

## CURRENT STATE OF VALUE-ADDING IN AUSTRALIA

### *PECA Submission to the House of Representatives Standing Committee on Industry, Science and Resources into Increasing Value-Adding to Australian Raw Materials*

*June 1999*

The Process Engineers and Constructors Association (PECA) Incorporated is an association of engineering and construction industries involved in the design, supply and construction of plants for the process industries. Our members are in the business of providing the infrastructure in order to value-add to our raw materials. This value adding is of critical importance to the Australian economy, underpinning wealth creation, and therefore economic and export growth.

Key industry sectors serviced by PECA members include:

- oil and gas production;
- transportation and refining;
- chemicals and petrochemicals;
- food processing;
- pharmaceuticals;
- mining;
- mineral processing;
- metal production; and
- electricity supply.

Members carry out all activities from feasibility studies, through design and construction, to final plant commissioning. They operate as consultants, managing agents and as contractors, depending on the circumstances. They will undertake complete turnkey projects or sections of projects. A full list of PECA members is contained in Annexure A.

All member companies have an established presence in Australia, as demonstrated by continuity of operations, commitment of resources, continuing improvement of retained technology, employment of Australian residents and Australian-based management, and a capability and desire to further Australian participation in projects overseas.

Our members employ over 19,500 people in more than 70 projects around Australia, valued at over \$2.3 billion. At the same time, international projects being undertaken by PECA members are valued at nearly \$3 billion. These figures do not include

PECA member involvement in feasibility studies that often have a value 2-3 times the value of current projects. A listing of current PECA projects is included in Annexure B.

### ***Incentives and impediments to investment***

In nearly every industry, Australia is competing globally for the investment dollar. The process engineering and construction industry is no exception, and in fact, because it is dominated by a number of large firms that have operations all around the world, investment competition is even steeper. In order to attract and win investment in this industry, the investment environment in Australia must be internationally competitive as business will tend to locate production where it has the strongest set of advantages (MTIA/EIU 1997).

Our members have identified a number of impediments to investment in Australia in the industry, outlined below. These impediments remain significant limiting factors to Australia's attractiveness to investors and its economic growth potential.

#### Industrial Relations

PECA members acknowledge that the Government has made moderate progress in the area of industrial relations reforms, and that there has been many positive responses to both the choices new legislation opens up and the award rationalisation process currently underway.

However, there remains room for further improvement and Australia still lags relative to most other industrial countries. Industrial disputes can come up unexpectedly and union demands are often unrealistic. There also remains concern about the unfair dismissal legislation, and the risks associated with terminating employees.

#### Tax Reform

The Government also has a role to play in providing a competitive tax system. The Australian tax system, currently the focus of debate, is not competitive and hinders the global competitiveness of Australian firms. By way of example, our current direct taxation system is high by international standards, and therefore remains an impediment to global investment in the country.

In order to achieve a more efficient and competitive taxation system, PECA supports a rigorous and comprehensive review of the Australian taxation system with the aim of creating a more dynamic, internationally competitive and equitable system that will support investment, growth and job creation.

However, PECA is concerned about the proposal in *Review of Business Taxation* to abolish accelerated depreciation provisions and the proposed changes to the immediate deductibility of exploration expenditure. As noted by the Hon Colin Barnett in his letter to the Review:

*These are two of the most significant provisions available to the resources sector. ... [T]hese provisions are not considered concessionary [but] serve to correct existing distortions arising from problems embedded in the taxation structure and market failure related to high risk. We are particularly concerned that these issues not be seen as only impacting on projects which might be commercially 'borderline'. It needs to be recognised that:*

- *marginal projects can have significant regional and national economic impacts, and*
- *the competitive nature of the global market for mining capital means that negative impacts at the margin could deter investment in significant projects.*

*Barnett, 1999*

These provisions are important to PECA members and abolition of the provisions will have a significant impact on many of the types of projects in which PECA members are involved.

### Native Title

While acknowledging and respecting the rights of indigenous groups, the current complex approach to Native Title is costly and time consuming. Native Title therefore remains a significant impediment to new project development, and clarification of the various legal issues is urgently required.

### Design-Construction Interface

The design-construction interface is also an impediment to an efficient and competitive process engineering and construction sector.

