

6 May 2005

Confidential

The Secretary  
Standing Committee on Science and Innovation  
House of Representatives  
Parliament House  
CANBERRA ACT 2600

Email: [scin.reps@aph.gov.au](mailto:scin.reps@aph.gov.au)

Dear Secretary,

Thank you for the opportunity to contribute to your committee's Enquiry and I am sure it can be demonstrated that AWS is a good example of successful commercialisation of innovative technology with great opportunities in front of us as explained below:

#### INTRODUCTION

AWS started in 1990 as a consulting engineering company and became involved in projects that included waste management that led to the company to the place where it offering waste treatment systems from 1992.

Technology from the USA was originally offered but over time, with significant innovation through R&D, AWS developed its own technology that is now more advanced than the USA and is exported back to them.

Exports to the USA, UK and India led to AWS winning both the State and National Awards for Emerging Exporter of the Year in 2001. The Principal of AWS, Peter Atherton was recognised as a contributor to Australian Industry with a Centenary Medal in 2002. This was particularly pleasing to Peter as his Great Grandfather is Sir Henry Parkes.

The emphasis of AWS technology is on hazardous waste treatment for control over the spread of disease for waste generated in health facilities (clinical waste) and treatment for the control of exotic diseases and pests for waste entering the country through seaports and airports (quarantine waste).

The innovative developments that have been applied to the AWS Systems that are unique include automated loading, computer control & monitoring, online technical support, an innovative steam pulsing system that reduces energy and water consumption and a

---

Australian Waste Services Pty Ltd ACN 069 635 516 ABN 77 781 324 800 Trading as AWS Clinical Waste

**HEAD OFFICE:**

Suite 27, Cleveland House  
120 Bloomfield Street  
Cleveland Qld AUSTRALIA 4163

Ph: 61 7 3821 1500  
Fax: 61 7 3821 1525

Email: [peter@awsclinical.com](mailto:peter@awsclinical.com)  
Web: [www.awsclinical.com](http://www.awsclinical.com)

blowdown condensing system that collects waste heat and eliminates emissions to atmosphere.

AWS also have developed accurate and certified treatment verification testing procedures and comprehensive waste management procedures to be used in conjunction with the AWS technology and prove that it works.

AWS are now providing quality service and innovation to the likes of Ports Corporation Queensland (PCQ) at the Dalrymple Bay Coal Loading Terminal so that PCQ can comply with MAPOL and eliminate the practice of ships jettisoning waste onto the Great Barrier Reef.

This Waste Management Infrastructure at PCQ should be a model for the rest of Australia, particularly those parts of Australia still carrying out the risky practice of landfill or incineration (Brisbane, Melbourne, Adelaide, WA, Darwin for example).

There are AWS Quarantine Waste Treatment Systems in Sydney (two at Qantas and two at Dumpex), Newcastle, Cairns, Townsville and Gladstone that do a similar job to the PCQ waste treatment facility.

We also have AWS Quarantine Waste Treatment Systems in PNG and New Zealand.

For Clinical Waste treatment we have a number of sites in Australia, Townsville with two, Brisbane with two, Newcastle, Darwin, Gove and around twenty worldwide in US, UK, NZ, and World Bank funded projects in India.

Dutch and US funded projects in Bangladesh have been won by AWS due to our recent marketing efforts for the AWS Mini System.

Due to the high cost of current Clinical Waste Management Practices in Australia that are also heavily transport dependent we are working with most health facilities in the nation to reduce the cost and environmental impact with innovative AWS technology.

This national approach fits nicely with the Australian Governments international stance on Kyoto where reducing the effects of global warming and global dimming and opening up the possibility of tradeable carbon credits are to be achieved through new and better technology.

We are pursuing this approach with the likes of Honeywell where we currently have in place proposals with Princess Alexandra Hospital, The Prince Charles Hospital and Freemasons Hospital that offer on site treatment and utilisation of waste heat from on site energy generation plants. Independently we are having discussions with Perth, Adelaide, Sydney and Melbourne's largest hospitals.

Further, the R&D program at AWS currently includes Organic Waste Treatment with the first Pilot Plant proposed for Thailand that will produce biogas and soil conditioner. The R&D program also includes further development of the "Mini" prototype clinical waste treatment system to provide inexpensive systems for the Military, Bangladesh, parts of India, SE Asia and to cover rural Australia. A longer term R&D project is the development of a high tech version of the existing AWS System that will deal responsibly with hazardous pharmaceuticals and chemicals whilst eliminating toxic emissions to atmosphere.

AWS are currently well positioned to win large multimillion dollar projects in India, nationally for the military and state wide for health departments, all due to our success with two World Bank funded Projects in India. There are similar opportunities in SE Asia, China and Japan.

