



Parliament of Australia

Australian Parliamentary Delegation to the
United States of America

20 September to 2 October 2015

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Delegation Membership

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Federal Member for Grey (South Australia)
Liberal Party of Australia

Deputy Leader

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Member for Franklin (Tasmania)
Shadow Minister for Regional Development, Local Government and Employment
Services
Australian Labor Party

Members

The Hon Mr Ken Wyatt AM MP (20-23 September)
Assistant Minister for Health
Member for Hasluck (Western Australia)
Liberal Party of Australia

Ms Michelle Rowland
Member for Greenway (New South Wales)
Shadow Minister for Citizenship and Multiculturalism and Shadow Assistant Minister
for Communications
Australian Labor Party

Senator Zed Seslja
Senator for the Australian Capital Territory
Liberal Party of Australia

Delegation Secretary

Mr Mark Fitt, Senate Committee Office

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Introduction

This report outlines the key activities and observations of the Australian parliamentary delegation's visit to the United States of America between 20 September and 2 October 2015.

Objectives of the Parliamentary Delegation

The overall objective of parliamentary visits is to further enhance bilateral relations, develop deeper ties between countries, build the capacity of the parliamentary institution, and promote democratic values, through interaction and engagement with other parliaments and parliamentarians. The parliamentary visit format is designed to allow participants to explore and examine particular issues in greater depth through meetings with dignitaries, officials, non-government organisations (NGOs) and members of the public, and site inspections.

While the Parliament's international program has a strong focus on Australia's immediate region, a parliamentary delegation typically visits the United States, as a key ally, at least once per Parliament. The visit provides opportunities for parliamentarians to explore issues in which there are shared interests, and to examine in detail political, economic and social developments in America.

Before this delegation's visit an official Australian parliamentary delegation (excluding committee visits, attendance at assemblies/conferences and Presiding Officer visits) last visited the United States in 2011.

2015 Parliamentary Delegation

The 2015 parliamentary delegation visited Los Angeles, San Francisco and Washington D.C. meeting with representatives from US institutions, private business, organisations and US Government departments and parliamentary counterparts.

The delegation sought to examine and inquire into a range of issues during the course of its visit; these included:

- Tourism and culture
- Innovation, employment, and education
- Energy generation and renewables
- Defence and trade relations
- Information technology and telecommunications



Members of the delegation outside the US Capital building, Washington DC.

Acknowledgements

The delegation's visit was organised and supported by the Australian Parliament's Relation Office (IPRO) and the Department of Foreign Affairs and Trade (DFAT). During most meetings and site visits the delegation was accompanied by DFAT officers stationed across the United States. The professionalism, knowledge and guidance of these officers were very much appreciated. The delegation would also like to acknowledge the highly informative briefings that DFAT kindly organised at each post.

The delegation extends its particular thanks to:

Australian Embassy Washington DC

- The Hon Kim Beazley, Ambassador to United States of America
- Mr Peter Heyward, Minister-Counsellor (Congressional)
- Ms Elizabeth Willis, Senior Congressional Liaison Officer

Australian Consulate-General, San Francisco

- Ms Sally-Ann Watts, Senior Trade Commissioner & Consul-General
- Ms Margaret Donoghue, Investment Director
- Mr Derek Ephrem, Business Development Manager

Australian Consulate-General, Los Angeles

- Ms Karen Lanyon, Consul-General
- Ms Jamie McPherson, Vice-Consul
- Mr Lachlan Roach, Economic Diplomacy Officer

The delegation also wishes to thank the other embassy staff, drivers and security personnel who assisted with the field visit. Photographs in this report are provided courtesy of the delegation secretary.

Australian US relations

The US and Australian relationship is built on many strong formal structures of cooperation covering trade and foreign policy, defence security, and intelligence, research and development, energy and environment, education, law and economics.

Diplomatic relations between the US and Australia were first established in 1940 making 2015 the 75th anniversary of this relationship. As committed allies, both have fought beside each other in every significant international conflict since World War Two. Following the war, Australia and New Zealand refocused their strategic relations away from the northern hemisphere by ratifying a new regional security treaty—the Australia, New Zealand and United States Security Treaty (ANZUS Treaty) in 1951. This treaty along with significant economic agreements has cemented a strong and enduring relationship. Australia and the US also work closely across many international forums such as the G20, East Asia Summit, World Trade Organization and the United Nations.

Economically, the US and Australia have strong and growing ties. The US is Australia's third largest market for exports while Australia is the fifteenth major US export destination. Culturally, the US and Australia share many similar interests from the arts, education, cinema, sport and recreational activities. American tourists are the fourth highest tourist market visiting Australia in 2015 growing at over 8 per cent per year, whereas over 1.3 million Australians travelled to the US in 2015.¹

1 US Office of Travel and Tourism Industries, visitor data 2016, http://travel.trade.gov/about/industry_analysis.html, (accessed on 12 February 2016)

United States of America²

System of government

The United States is a liberal democracy with a federal political structure comprising 50 states and the District of Columbia (DC)—Washington DC. The federal government, like the Australian system, is characterised by its separation of powers between the legislative, the executive, and the judicial arms of government.