Many process engineering projects are designed first, and then the design is put out to tender for construction. In many instances, greater integration between designers and constructors would result in more efficient and cost effective designs that take greater account of construction aspects.

### Size and Location of the Domestic Market

Inherent in the fact that Australia has a small population by world standards is the built-in constraint of local market size. A high percentage of value-adding projects must necessarily be dependent on export markets.

In developing export markets, the distance of Australia from its international markets is a constraint to market performance.

### ***National/international marketing factors which may encourage or hinder Australian value-adding***

Marketing Australian advantages is an important component of encouraging value-adding in Australia. This point is made well in the Federal Government's *Minerals and Petroleum Resources Policy Statement*:

*Australia must nurture its natural advantages, look to the competitiveness of its own regime, and actively promote its claims as an investment destination, to ensure that investment is not lost for lack of information about opportunities or misconceptions about the investment environment or prospectivity. As part of this, we must seize the opportunity presented by the globalisation of the outlook of foreign explorers, to claim a share of overseas exploration spending.*

PECA fully supports a program of promotion to encourage investment in Australia's critical value-adding industries such as process engineering and construction.

### ***Government intervention, both nationally and internationally***

To ensure that Australia is on the investment short-list, Australia needs to reform its investment incentive regime, and in particular improve both the incentives to undertake R&D in Australia and the incentives to locate major projects in country. The Government also has an important role to play in the provision of regional infrastructure.

#### R&D Incentives

Technological progress, as an outcome from R&D expenditure and through its impact on the factors of production, is a critical determinant of long-run economic growth (Department of Finance and Revenue Canada 1997).

In the mining sector, the need for innovation to maintain a competitive industry is critical. R&D is ensuring that new deposits are discovered and new technologies are making the development of more projects economic to undertake. New and innovative approaches to mining have made many mineral deposits economically viable. The McArthur River deposit discovered in 1950 was officially opened in 1994 showcasing Australia's ability to recover minerals from low grade, complex and deeply buried deposits. The development of an ore body after knowledge of the deposit for 100 years gave the Century Zinc project its name. The Olympic Dam expansion (after 24 years of challenges) and the achievements of Anaconda Nickel are also examples of Australian projects

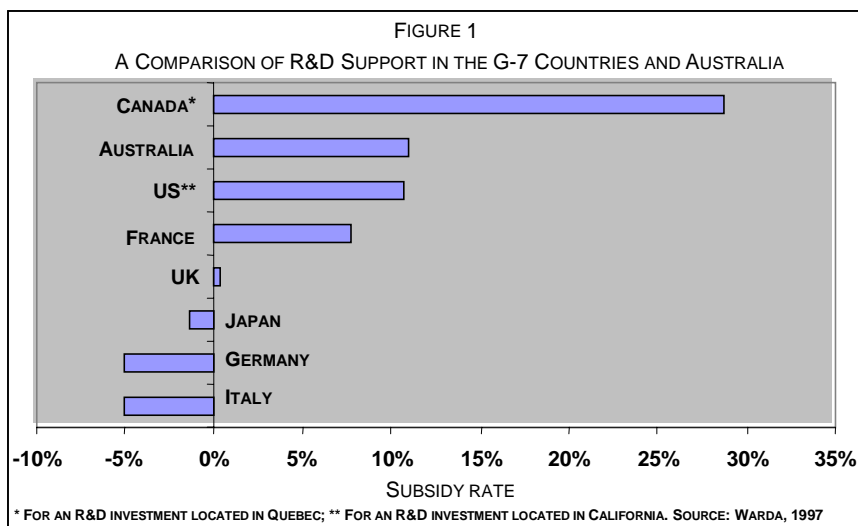
being at the leading edge of productivity gain and innovation (Centre for International Economics 1999).

However, firms investing in both technology and knowledge in general are not able to fully appropriate the returns from their investment. The technology and knowledge produced by a firm that is not appropriable are the spillover benefits that extend beyond the producer to society as a whole. The sum of private rates of return and the spillover benefits is the social rates of return. Therefore, the social rates of return from expenditure on R&D to produce technology and knowledge are higher than the private rates of return, and this provides the basis for government intervention.