On being awarded the project for military hospitals in India, AWS will become the biggest provider of Clinical Waste Treatment Systems in India and in the World.

AWS are currently in discussions with a venture capitalist that has Federal Government funding through the IIF Program. We are also preparing a submission for Ausindustry's Commercial Ready Scheme for launching of the AWS Mini on the World market. This dual approach is designed to enable AWS to put resources in place to cope with the growth from new and larger Projects and to get the new AWS products out of R&D into the market.

A recent trip to India by the Principal and AWS subcontractor Kelycon led to advances in the design of AWS Systems to bulletproof them for the Indian market. These key design innovations also lead the world for reliability, safety and quick and efficient onsite installation.

AWS's success and particularly its lead in waste treatment technology has been greatly assisted in the past by Ausindustry with a Start Grant in 1998 and a Concessional Loan in 1995.

The Queensland Government has also been very supportive by assisting AWS through the Department of State Development and Innovation with a grant for the development of the AWS Organic Waste Treatment Technology in collaboration with the University of Queensland.

The Department of State Development and Innovation have also assisted AWS with finance and resources that strengthened our export drive into India.

There has also been great support from Austrade with the Export Marketing Development Grant and other networking assistance from time to time.

With this introduction completed the rest of this submission follows the guidelines you have set out for submitting our views for your inquiry into Pathways to Technological Innovation.

## EXAMPLE OF A SUCCESSFUL AUSTRALIAN TECHNOLOGICAL INNOVATION

AWS is an example of a company that has been successful with technical innovation. How this has been achieved is set out below

### **Pathway to commercialisation**

AWS have been able to convert their innovations from concept to prototypes with support from our electrical and mechanical consultants and subcontractors, all small businesses

We have not had particularly fruitful outcomes from Universities so far nor have we experienced support from private investors or banks (other than lending against security tied to private assets)

Government support through several Federal and State programs have assisted greatly to commercialise technology developed by AWS through funding R&D, pilot plants, prototypes and export marketing development

### **Intellectual property and patents**

AWS have not found patents an effective form of protection due to the resources, time and money required. Also AWS technology has developed too fast for the patent process to be relevant

Confidentiality is vitally important to AWS and protection of our intellectual property has been through copyright of documents, drawings, software, illustrations and other IP, more along the lines of corporations such as Microsoft and Coca Cola rather than through patents

We also utilise confidentiality agreements, employment contracts, subcontracts, consultancy agreements and Agent's agreements to keep tight control over dissemination of information

AWS Agent and Distributorship Agreements include conditions that protect IP with regard to the Representatives and gives the Representatives the responsibility to protect the IP in their local dealings

### **Skills and business knowledge**

The Principal of AWS has been involved in engineering and the AWS core technology, steam sterilisation since the 1970's and has experience in large and small corporations including growing up in a family dedicated to a company, Athertons now approaching 120 years of continuous operation and has the fifth generation of the family involved

AWS Consultants have around 100 years of collective experience in technology (mechanical and electrical engineering, computing, electronics) and corporate governance (legal, commercial, finance and tax)

Similarly, AWS Subcontractors have vast experience and expertise in electronics, controls and power, pressure vessels, boilers, metal fabrication, hydraulics, piping, fitting, machining, material handling and technical support services

We have also been able to effectively utilise the skills and experience of government advisers and networkers

A tight team with technical, legal and accounting monitoring and control has been the key to the success of AWS

Experience on significant projects like the World Bank funded project in India has led to an understanding by AWS that difficulties and risks encountered in countries with a work force comprising many not educated to the level of Australia's workforce requires innovative technology to minimise the problems that can be encountered.

### **Capital and risk investment**

AWS capital has mostly come through the immediate family of Peter Atherton, often causing hardship and financial stress to the family

However, the Federal Government Start Grant and Concession Loan Schemes as well as the Export Marketing Grant Scheme have all been very beneficial to the ongoing development and success of AWS as has State Government Grant Schemes for technology and market development through the Department of State Development and Innovation

The banking sector has assisted with overdraft lending secured by private assets but have been of no assistance with risk investment due to a lack of understanding or interest in our activities despite a relationship of more than 20 years with the one bank. Banks in fact tend to be least helpful at the time of greatest need

The International Section of the Commonwealth Bank, through an Austrade/EFIC initiative has given important support with Letter of Credit underwriting and assignment facility that has assisted our arrangements with subcontractors on some overseas projects

Attempts at attracting private investors had not been successful to date, not because of a lack of interest but due to their difficulty in understanding the innovative technology, its application and potential

However, the Government IIF Program could change this as there is a Venture Capital Company with whom we are currently having negotiations and due to the strict guidelines required by the IIF that channel investment to innovative Australian technology, we appear to nicely fit their investment profile