The legislative branch

The Congress is the legislative branch of the US government, consisting of 535 voting members. The legislature system is bicameral, again like the Australian system in that it is divided between two chambers:

- The Senate, consisting two elected senators per state in overlapping terms, totalling 100 senators. A senate term is six years and there is no limit to the number of terms an individual can serve
- The House of Representatives - consisting 435 elected representatives, which are divided among the 50 states in proportion to their total population. There are additional non-voting delegates who represent the District of Columbia and the territories. There is no limit to the number of two year terms a representative can serve.

The Congress enacts legislation, confirms or rejects presidential appointments, can declare war. It has the sole power to appropriate financial outlays, and operates through a committee system in both chambers. Legislation must be approved by a majority in both chambers then signed by the President, to become law. The President can veto legislation, but a veto can be overridden by a two-thirds majority in each chamber.

The executive branch

The US executive branch carries out and enforces laws under Article II of the US Constitution. The executive includes the President, Vice President, the Cabinet, and unlike the Australian system includes executive departments, independent agencies, and other boards, commissions, and committees.

Presidents are elected every four years terms through a national contest by universal suffrage. The election is held on the Tuesday following the first Monday in November every fourth year. Although more than 100 million Americans have voted in each of the last four presidential elections, unlike the Australian electoral system, the President is not directly elected by the people. Under the Electoral College system, each state is represented by 'Electors' whose number is equal to that state's congressional delegation (one for each member of the House of Representatives plus two Senators). In 48 of the 50 states (Maine and Nebraska are the exceptions) as well

2 Information in this section is drawn from the Department of Foreign Affairs and Trades' *United States country brief*, the United States Government's USA.gov website, the United States House of Representatives and the United States Senate websites.

as the District of Columbia, a 'winner takes all' system awards all of a state's electors to the winning presidential candidate. In the nationwide election, a candidate that receives a majority of 270 or more Electoral College votes out of the total 538 is elected President.

The judicial branch

The judicial branch is comprised of the Supreme Court and other federal courts. The Supreme Court is the highest court and leads the judicial branch of the federal government. It consists of the Chief Justice of the United States and eight Associate Justices. There is no term limit for justices, who serve after nomination by the President and confirmation in the Senate.

Political system

The United States political landscape is dominated by two political parties, the Republican Party or the 'Grand Old Party' (GOP), which is generally associated with laissez-faire capitalism, low taxes, small government and conservative social policies and the Democratic Party, which is the oldest political party in the US primarily regarded as a centre-left social-liberal platform. Independent or 'third-party', political groups are also represented; for instance, Greens, Libertarians and some socialist parties have performed well in recent years although rarely win. Up until early 2015 there were two independent US senators, Angus King and Bernie Sanders. The latter having been the longest-serving independent until joining the Democrats in 2015 and is now running for the Democratic nomination for President against Hillary Clinton.

While in Washington the delegation had the opportunity to spend time with two former US federal politicians, the Hon Martin A. Russo (Democrat Senator) and the Hon Robert S. Walker (Republican member of the House of Representatives) discussing the coming presidential election.

Dr Jason Johnson, Hiram College

Also in Washington, the delegation had the opportunity to hear from one of the US' leading political commentators, Dr Jason Johnson, Professor of political science and communications at Hiram College in Hiram, Ohio. Dr Johnson is considered an expert in the US Political system. He is a frequent contributor in print media, television, radio and online where he has his own political blog.

Dr Johnson provided the delegation with an overview of the US political system and an analysis of current political landscape delivering an excellent snapshot, of the forthcoming presidential elections noting that it would be the most expensive and difficult campaign to predict.



Members of the delegation with Dr Jason Johnson at the Australian Embassy, Washington DC.

Trade with the United States

As a major driver of the global economy the United States is a world leader in international trade and investment, research and development expenditure, stock market capitalisation and its share of large global corporations³. In 2015, the US was ranked as the world's largest economy with GDP (nominal) estimated at approximately US\$18.125 trillion or around 23.45 per cent of the global economy⁴.

Since the Second World War the United States has become one of Australia's closest allies culturally and economically. In 2014-15 it was our third largest trading partner in terms of exports plus imports totalling \$43,775 million representing a year on year growth of 12 per cent.

Graph 1 below provides details of Australia's the major exports and services exports to the US in 2014-15.

3 Department of Foreign Affairs and Trade, United States of America country brief, <http://dfat.gov.au/geo/united-states-of-america/Pages/united-states-of-america-country-brief.aspx>, (accessed 15 December 2015).

4 International Monetary Fund, [data and statistics](http://www.imf.org/external/index.htm), <http://www.imf.org/external/index.htm> (accessed 10 February 2016).