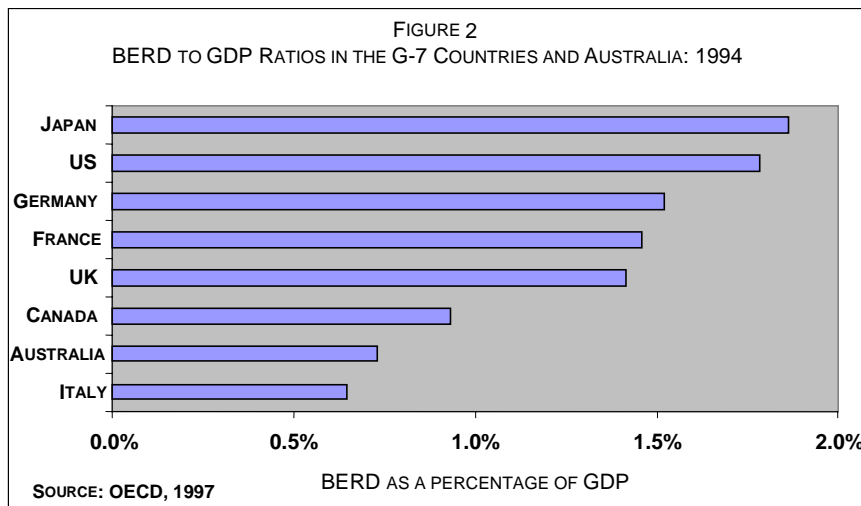
It is interesting to note that analysis of R&D investment has found that social rates of return can be up to five times higher than private rates of return, although the size of the spillover benefit does vary significantly (Department of Finance and Revenue Canada, 1997). This provides a strong argument for Government intervention to increase expenditure on R&D.

The 125% tax concession as a means of compensating for the spillover benefits from R&D has the advantages of being a relatively simple, predictable and transparent form of Government subsidy, allowing private sector decision makers to retain autonomy in devising their strategies in response to market signals (Papacontantinou, 1997)

This R&D tax support is relatively generous when compared the G-7 countries. Figure 1 below reports a comparison of R&D tax support, showing that Australia's tax treatment for R&D investments ranks as second most favourable amongst the G-7 countries, after Canada.



Despite this Australian business expenditure on R&D (BERD) is relatively low. As shown in Figure 2, against the same group of countries, Australian BERD is the second lowest.



The process engineering and construction industry is highly capital intensive, and globally oriented with a highly competitive international environment. Its ability to continue to be at the leading edge of technology and product innovation is critical to its long term survival in the international arena (Barnett, 1999). Australia's low BERD performance suggests that the R&D concession remains important to industry, and in order to improve our performance, even greater rates of subsidy need to be considered.

#### Investment Incentives

As mentioned previously, Australia's ability to attract investment will depend on the maintaining a strong set of advantages for firms to invest in country. Competition for investment funds is strongest in industries that require large capital investments such as process engineering and construction (MTIA/EIU, 1997).

In the competition for investment funds, Australia is competing against many countries that have strong investment incentives. In particular, many countries in Asia, against whom we compete directly, offer tax concessions for new investments. Figure 3 below outlines the tax arrangements in South East Asia.

Figure 3: Tax Concession in South East Asia

Country	Concession
Singapore	<ul style="list-style-type: none"> <li>• 10 year tax holiday for pioneer industries</li> <li>• 5 year tax holiday for non-pioneer industries</li> <li>• 100% immediate write-off for high-tech industries</li> </ul>
Indonesia	<ul style="list-style-type: none"> <li>• 10 year tax holiday from start-up</li> <li>• 12 years if outside Java or Bali</li> </ul>
Malaysia	<ul style="list-style-type: none"> <li>• Tax holidays or a 10% tax rate for 5-10 years for priority or strategic industries</li> <li>• Investment Tax Allowance (ITA) allows deduction of capital expenditure up to 70% of income</li> </ul>
Thailand	<ul style="list-style-type: none"> <li>• 8 year tax holiday for priority industries</li> <li>• A further 5 years at 50% tax under some circumstances</li> </ul>

Philippines	• 6 year tax holiday
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Source: MTIA/EIU, 1997

These incentives are very attractive to capital intensive industries, and compensate in part for the large capital outlays required upfront. In return for these incentives, these large projects create not only direct output and employment, but a whole chain of secondary effects in support industry development, the generation of export earnings and taxation revenue (MTIA/EIU 1997).