### **Business and scientific regulatory issues**

The waste treatment business is driven by regulation, without regulation it would stand at local government level to manage hazardous waste properly as the waste generators naturally tend to spend as little as possible on waste management

For quarantine waste in Australia, Australian Quarantine Inspection Services (AQIS) and to a lesser extent the EPA, in addition to local government (landfill manager) has been the driving force behind the legislation

For clinical waste it has been in the combined hands of the state and federal health and environmental departments in addition to local government to drive legislation. Oddly, clinical waste regulations and enforcement tend to have lagged behind AQIS in some locations

The environmental performance of AWS on site Waste Treatment Systems have been compared with offsite incineration systems under a CO2 emissions format devised by the Greenhouse Office and that comparison shows an annual saving in excess of 1000 tonnes of CO2 emissions to atmosphere per large hospital that replaces offsite incineration with the onsite AWS System. On a national and international scale, with the thousands of hospitals that are operating, these carbon credits become very significant

### **Research and market linkages**

Government support with contacts, networking, market research and dissemination of information through meetings, seminars and trade events has helped AWS develop their markets

Other contacts and networks have also been established by AWS itself by persisting over many years building them up through communication and travel

Overseas projects carried out by AWS have also helped in developing the AWS worldwide network

The internet, email and SMS have all contributed to greater contact with the outside world in a way and at a cost not possible with phone, fax and travel

### **Factors determining success**

Experience with the technology, being in business and having built up associated contacts over the years, in other words, being there has been a major factor determining the success of AWS

The art of cost control, monitoring and minimisation of expenses have also been crafted over many years and are a major contributor to a sustainable enterprise

Personal and family sacrifice have got AWS through some hard times so that they can still be around for the good times and has built trust with the business community that AWS has the substance required for success in business

Government assistance with developing AWS's innovative technology and AWS export markets has been invaluable and in my opinion should continue to be strengthened and developed so that the contribution by Government continues to help build Australian know how and export potential

Government has not interfered during this assistance process and have still got their return from their investment with earnings in Australia and overseas

Banks and big corporations have not generally helped us and AWS have experienced first hand some of their predatory activities, particularly in finance and communications

### **Strategies in other countries of interest**

USA has programs in countries like Bangladesh for introduction of clinical waste treatment whereby the US Government finance a pilot plant in the target country with the stipulation that the pilot plant must be from a US manufacturer. This has the dual role of introducing best practice to the country and establishing US companies and technology to that Country

### **SUMMARY**

AWS is at a stage where it has demonstrated its ability and expertise to work on big picture programs with government in Australia and overseas, for example management of organic waste in Australia as part of a national soil rehabilitation and water conservation program throughout Australia. This can also be applied to a big picture national approach to waste management of hazardous waste (Clinical and Quarantine) from health facilities and ports of entry into Australia respectively.

In conclusion, I would like to say that Federal and State Government programs do greatly assist with the commercialisation of Australian Innovation, keeping ownership in Australia and helping with the overseas success of Australian Technology, all benefiting the Australian Economy.

I encourage Australian Governments to continue with their programs, strengthen and expand them and apply them to benefit Australia and take Australian know how to the World.

Sincerely,



Peter Atherton  
Director

## DOT Points

- INTRODUCTION

AWS, in business since 1990, have technology used in Australia and overseas for treatment of hazardous waste from health facilities, seaports and airports

AWS innovation has led to efficient and cost effective treatment of hazardous waste, acknowledged by State and National Export Awards in 2001 and a Centenary Medal

AWS Waste Treatment Systems are installed throughout Australia and worldwide providing quality service and innovation to the likes of Ports Corporation Queensland, stopping waste being dumped on the Great Barrier Reef, a model for all Australia's ports

AWS are now well positioned for large projects in Australia, India and Worldwide

AWS Systems have been proposed for onsite waste treatment using waste energy at Australia's largest hospitals, reducing costs significantly, eliminating transport of hazardous goods and reducing carbon emissions at each hospital by 1000 tonne p.a.

AWS technology is aligned with Australia's national stance on Kyoto by using new and innovative technology to reduce emissions and the effects of global warming and dimming

AWS development of a Mini System has application for remote areas, military and developing countries with possible venture capital and Ausindustry funding

AWS's technical development and promotion of AWS to the world has been greatly assisted in the past by National and State Governments

- EXAMPLE OF A SUCCESSFUL AUSTRALIAN TECHNOLOGICAL INNOVATION

Pathway to commercialisation

Intellectual property and patents

Skills and business knowledge

Capital and risk investment

Business and scientific regulatory issues

Research and market linkages

Factors determining success

Strategies in other countries of interest

- SUMMARY

AWS is ready to assist with big picture national programs with our innovative technology and Government should be encouraged to continue from a successful base and expand programs that contribute to Australia's know how and increase Australia's wealth