Graph 1. Australian exports to the US 2014-15⁵:

<i>Major exports in 2014-15</i>	<i>AUD \$ (m)</i>
Beef, f.c.f.* AUD	3,233
Aircraft, spacecraft & parts	913
Meat (excl beef), f.c.f.	791
Alcoholic beverages	465
<hr/>	
<i>Major services exports in 2014-15</i>	<i>AUD \$ (m)</i>
Professional, technical & other business services	2,310
Personal travel excluding education	1,088

*f.c.f: fresh, chilled or frozen

Australia-US free trade agreement (AUSFTA)

In recent years Australia and the US have sought to strengthen bilateral relations particularly trade related. Apart from being the 75th anniversary of diplomatic relations it is also the tenth anniversary of the signing of the Australia-US free trade agreement (AUSFTA), which came into effect on 1 January 2005. The AUSFTA was the second 'preferential' trade agreement that Australia signed, after its agreement with Singapore, marking a departure from Australia's previous trade policy of unilateral and multilateral trade liberalisation towards preferential trade liberalisation.

The AUSFTA in essence gave US goods, services and investment preferential treatment and gave American exporters better access to Australian markets than that enjoyed by exporters from other countries. Since the establishment of the FTA there has been slow steady investment between the two countries. In 2014, total American investment in the Australian economy was around \$758 billion.

Upon AUSFTA's entry into force, more than 97 per cent of Australia's non-agricultural exports to the United States (excluding textiles and clothing) became duty free and two-thirds of agricultural tariff lines went to zero. Under the agreement, Australian companies have access to the the United States federal government procurement market and the government procurement markets of 31 US states.

Total foreign direct investment (FDI) in Australia reached \$688 billion⁶ in 2014 with the US remaining the largest investor by stock at \$163.4 billion. While much of this

5 Department of Foreign Affairs and Trade, United States trade and economic fact sheets, <http://dfat.gov.au/trade/resources/Documents/usa.pdf>, (accessed 15 December 2015).

trade has been centred in resources and energy creation, a significant emerging sector has been the renewable energy market and soon to be energy storage market. A recent example of future exchange is the US electric car and battery manufacturer Tesla, which has just announced that it had entered into agreements with a number of Australian companies to retail its new cutting edge *Powerwall* battery storage system for storing solar generated electricity⁷.

During initial negotiations of the AUSFTA a number of economic commentators expressed concerns⁸ regarding the use of 'preferential' FTAs as a trade liberalisation strategy largely due to the preferential treatment one economy receives at the exclusion of other existing or potential trading partners, namely those in Asia.

The Trans-Pacific Partnership (TPP)

Broader than the AUSFTA, the new yet to be ratified TPP builds from the Trans-Pacific Strategic Economic Partnership Agreement (P4) between Brunei, Chile, New Zealand and Singapore which entered into force in 2006. The TPP is a regional free trade agreement of unprecedented scope and ambition with great potential to drive job-creating growth across the Australian economy.

TPP outcomes include new market access opportunities for Australian exporters of goods and services, as well as investors that are additional to Australia's existing free trade agreements. For investment, the TPP will create new opportunities and provide more seamless trade across the 12 countries by setting commonly-agreed rules and promoting transparency of laws and regulations. The TPP also addresses contemporary trade challenges in ways that have not previously been addressed in Australian FTAs, such as commitments on state-owned enterprises, which will promote competition, trade and investment and enable Australian exporters to compete on a more level playing field.⁹

6 Australian Trade Commission, data alert, 14 May 2015, <https://www.austrade.gov.au/.../data-alert-australias-inward-FDI-stock-sur...>

7 Sydney Morning Herald, 14 December 2015, *CSR seals Tesla Energy deal to sell Powerwall* <http://www.smh.com.au/business/energy/csr-in-tesla-energy-deal-to-sell-powerwall-20151213-glmqly.html#ixzz3uM8lwbGk>, (accessed 15 December 2015).

8 ANZ Industry Brief, AUSFTA – the impact on industry, 12 July 2004, Shiro Armstrong, Crawford School of Public Policy, ANU, Australia – Japan Research Centre (AJRC), *The Economic impact of the Australian- United States free trade Agreement*, AJRC Working Paper 01/2015 January 2015, p. 1.

9 DFAT, About the Trans-Pacific Partnership Agreement <http://dfat.gov.au/trade/agreements/tpp/pages/trans-pacific-partnership-agreement-tpp.aspx>, (accessed 15 December 2015).

Tourism and culture

Overview

Tourism between Australia and America is a vibrant and rapidly growing industry. Over the last ten years, the number of Americans visiting Australia has risen by more than 31 per cent making the US our fourth largest tourist market in 2015¹⁰.

Similarly, this interest is reciprocated in the number of Australians travelling to the US which has increased by over 91 per cent in the last seven years since 2007-2014¹¹. The main age and expenditure bracket for both countries is in the 45-50 year old age bracket.

Delegation Program

The delegation commenced its visit to the US by making a number of site visits to significant cultural institutions in the Los Angeles (LA) region. These included the Ronald Reagan Library, the Getty Museum and the Warner Bros Studios in Burbank.

A highlight for the delegation was the visit to the Ronald Reagan Library in Simi Valley, California. The delegation was taken on a private tour of the library where it also viewed the original Boeing 707 Air Force One jetliner which is housed in a large pavilion. The plane flew seven US presidents before being retired and brought to the library as a permanent display. When the delegation visited the Library, the Air Force One pavilion had just hosted the second Republican presidential debate on 16 September 2015. The delegation was very impressed and found the tour of the Library fascinating and was especially grateful and extends its deep thanks to the Library for the rare privilege of visiting the private living quarters of the late President Ronald Reagan and his wife Nancy.