In the Government review of Business Programs, the importance of attracting business investment was emphasised:

*The Review believes that the Government can play a more pragmatic role in encouraging domestic and foreign investment. Creating a more attractive investment environment through macroeconomic settings and microeconomic reform is the most important step. But more is required. Australia needs to stimulate domestic investment in new industries and improve its armoury to match the investment attractiveness of other countries.*

*Mortimer, 1997*

In response to Mortimer's recommendations on boosting business investment, Invest Australia was established. Invest Australia is the Australian Government's national investment agency which promotes Australia as an investment location, facilitates major projects, and provides a wide range of services to companies seeking to establish or invest in operations in Australia.

At the same time, the Government also established a Strategic Investor Coordinator for investment promotion and facilitation. Through the Strategic Investor Coordinator, the Government provides incentives for major strategic projects in limited and special circumstances. The eligibility of major projects for investment incentives is evaluated against the following set of criteria:

- The investment would not be likely to occur in Australia without the incentive.
- The investment provides significant net economic benefits through:
  - substantial increase in employment;
  - substantial business investment;
  - significant boost to Australia's R&D capability;
  - significant benefit to, or investment by other industries, either users or suppliers (cluster investment); and
  - ensuring that it does not involve substitution of existing production capacity which would provide an unfair advantage over other competing projects.
- The investment complements areas of Australia's competitive advantage.

- The investment is viable in the long term without subsidy.
- The incentives are open to foreign and domestic investors.

In the resources sector, these incentives can include providing geoscience data, information and knowledge to demonstrate prospectivity at reasonable cost to industry and allow potential investors to make assessments that reduce their exploration risk in exploring in Australia (*Minerals and Petroleum Resources Policy Statement 1998*).

PECA fully supports these initiatives, and the Government's recognition of the importance of investment promotion. However, in supporting these criteria, it is also important that the outcomes from any project receiving investment incentives are accountable against the criteria to ensure that the Federal Government goals of achieving greater value-added within Australia are achieved through this investment promotion program.

### Infrastructure Provision

The Government has an important role to play in the provision of infrastructure, particularly in remote regional Australia.

Infrastructure investment is in decline in Australia. ABS data suggest that public fixed capital formation in Australia has declined from 9% of GDP in the mid-60s to below 4% in 1998, with the decline particularly pronounced since the mid 1980s. While these data are not necessarily indicative of deficient investment, there is significant qualitative evidence that our current stock of infrastructure is inadequate (for example, in the submissions to the EPAC Private Infrastructure Task Force in 1995).

An efficient infrastructure is critical to an efficient value-adding industry. Both State and Federal Governments have an important role to play in ensuring that adequate investment in infrastructure occurs through an appropriate allocation of Government funds or the development of incentive arrangements to encourage private sector participation in public infrastructure provision. Clarification of access regimes for private infrastructure is also important to facilitate private sector infrastructure provision.

### ***The location of value-adding industries and projects in regional Australia***

Due to the nature of the industry, a number of projects in the process engineering and construction industry are located in regional Australia. A listing of process engineering and construction projects in which our members are involved and the location of these industries is contained in Annexure B.

### ***Resource licensing/permit arrangements***



The Government needs to be more aggressive in ensuring that natural resources, once identified, are brought to production in a timely fashion. The resource licensing and permit regimes must facilitate swift action by industry to maximise the benefit to Australia as a whole.

### ***The Australian skills base and any associated impediments***

In general, the Australian skills base is good. However, there is a perception that more needs to be done at secondary school level to emphasise the teaching of technical and mathematical skills to ensure a technically skilled workforce for the future.

In addition, PECA members are concerned with the specific shortage of plant and piping designers.

#### Plant and Piping Designers

With the move toward the increasing use of computers in design work with Computer Aided Design (CAD) technology, there are new skills that are in demand, and there has been no recognised formal training available in either computing or the basic skills of plant and piping design. This is an ongoing concern for our Association.

Industry has provided training over the years but this training has not been accredited in any way and has not served the industry well enough to meet demand. Years of experience is the only other selection criteria and this is not necessarily a reliable guide.

