have limited resources to review the capabilities of Australian companies in the available timeframe. The Department of Defence and the Department of Industry, Tourism and Resources have therefore created an industry facilitation team to partner with Australian industry to maximise Australian industry access to the Lockheed Martin and its partners. To date this partnership has been very successful in ensuring that relatively high numbers of Australian companies have been reviewed by the major contractors. The ultimate test of course will come as we discover how much work is won by those companies.

Industry Capability Teams (ICTs) promote open discussion and sharing of information on capabilities and business matching against the opportunities arising in the JSF program to achieve collective commercial gains. To date, the ICTs have been a successful vehicle for marketing industry capability in the critical areas they represent to the JSF primes and their global supply chains. To date 11 Australian firms have won 13 contracts, with more to come (see Attachment B).

The ICT concept is not about 'picking winners', it is about industry working together and achieving commercial outcomes supporting a sustainable and globally competitive aerospace industry in Australia that also supports current and future Australian Defence Force requirements.

JSF CONTRACTS AND WORK OPPORTUNITIES WON BY AUSTRALIA

To date 11 Australian companies have signed 13 production orders or contracts for JSF work.

Melbourne-based **Adacel Technologies** has signed a Memorandum of Agreement with Lockheed Martin to develop a speech-enabled cockpit control system. Adacel is the first Australian company selected to provide software for the JSF program.

Sydney-based **Thales Training and Simulation** (TT&S) has been selected to provide technical assistance for the design and integration of Lockheed Martin's JSF Integrated Training Centre (ITC). The ITC will train all JSF pilots and maintainers to support aircraft operations.

Tomago (NSW) company **Varley Pty Ltd** has received a purchase order from Lockheed Martin to design and supply seven JSF landing gear handling fixtures (ie ground support equipment).

Melbourne-based **Lovitt Technologies Australia** has been selected by Lockheed Martin to manufacture and supply several precision-machined structural wing components for the JSF over the next 10 years.

Brisbane-based **Ferra Engineering** and Melbourne-based **Production Parts** have been selected by Northrop Grumman to receive contracts for the machining and assembly of centre fuselage airframe structures

Brisbane company **Micreo Ltd** has a contract with BAE Systems for the design, development and qualification testing of two sub-assemblies to be used on the Electronic Warfare (EW) system on the JSF. Micreo is the first non-US company to win EW work.

Brisbane-based **Ferra Engineering** has been selected by Marvin Engineering as a sole source supplier for the manufacture and assembly of Alternative Mission Equipment weapon adaptors.

Melbourne company **Marand Precision Engineering Pty Ltd** has an order from Lockheed Martin for the design and manufacture of a JSF engine removal and installation trailer. The trailer is a complex piece of equipment designed to provide a stable platform for the safe installation, removal and maintenance of the multi-million dollar JSF engines. Marand is the first company in the world to receive a contract for the design and development of ground support equipment for the JSF.

Perth-based **Calytrix Technologies** received an order from Lockheed Martin to develop a global interoperability architecture study for JSF training courseware. The study aims to identify any issues that may impact on JSF simulation interoperability and deployable training systems planning.

Melbourne company **Production Parts** was awarded a contract by GE Aircraft Engines for the manufacture of complex aluminium components for the new

generation JSF F136 engine which is being jointly developed by GE and Rolls Royce. The engine is one of two being developed for the JSF aircraft.

Melbourne-based **Hawker de Havilland** signed a contract to provide engineers to work with Lockheed Martin engineers in Palmdale, California, on designing and developing critical components of the JSF airframe.

In June 2003 Melbourne company **GKN Aerospace Engineering Services** was awarded a contract with Northrop Grumman to help design and manufacture centre fuselage components for the fighter. Under the contract GKN designers in Melbourne will work with Northrop staff in California.

In December 2003 Northrop Grumman extended the scope of GKN's existing contract. Currently, GKN has over 50 engineers working at GKN's Melbourne facility and in Northrop Grumman's plant in El Segundo, California. GKN is currently seeking additional staff to work on the project.