Members of the delegation on the steps of Air Force One, Ronald Reagan Library.

10 Tourism Australia, [http://www.tourism.australia.com/documents/Statistics/ABS_arrivals_Oct2015\(1\).pdf](http://www.tourism.australia.com/documents/Statistics/ABS_arrivals_Oct2015(1).pdf)

11 U.S. Department of Commerce:
http://tinet.ita.doc.gov/outreachpages/download_data_table/2014_Australia_Market_Profile.pdf

Film industry

The delegation heard from Ms Kate Marks, Australia's Film Commissioner based in LA, on how Australian film services are winning clients in the American film production studios for both mini-series and blockbusters. Ms Marks explained that Australia has developed a strong reputation in the US providing great locations, excellent crews and highly experienced producing skills. Ms Marks noted that staging large and small scale film productions in Australia brings significant job creation and excellent flow-on effects to local communities in Australia. It was also noted that international competition is increasing to host these productions with a wide range of incentives employed to attract the big studios.

Nevertheless, Australia's reputation has just been reinforced with the outstanding success of Mad Max movie, Fury Road made by Dr George Miller using Australian production service companies and screen agencies. The film went on to win six Oscar awards becoming the most successful Australian film ever at the Academy Awards.

Innovation and employment

Overview

As part of the delegation's program, it met with representatives from the business, innovation and research and development sectors.

The west coast of the US, particularly the San Francisco bay region is known as one of the key innovative, science technology centres of the world. The region is one of the most influential and connected, particularly to global, biotech and nanotech industries. It boasts over six public universities including Stanford University and is home to five of the Federal Research Agencies including the largest agency, the Lawrence Livermore National Laboratory and of course, the city is home to Silicon Valley. These institutions are internationally famous for not only their revolutionary approaches to inventing new and innovative processes and ideas but also financially backing new ideas.

While in the San Francisco, the Australian American Chamber of Commerce invited the delegation to meet with Australian and American business people who have set-up businesses in either the US or Australia. The delegation found the event very rewarding and encouraging and would like to extend its thanks to the AACC for its kind hospitality.

Bay Area Council Economic Institute

The delegation met with the Mr Sean Randolph from the Bay Area Council Economic Institute, a public-private partnership of business, labour, government and higher education sectors that works to support the economic development and competitiveness of San Francisco and the Bay area. The delegation heard that the number of new companies choosing to establish their research and development centres in the region is growing. Recently this has included Tesla, the electric car company that now has its main manufacturing plant in Fremont California. A strong focus for the Institute is building the region's global connections by attracting more companies, research organisations and incubators and accelerators to the region.

A significant area the Institute is active in is the higher education sector. The delegation heard that the Institute is examining how the higher education system will evolve to meet the future workforce of the region. The Institute was also keenly involved in the Bay area school performance levels. The delegation heard that a further focus has been on the environment and water use particularly as region is suffering one of its longest dry periods.

AirBnB and Yelp.

The delegation took the opportunity to meet with two organisations in the Bay Area, AirBnB and Yelp both are part of the new generation of innovative firms operating entirely online. These firms are often referred to as part of the 'sharing economy'¹² similar to firms like Uber¹³. Yelp is a crowd-sourced local business review and social networking site. Yelp is now a multinational company that developed, Yelp.com and the Yelp mobile app, which publish crowd-sourced reviews about local businesses, as well as the online reservation service SeatMe and online food-delivery service Eat24. While AirBnB, is an online home rental business. People are able to advertise and rent out space for anyone to hire anywhere. Uber and AirBnB both have significant impacts in how traditional labour markets are adapting to different demand opportunities.

Both companies represent new and innovative ways of finding and funding business ideas. Yelp was a perfect example of crowdfunding, rather than seeking equity injections from venture capitalists, crowdfunding seeks contributions online from the general public in return for equity (profit sharing) or other forms of benefits. The Bay Area Council Economic Institute noted that nowhere was there such a concentration of risk capital internationally as in the Bay region. They also noted that while the number of deals (private equity injections) was not increasing, the quantum was up and that crowdfunding was a significant component of this.

12 The sharing economy can take a variety of forms, including using information technology to provide individuals, corporations, non-profits and governments with information that enables the optimization of resources through the redistribution, sharing and reuse of excess capacity in goods and services.

13 Uber Technologies Inc. is an American multinational online transportation network company headquartered in San Francisco, California. Uber Operates via a mobile phone app, which allows consumers to request a trip which is then passed to Uber drivers who use their own cars.

Lawrence Livermore National Laboratory

The delegation had a unique opportunity to spend a day visiting the largest of the Federally Funded Research and Development Centers (FFRDCs)—the Lawrence Livermore National Laboratory (LLNL). The LLNL is one of 42 FFRDCs which are public-private partnerships that conduct research for the United States Government. The LLNL facility is also one of 17 labs funded through the Department of Energy (DoE) with an annual budget of \$1.5 billion.