When heavy demand occurs companies have resorted to recruiting from one another and driving the salaries (and contract rates) to very high levels and to importing designers from other countries, often at a very high cost and on a temporary basis. This latter situation reduces Australian industry competitiveness and has no permanent benefits.

In quiet times the reverse occurs and designers have no recognised qualifications to permit them to move to other related fields. This has sometimes led them to take up totally unrelated unskilled work.

In the absence of a formal training course in plant and piping design, PECA has endeavored to establish a work placed based course. With initial funding from the Department of

Employment, Education, Training and Youth Affairs (DEETYA) under that National Skills Shortages (NSS) Program, a scoping study was conducted into the development of such a course, but with the abolition of the program DEETYA withdrew the available funds for development of the course.

The Government has recognised the importance of education and training in its *Minerals and Petroleum Resources Policy Statement* (1998):

*If Australia is to maintain a leading position in the world resources industry, our education and training system must be responsive to present and emerging needs to keep the industry's workforce ahead of international competition in all aspects of its operations.*

Further, in the statement, the Government undertook to "encourage ongoing dialogue between the resource industries, educational institutions and training agencies to ensure that education providers can deliver an appropriately skilled workforce that meets the needs of industry" .

PECA fully supports this approach to training by the Government. The abolition of the National Skills Shortages program has been a set back for the industry and PECA would support the reintroduction of that or a similar program that can provide seed funding for courses critical to the skills base of the resource industry.

## **References**

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**PROCESS ENGINEERS AND  
CONSTRUCTORS ASSOCIATION  
(PECA) INC**

**Membership List  
as at 2 June 1999**

ABB Engineering Construction Pty Ltd  
Bechtel Australia Pty Ltd  
Brown & Root Engineering & Construction Pty Ltd  
CBI Constructors Pty Ltd  
Clough Engineering Limited  
Connell Wagner Pty Ltd  
Egis Consulting Australia  
Fluor Daniel Pty Ltd  
John Holland Construction & Engineering Pty Ltd  
Kaiser Engineers Pty Limited  
Kvaerner Oil & Gas Asia Pacific  
Kvaerner Process (Australia) Pty Ltd  
Lurgi (Aust) Pty Ltd  
Multiplex Constructions Pty Ltd  
Shedden Uhde Pty Ltd  
Simon-Carves (Australia) Pty Limited  
Sinclair Knight Merz  
Stork ICM Australia Pty Ltd  
Thiess Contractors Pty Limited  
Toussaint & Richardson Pty Ltd  
Transfield Pty Ltd  
Worley Limited

**PROCESS ENGINEERS AND  
CONSTRUCTORS ASSOCIATION  
(PECA) INC**

**Project List  
as at 1 March 1999**

WESTERN AUSTRALIA

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Murrin Murrin Nickel-Cobalt Project	Anaconda Nickel	Leonora	\$1,000m	Fluor Daniel Simon Carves Australia CBI Constructors Transfield
Worsley Alumina Expansion	Worsley Alumina	Collie	\$900m	Kaiser-Bechtel JV CBI Constructors Clough Engineering Transfield
BHP Capacity Expansion Project	BHP Iron Ore	Port Hedland	\$270m	Sinclair Knight Merz Transfield
Collie Power Station	State Energy Commission of WA	Collie	\$180m	ABB Engineering Construction
Woodman Point Water Treatment Plant	Water Corporation of WA	Woodman Point	\$130m	Clough Engineering Kinhill Engineers
Ammonia Plant	CSBP/ Technipetrol	Kwinana	\$100m	Transfield
Grain Handling Terminal	CBH	Esperence	\$65m	Transfield
16" Sales Gas Line, Varanus Island	Apache Energy	North WA	\$65m	Clough Engineering Kvaerner Oil & Gas
'I' Series Decline/M10/M2 Ore Production	Newcrest Mining Ltd	Telfer	\$50m	Clough Engineering
North West Shelf	Woodside Offshore Petroleum	North West Shelf	\$45m p.a.	Transfield Worley
CFB Alumina Calciner	Worsley	Worsley	\$32m	Lurgi (Australia)

WESTERN AUSTRALIA contd..