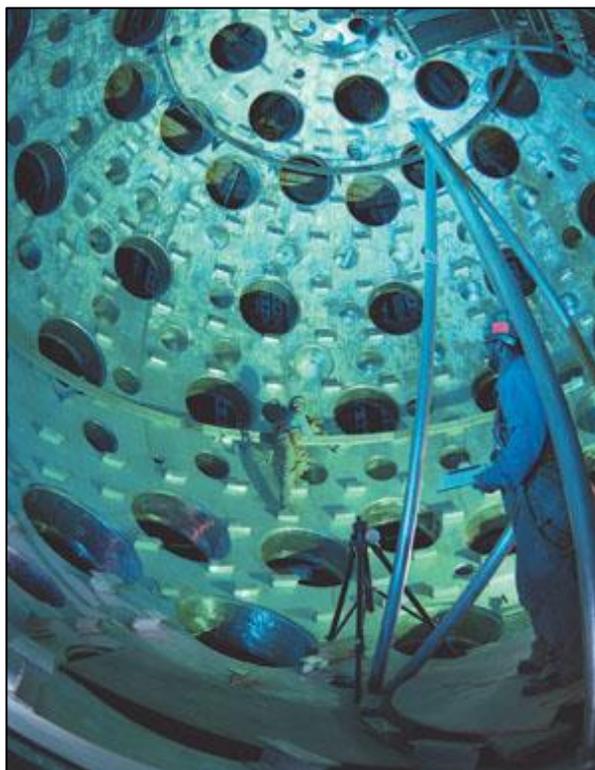
The LLNL's principal responsibility is ensuring the safety, security and reliability of the US's nuclear arsenal through the application of advanced science, engineering and technology.

The Laboratory also applies its special expertise to preventing the proliferation and use of weapons of mass destruction, homeland security, energy and environmental security, basic science and economic competitiveness.

The delegation visited a range of LLNL labs witnessing some of the unique work it undertakes from advanced manufacturing to bioengineering and innovative 3D printing applications. However, the highlight of the visit was a tour of the National Ignition Facility (NIF) the world's largest and highest-energy laser.

The NIF operates 192 laser beams routinely creating temperatures and pressures similar to those that exist only in the cores of stars and giant planets and inside nuclear weapons.

The facility is funded by the U.S. DoE's National Nuclear Security Administration (NNSA) and is a key element of NNSA's *Stockpile Stewardship Program* to maintain the safety, security, and reliability of the US's existing nuclear warheads without the use of nuclear testing.¹⁴ The delegation was informed that a hopeful spill-over of this technology is the possibility of generating inertial fusion energy.



Above. A view inside the target chamber at the National Ignition Facility (NIF). The facility will allow scientists to replicate various physical processes at the energy densities and temperatures approaching those in a nuclear weapon detonation. Source: LLNL

14 National Ignition Facility and Photon Science: <https://lasers.llnl.gov/about>. For more information see, <https://lasers.llnl.gov/about/how-nif-works>, (accessed 10 February 2016).

Education

Education continues to be a considerable drawcard for Australia as a major export. Australia is now rated as the third most popular destination for international students globally behind the US and UK. In 2015, there were 498,155 international students studying in Australia, of these 7,800 were American students commencing studies here¹⁵. Around 69 per cent of these students were studying through a study abroad or student exchange program, which usually involve completing one or two semesters overseas these courses can be credited to their domestic course back home. Another 12 per cent of US students studied in the higher education sector, completing a degree at either undergraduate or postgraduate level.

Delegation Program

The delegation met with representatives from a number of US west coast education authorities and facilities and followed up with a meeting with representatives from the federal department of Labour in Washington on a number of issues. A key issue for the delegation regarding the higher education sector was looking at 'jobs of the future' particularly in the high demand area of Science, Technology, Engineering and Mathematics (STEM) jobs. The delegation consistently heard of the high competition across the industry, defence and research sectors for graduates with STEM qualifications. The delegation was very interested to hear of experiences in how educators continue to encourage high school leavers to study STEM subjects to meet this increasing demand.

University of California, Los Angeles (UCLA).

The delegation met with representatives from UCLA, one of the well-known west coast public universities where it discussed education links to Australia and international students, youth unemployment including pathways to education and online course. Issues of youth unemployment and pathways to employment were also discussed with the Department of Labour. The delegation was keen to discuss the cost of American college education and media reports of education debt among graduates in the US and its impact.

San Francisco Board of Education

In San Francisco the delegation spoke with the San Francisco Board of Education Commissioner Mr Matt Haney, Vice President. Mr Haney informed the delegation that the Board is responsible for the region's educational curriculum and subsequently a key focus is a new curriculum which will have all future exams on computers meaning there will be a greater emphasis on writing in the future, including greater computer literacy which will assist students develop greater job-ready skills. The delegation also discussed how the Board was tackling youth unemployment and participation rates among underprivileged youth in the Bay region.

15 <https://internationaleducation.gov.au/research/International-Student-Data/Pages/InternationalStudentData2015.aspx>, (accessed 10 February 2016).

Energy generation and renewables

Overview

Constrained power generating capacity, global warming and rising power prices have led the way in driving better and more efficient energy generation and storage globally. Much of this new generation capacity has and will come predominately from renewables like solar (photovoltaic, solar thermal), wind and various forms of bio-mas production. Still, more advanced traditional forms of power generation are being developed such as clean coal and gas production including the next generation of nuclear fast breeder reactors.