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Expansion of sodium cyanide plant	Wesfarmers Australian Gold Reagents	Kwinana	\$30m	Transfield Shedden Uhde
Wonnich Field Development	Apache Energy	North WA	\$26m	Clough Engineering Brown & Root
Subiaco Enersludge Project	Water Corporation of WA	Subiaco	\$23m	Clough Engineering
Midwest Pipeline	AGL Construction	Geraldton to Windumurra	\$20m	Clough Engineering
Fuel Farm & Hydrant Refuelling System	Department of Defence		\$18m	John Holland Construction and Engineering
Hot Briquetted Iron Ore Plant	BHP Pty Ltd	Port Hedland	\$17m	Transfield
Dampier Port Upgrade	Hamersley Iron	Dampier	na	Clough Engineering
Liquids Expansion Project - Phase 1	Woodside Offshore Petroleum	North WA	na	Clough Engineering Kaiser Engineers CBI Constructors
Woodside LNG Project	Woodside Energy Pty Ltd	North West Shelf	na	Kaiser Engineers Clough Engineering
Total Value of PECA Projects in Western Australia				over \$2,971 million

QUEENSLAND

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Queensland Fertiliser Project	WMC Fertilizers Ltd	Mt Isa and Phosphate Hill	\$800m	ABB Eng Construction Bechtel Australia CBI Constructors Clough Engineering Fluor Daniel Lurgi (Australia) Simon Carves Australia Sinclair Knight Merz Stork ICM Australia Thiess Contractors
Queensland Clean Fuels Project	BP/Bulwer Island Refinery	Brisbane	\$430m	Stork ICM Australia Kvaerner Process Aust Fluor Daniel Transfield-Worley
Enterprise Mine	Mount Isa Mines Ltd	Mount Isa	\$340m	Fluor Daniel Simon Carves Australia
Ammonium Nitrate Plant	Qld Nitrates Pty Ltd	Moura	\$230m	Shedden Uhde Stork ICM Australia

QUEENSLAND contd..

Name of Project	Client	Location	Capital Value	PECA Companies Involved
North West Power Project	MIM	Mount Isa	\$115m	Sinclair Knight Merz Simon Carves Australia
Sun Metals Zinc Refinery	Sun Metals	Townsville	\$70m	John Holland Construction and Engineering
Century Zinc Project	Pasminco Pty Ltd	North Queensland	\$45m	Transfield
Calvale-Tarong 275kV Double Circuit Transmission Line	Powerlink Queensland	Calvale-Tarong	\$43m	ABB Engineering Construction
Incitec Urea Granulation Plant	Incitec Limited	Brisbane	\$40m	Shedden Uhde
Townsville Port Facilities	WMC Fertilizers	Townsville	\$35m	Clough Engineering ABB Engineering Construction
Ammonia Import Terminal	Orica Australia	Gladstone	\$29m	CBI Constructors
Fabric Filter	Pacific Power	Callide	\$22m	Lurgi (Australia)
Froth Thickener Project	BHP Coal	Moura	\$20m	Stork ICM Australia
Fabric Filter	Austa Electric	Swanbank	\$17m	Lurgi (Australia)
Mt Isa	Mt Isa Mines Ltd	Altona	\$15m p.a.	Transfield
Queensland Nickel Refinery	Queensland Nickel Pty Ltd	Yabula	\$14m p.a.	Transfield
Total Value of PECA Projects in Queensland				over \$2,265 million

NEW SOUTH WALES

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Port Kembla Copper Smelter	Port Kembla Copper Pty Ltd	Port Kembla	\$250m	ABB Engineering Construction
Mt Piper Ash Disposal & Coal Handling	Delta Electricity	Mt Piper Power Station	\$24m	Clough Engineering
Ampol Kurnell Refinery	Ampol Refinery Pty Ltd	Sydney	\$13m p.a.	Transfield
Solar Compressor Projects	Solar Turbines Australia	Bulla Park, Young	\$11m	Clough Engineering
Orica Maintenance, Botany	Orica	Botany	\$9m p.a.	ABB Engineering Construction

NEW SOUTH WALES contd..