The US has, like so many technological advances, had a significant input in leading the way with renewable technologies. California has some of the largest new energy generation facilities internationally. Based on California's strict emission legislation, much research and development into renewable is often undertaken and trialled in the State. Nevertheless, it's worth noting that according to the World Nuclear Association, there are plans for five new nuclear reactors in the US, beyond the five under construction now, with expectations that some of the new reactors will be on line by 2020.¹⁶ The delegation noted that future of the energy mix in the US is quite diverse.

Delegation Program

As part of the delegation's inquiry into energy, renewable and environment related issues it met with a number of organisations involved in the sectors.

TreePeople

In 2014, the delegation heard that a group of researchers from TreePeople travelled to Australia following the millennium drought on a fact finding mission. According to Treepeople's Edith de Guzman, Director of Research, Australia is uniquely placed to capitalise on its expertise and knowledge of water management in regard to LA and California more generally.

Treepeople have been a leading organisation focusing on the underlying environmental issues in the LA region. Presently facing one of the longest droughts on record, LA has traditionally relied on snow melt to replenish its reservoirs. The drought has exposed the lack of long term planning for water management in a region



Delegation Leader, Rohan Ramsey standing in a grove of redwood sequoias planted by TreePeople.

16 <http://www.world-nuclear.org/information-library/current-and-future-generation/plans-for-new-reactors-worldwide.aspx> (accessed 10 February 2016).

that shares very similar climatic conditions as Adelaide. In partnership with the LA Department of Water and Power, Treepeople have developed and implemented the first master plan for stormwater and rainwater management with an aim to collect between 30-45 per cent of water demand from local rainfall.

Key initiatives that the delegation heard were implementing a realistic price on water, more capture of water via rainwater tanks and retrofitting of houses to collect water. Further indicatives included, greater planting of trees to provide canopy cover to cool the urban environment reducing energy use and dependence.

Treepeople also shared with the delegation their outdoor education facility which is set on 45 acres in Coldwater Canyon Park. Within the grounds they have planted a significant number of trees and shrubs including a number of redwood sequoias which are native to the west coast region.



Delegation members with TreePeople's executive group in their eco-designed centre.

EV Grid

The delegation enjoyed an afternoon test driving a new electric Tesla sedan car and a mini converted to electric power by EV Grid.

Tom Gage, EV Grid CEO explained how EV Grid is involved in developing the integration of an electric vehicle fleet and the power grid in California. Mr Gage also elaborated on how EV Grid is looking to develop and deploy scalable energy storage products across California and that electric cars are one part of this plan.

In addition, the delegation heard how EV Grid is part of a US\$1.4 million trial for an all-electric school bus demonstration program in California. This program involves retrofitting the ubiquitous US yellow school buses with electric drives and battery storage systems. The program benefit is that it prolongs the life of the vehicles and reduces the need for new capital outlays reducing the environmental impact.



Senator Zed Seselja test driving a Tesla S electric car. Delegation members discussing electric vehicles with Mr Tom Gage CEO of EV Grid and Mt Steve Crolius (School Bus retrofit)

American Council on Renewable Energy (ACORE)

ACORE is a non-profit organisation is dedicated to building a secure and prosperous America with clean, renewable energy.

ACORE provides a common educational platform for a wide range of interests in the renewable energy community, focusing on technology, finance, policy and market development. The delegation discussed a wide range of issues related to power generation, cost of power, level of federal subsidies, defence and security issues related to power generation.



Delegation members with ACORE executives (from left) Scott Clausen and Todd Foley

SolarReserve – Crescent Dunes

The delegation's visit to SolarReserve's Crescent Dunes Solar thermal site in Tonopah Nevada was regarded as a particular highlight by the delegation.

Crescent Dunes solar energy project is a 110 megawatt (MW) net solar thermal power project located in the Nevada desert about 310 km northwest of Las Vegas at just under \$1 billion cost.



An aerial view of the Crescent Dunes 2.8 km wide solar array Tonopah, Nevada.



From Left, Mr Tom Georgis, Senior Vice President of Solar Reserve, Delegation leader, Rohan Ramsey and Brian Painter, Site Manager Crescent Dunes.

and can be used to generate power for up to ten hours, including during the evening hours and when direct sunlight is not available.

Under a power purchase agreement all future power generated over the next 25 years will be sold to Nevada Power Company for US\$0.135 per kilowatt-hour.

Over 10,000 heliostats (mirrors) in a 2.8 km diameter circular array follow the sun collecting and focusing the sun's thermal energy to heat molten salt flowing through a 160 m tall solar power tower.

The molten salt circulates from the tower to a storage tank, where it is then used to produce steam and generate electricity. Excess thermal energy is stored in the molten salt



Looking back to the solar tower at the centre of the field through the array of heliostats. Each heliostat is made up of 35x1.8 m mirror facets, yielding a heliostat overall usable area of 115.7 m². Total solar field aperture adds up to 1,196,778 m².