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Newcastle Steel Works	BHP Pty Ltd	Newcastle	\$5m p.a.	Transfield
Total Value of PECA Projects in New South Wales				over \$312 million

VICTORIA

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Retrofit Project	Esso Australia Ltd	Longford	\$100m	Fluor Daniel
Offshore Construction Bass Strait	Esso-BHP	Bass Strait	\$55m	ABB Engineering Construction
Blackback Host Facilities	Esso Australia Ltd	Bass Strait	\$20m	Fluor Daniel
Bakery Upgrade & Automated packaging line	na	Melbourne	\$20m	Shedden Uhde
Compressor Station	Solar Turbines Australia	Springhurst	\$15m	Stork ICM Australia
Line 3 Expansion Project	Shorko Australia Pty Ltd	Wodonga	\$15m	Stork ICM Australia
Mobil Refinery	Mobil Oil Australia	Altona	\$9m p.a.	Transfield
Shell Refinery	Shell Oil Co of Australia	Geelong	\$6m	Transfield
South West Pipeline Facilities	Transmission Pipelines Australia Pty Ltd	Western Victoria	na	Shedden Uhde
Total Value of PECA Projects in Victoria				over \$240 million

SOUTH AUSTRALIA

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Glass Factory	ACI	Adelaide	\$50m	Simon Carves Australia
Olympic Dam Expansion Project – Refinery & Hydromet	Western Mining Corporation	Roxby Downs	\$32m	Transfield Thiess Contractors
Pellet Plant Waste Gas Cleaning	BHP Steel	Whyalla	\$22m	Transfield



SOUTH AUSTRALIA contd..

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Gas Cleaning Plant	WMC (Olympic Dam Corporation)	Olympic Dam	\$18m	Lurgi (Australia)
Mobil Refinery	Mobil Oil Australia	Adelaide	\$9m p.a.	Transfield
Total Value of PECA Projects in South Australia				over \$131 million

NORTHERN TERRITORY

Name of Project	Client	Location	Capital Value	PECA Companies Involved
CFB Alumina Calciner	Nabalco Pty Ltd	Gove	\$30m	Lurgi (Australia)
Gove Alumina Refinery	Nabalco Pty Ltd	Gove	\$20m p.a.	Transfield
Project Neptune	Department of Defence, Australia		\$10m	Clough Engineering
Total Value of PECA Projects in Northern Territory				over \$60 million

OTHER DOMESTIC PROJECTS

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Buffalo Field Development	Modec Inc	Timor Sea	\$25m	Clough Engineering
Alcoa Kaiser Alliance	Alcoa of Australia Pty Ltd		Ongoing	Kaiser Engineers
Total Value of other domestic PECA Projects				over \$25 million

INTERNATIONAL PROJECTS

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Henan Gasification Project	CMPS-EE JV	Yima, China	\$460m	Egis Consulting Australia Lurgi (Australia)
S&K Copper Project	Ivanhoe Myanmar Holdings Ltd	Myanmar	\$90m	Egis Consulting Australia
Malampaya Concrete Gravity Structure	Halliburton Multinational	Philippines	\$90m	John Holland Construction and Engineering

Name of Project	Client	Location	Capital Value	PECA Companies Involved
Tunu Field Development - Phase VII	Total Indonesia	East Kalimantan, Indonesia	\$82m	Clough Engineering
Bukit Baiduri Coal Mining	PT Bukit Baiduri Enterprise	East Kalimantan, Indonesia	\$77m	Clough Engineering
Rawas Goldmine	PT Barisan Tropical Mining	Sumatera, Indonesia	\$58m	Clough Engineering
Minahasa Gold Contract Mining	PT Newmont Minahasa Raya	Sumatera, Indonesia	\$58m	Clough Engineering
Battery Recycling Plant	HRI Malaysia	Kuala Lumpur	\$40m	Simon Carves Australia
Asgard B&C Moorings Installation	Statoil	North Sea	\$35m	Clough Engineering
Pagerungan Inlet Compression Facilities	Atlantic Richfield Bali North Inc	Indonesia	\$35m	Clough Engineering
Asgard 'A' Flexible Risers Installation	Statoil	Norway	\$22m	Clough Engineering
Troll Structures Installation	Norsk Hydro a.f.	North Sea	\$20m	Clough Engineering
Oxygen Plant	Lihir Gold Limited	Lihir Island, PNG	\$10m	CBI Constructors
Terra Nova Mooring System Installation	Halliburton Canada	Canada	\$10m	Clough Engineering
Total Value of International PECA Projects				\$1,087 million