Defence and trade relations

Overview

Australia and the US have enjoyed strong economic and defence ties since the Second World War. As outlined in the section *Trade with the United States*, Australia and the US share many similarities in economic terms including defence policy and intelligence. As a major supporter of the US and a limited producer of domestic defence materials, Australia is large purchaser of US military equipment. Over the last five years approximately 68 per cent of Australia's defence imports came from the US, with 19 per cent from Spain, where Australia is sourcing two new amphibious assault ships.¹⁷

According to the Australia's Defence Materiel Organisation, spending on military equipment and material contracts has surged in the past financial year, with contracts listed in the 2013-14 financial year worth \$13.8bn. In the 2015–16 Budget, the Government reaffirmed its commitment to growing the Defence budget to two per cent of GDP within a decade:

Delegation Program

As part of the delegation's inquiry into defence related issues it met with RAND Corporation in Santa Monica, California. RAND is an American non-profit global policy think tank originally formed by Douglas Aircraft Company to offer research and analysis to the United States Armed Forces.



Members of the delegation with Ms Robin Meili, Director International Programs, RAND Corp

17 <http://www.theguardian.com/australia-news/2015/apr/03/australias-arms-imports-surge-after-costly>, (accessed 10 February 2016).

Today RAND provides research and analysis and strategic policy formulation services to a number of Australian governments including federal government departments. The delegation discussed a range of ideas and projects including the ship building sector, national security and de-radicalisation, regional stabilisation, ICT including big data and social policy issues.

Northrup Grumman

The delegation also met with representatives from aerospace companies Northrup Grumman at the Space Park CoE, Redondo Beach, California and Lockheed Martin in Arlington, Virginia. At both companies, the delegation discussed current Australian acquisitions and collaborations particularly in the Science, Technology, Engineering (STEM) and Mathematics areas.

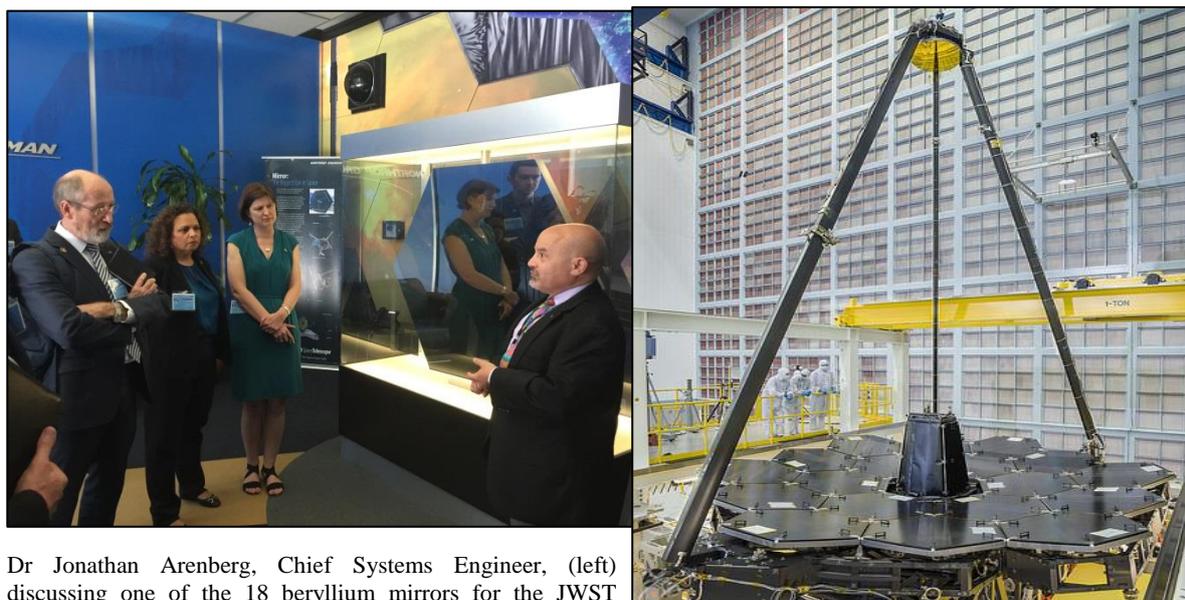
Both companies have a range of sponsorship/scholarship services to encourage greater take-up of STEM careers by high school and university students. At Northrup Grumman, the delegation was provided a presentation of the new MQ-4C Triton large unmanned aerial vehicle which the Federal Government has committed to purchasing in the Defence White paper.

James Webb Space Telescope

The delegation were also privy to a unique presentation of the work Northrup Grumman is undertaking for NASA to build the James Webb Space Telescope (JWST)—a large infrared telescope with a 6.5-meter primary mirror. The telescope will be launched from French Guiana in October of 2018.

The JWST will be the premier observatory of the next decade, serving thousands of astronomers worldwide. It will study every phase in the history of the universe.

JWST is an international collaboration between NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA) with Northrup Grumman as the main industrial partner.



Dr Jonathan Arenberg, Chief Systems Engineer, (left) discussing one of the 18 beryllium mirrors for the JWST (right)

Several innovative technologies have been developed for JWST. These include a primary mirror made of 18 separate (mirrors) segments that unfold and adjust to shape after launch. The mirrors are made of ultra-lightweight beryllium. The JWST's biggest feature is a tennis court sized five-layer sunshield that attenuates heat from the Sun more than a million times.

Lockheed Martin

While meeting with Lockheed Martin in Virginia, the delegation was provided with a fascinating overview of the new F35 fighter plane Australia is purchasing. Delegates were able to discuss a range of topics from future acquisitions, technology advancement and big data. A highlight of the delegation's visit was experiencing a number of F35 training simulators.



The Australian F35 wearing RAAF roundels.

Information technology and telecommunications

Overview

Information technology (IT) is a term that was developed by the *Harvard Business Review* to distinguish between purpose-built machines designed to perform a limited scope of functions and general-purpose computing machines. With advanced computing capability device cost and energy consumption fell, a cycle that continues today as new technologies emerge.

The narrative of America has always been about change and competition, markets developing and adapting. Much of what the delegation has seen and discussed continue to support how vibrant and dynamic the situation remains.

Telecommunications is a subset of the IT revolution. Many markets have seen significant change with new players and some consolidation occurring.

Delegation Program

During the course of the visit the delegation engaged with a number of different agencies and organisations in discussions related to information technology and big data from the defence contractors to US research establishments, internet based companies including regulators in the telecommunications space.

Federal Communications Commission (FCC)

The delegation heard from the Mr Jim Bird, Senior Counsel and Chief at the Commission. The FCC is an independent U.S. government agency overseen by Congress. The Commission is the US' primary authority for communications laws, regulation and technological innovation that regulates US and international communications by radio, television, wire, satellite, and cable.

Mr Bird provided the delegation with an overview of the US telecommunications market. He noted that while the Commission's role for many years had been generally monitoring regulated monopolies, its focus now has rapidly moved to managing greater competition—particularly with significant technological advancement. This has become very important as the telecommunications market becomes increasingly diversified covering not just telephone but also cable tv, video, internet, satellite and wireless services. Mr Bird outlined how the current US market was evolving in regards to the fibre vs cable networks and how these newer services have a higher demand for greater data transfer speeds particularly for internet users and businesses that access cloud-based services¹⁸.

In addressing this issue, the delegation heard that like many western nations America has been grappling with the cost benefits of deploying optic fibre or broadband services—which in the US is privately funded. Mr Bird noted that there had been some early industry adopters of optic fibre to the home (FttH) with mixed results. Meanwhile other providers of traditional coaxial cable networks (cable TV networks) coupled with fibre to the node (FttN)—that is optical fibre to a central location and then traditional copper telephone/power lines or coaxial cable tv lines to the premises had continued to provide better/or more significantly—more bandwidth/spectrum to consumers. Mr Bird also discussed how Google Fiber is rolling out its own fibre network in selected cities.

Mr Bird noted that the future emphasis for the FCC will be watching the market develop with as little intervention as possible while keeping avenues open for new products. In terms of the future, as the bandwidth/spectrum is limited it will see many players pursuing a mix of service provision through greater satellite, wireless and more fibre roll-out which will include greater provision of FttH, but also more FttN coupled with wireless. Key issues for the market will be how to get more efficiency out of the limited spectrum available to current players.

Mr Rowan Ramsey MP
Federal Member for Grey (South Australia)
Delegation Leader

18 A term that refers to applications, services or resources made available to users on demand via the Internet from a cloud computing provider's servers.

Delegation Itinerary

Overview

The delegation arrived in Los Angeles on Sunday 20 September 2015 on the first stop in its US itinerary. The delegation later travelled to San Francisco and then across the US to Washington DC before returning to Australia.

Los Angeles

Sunday 20 September 2015

- Department of Foreign Affairs and Trade Briefing
- Reagan Presidential Library
- Getty Museum

Monday 21 September 2015

- Ausfilm briefing – Australian Film Commissioner – Kate Marks
- RAND Corp, Santa Monica
- TreePeople, Coldwater Canyon
- University of California Los Angeles (UCLA), Murphy Hall
- EV Grid

Tuesday 22 September 2015

- Northrop Grumman
- Warner Bros Studios

Wednesday 23 September 2015

- SolarReserve, Crescent Dunes, Nevada

San Francisco

Thursday 24 September 2015

- Department of Foreign Affairs and Trade Briefing
- Yelp
- Australian American Chamber of Commerce
- Airbnb

Friday 25 September 2015

- San Francisco Board of Education
- Bay Area Council, Economic Institute
- Lawrence Livermore National Laboratories

Washington DCMonday 28 September 2015

- Department of Foreign Affairs and Trade Briefing
- American Council on Renewable Energies (ACORE)
- Meeting with The Hon Martin A. Russo and The Hon Robert S. Walker
- Lockheed Martin Global Vision Centre

Tuesday 29 September 2015

- Dr Jason Johnson, Hiram College
- Federal Communications Commission
- Meeting with The Hon Kim Beazley, Ambassador to United States of America
- Office of Citizenship and Field Office Directorate

Wednesday 30 September 2015

- Tour of the US Capital
- American Enterprise Institute
- US Department of Labor

