



PBR International

Submission to the Productivity Commission
Review of Post 2005 Assistance Arrangements
for the Australian Automotive Industry

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Executive Summary

PBR International is wholly owned by an Australian publicly listed company (Pacifica Group Ltd) and is one of Australia's leading edge automotive technology companies. The Company specializes in braking systems and friction products to OEMs in Australia, the Americas and Asia. Over 60% of GM vehicles in the United States are fitted with PBR technology. PBR manufacture in four countries and export to over 50 countries. PBR's global business is built on technological innovation, intellectual property and manufacturing excellence. PBR International currently employs nearly 1,600 people and has sales of A\$ 860 million. In Australia, PBR employs 1,000 people, with domestic sales of \$123 million and exports of \$188 million.

Pacifica has increased exports from \$85 million in 1996 to a peak in 2000 of \$230 million, with the 2001 year easing back to \$213 million. Pacifica has also pursued a strategy that sees increased revenue from royalties, the export of services and from dividends earned from overseas operations

By providing incentives for improved manufacturing efficiency through increased capital investment and R&D to support product and process innovation, ACIS is underpinning PBR's global automotive strategy. PBR are about to embark on a new and substantial investment in R&D to develop the next generation of braking technology – brake-by-wire. There are significant external community benefits generated by this research. ACIS is critical to ensuring this investment is made in Australia. General R&D assistance in Australia, such as the 125% tax concession is globally uncompetitive in the market to attract R&D automotive investment. In addition, PBR competes with global component manufacturing organisations many times larger and with R&D investments and infrastructure that dwarf PBR's own. The fact PBR are able to grow and prosper in this environment is a testament to the innovation and determination of PBR's people and the leverage that programs such as ACIS can provide smaller Australian based organisations.

As stated PBR is a locally owned business and has a strong desire to maintain and expand local R&D, exporting the knowledge globally.

PBR supports maintaining the tariff rate at the legislated rates of 15% until 31 December 2004 and 10% thereafter as legislated. Those rates are historically low and, at 10%, the effective rate is not substantially different from the manufacturing average. PBR also support the concept of a common uniform tariff rate for all automotive products to avoid investment-distorting decisions within the industry.

Australia's comparative advantage in automotive components lies in producing high value-added products incorporating innovative technology. The industry's future depends on its ability to secure markets for such products beyond the limitations of the domestic market. The automotive industry is not only one of the most sophisticated and competitive manufacturing industries in the world, it is an industry that drives considerable sophistication, efficiency and economic activity in the communities in which it operates. This is a fact that governments around the world recognise in their policies towards the industry. Despite the fact that these policies create a playing field that is far from level, it is an industry where the ability to compete globally in terms of technology, cost, quality and delivery is an essential prerequisite of success. Australia must adopt competitive policy settings that support Australian component manufacturers finding their place in this sophisticated, technology-driving, global industry, and ensure that these settings match those in force amongst Australia's current and emerging trading partners.

PBR supports mandatory vehicle safety standards. There are some problems with delays and procedures in setting and enforcing Australian standards. Differing international safety standards can impose additional costs on global companies. PBR is an active participant in Greenhouse programs and has a strong environmental program.

The three critical policies for the future of both PBR and that of the automotive components sector generally are:

- **Continued R&D support for component suppliers is required at the level provided by ACIS to sustain our innovative capability**
- **Continued support for capital investment to improve automotive component supply efficiency is important to the international competitiveness of vehicle assembly and to establishing global markets for component suppliers**

- **Continued innovative trade and industry capability marketing along the lines of the aXcess Australia concept car**

ACIS already meets the first two of these policies. Further efforts by the Government in global trade forums combined with some innovative marketing ideas from the industry will meet the third policy. If such policies are continued for a term equivalent to the life cycle of product concept to commercial production in the automotive industry (around 8 – 10 years), Australian companies will be major forces at the leading edge of the next generation of automotive technology. Importantly, that technology will have been developed in Australia with all of the associated benefits in terms of employment, skills development, technology transfer and diffusion, external educational spin-offs and incoming royalties. Changing structures and economics in the world automotive industry are creating this opportunity which Australia, for the first time, is well positioned to exploit. If Australia don't respond appropriately, it may well be lost forever.

Chapter 1 – Recommendations

PBR strongly supports the recommendations being put forward in the submission to this review by the Federation of Automotive Products Manufacturers.

KEY POLICY RECOMMENDATIONS

1 ACIS

- Continuation of the current ACIS scheme as scheduled, without change, until its legislated expiry on 31 December 2005
- Introduction of annual ACIS impact monitoring and measurement of key performance indicators
- Development of an ACIS Mark II along similar lines to ACIS Mark I to run from 2006 to 2010
- Consideration towards extending industry policy timeframes in line with automotive industry strategic planning (ie a timeframe closer to 8-10 years).
- Consideration that policy settings change when there are structural changes that give rise to improved market access.

2 Tariff rates for automotive products

- No change in the current legislated tariff rates at least until the Bogor Goal takes effect in 2010

3 Market Access

- Continuation of industry-specific and targeted market access programs for the automotive industry along the lines of the Automotive Market Access and Development Strategy to be developed within the framework of the Automotive Council

- Continuation of the processes of bilateral negotiations with important trading partners seeking accession to the WTO
- Continuation of Australian Government efforts to reduce barriers such as import-specific mandatory standards and conformity assessment requirements through negotiation of mutual recognition agreements and by participation in the APEC program on standards and conformity assessment
- Continuation of efforts to encourage developing automotive-producing countries to fully establish intellectual property rules in accordance with the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)
- Continuation of efforts to secure international standardisation of technical regulations, minimum vehicle safety and emission requirements, and rules of origin at minimum cost to industry and the community

OTHER POLICY RECOMMENDATIONS

In addition to the three key policy areas there are a number of other policy matters which are important but of second order significance including:

1. Continuing the processes of micro-economic reform particularly in the areas of the labour market reform, infrastructure and taxation
2. Maintaining adequate public and or private investment in roads
3. Ensuring that Australia's education and training infrastructure provides industry with access to people with the required set of skills and that those people have access to lifelong learning to cope with changes in skill requirements over time
4. supporting public R&D and innovation and promoting effective linkages between the automotive industry and public research institutions
5. Development of in-market support programs, such as permanent automotive technology display and marketing facilities in key locations such as Germany and Japan.

Chapter 2 – Position in the Automotive Industry

PBR International is a world-class designer and manufacturer of innovative brake and clutch products and systems based in Melbourne. PBR also manufacture in the United States, Thailand and Malaysia and export to over 50 countries. Over 60% of GM vehicles manufactured in the United States are fitted with PBR technology. This overseas success has not only sustained PBR's own local operation, but has had considerable flow on benefits with a number of PBR's local suppliers achieving domestic, export and international sales growth as a direct result of PBR's expansion. PBR's global business is based on market advantages created through high levels of innovation, technological breakthroughs and manufacturing excellence.

2.1 About the Company

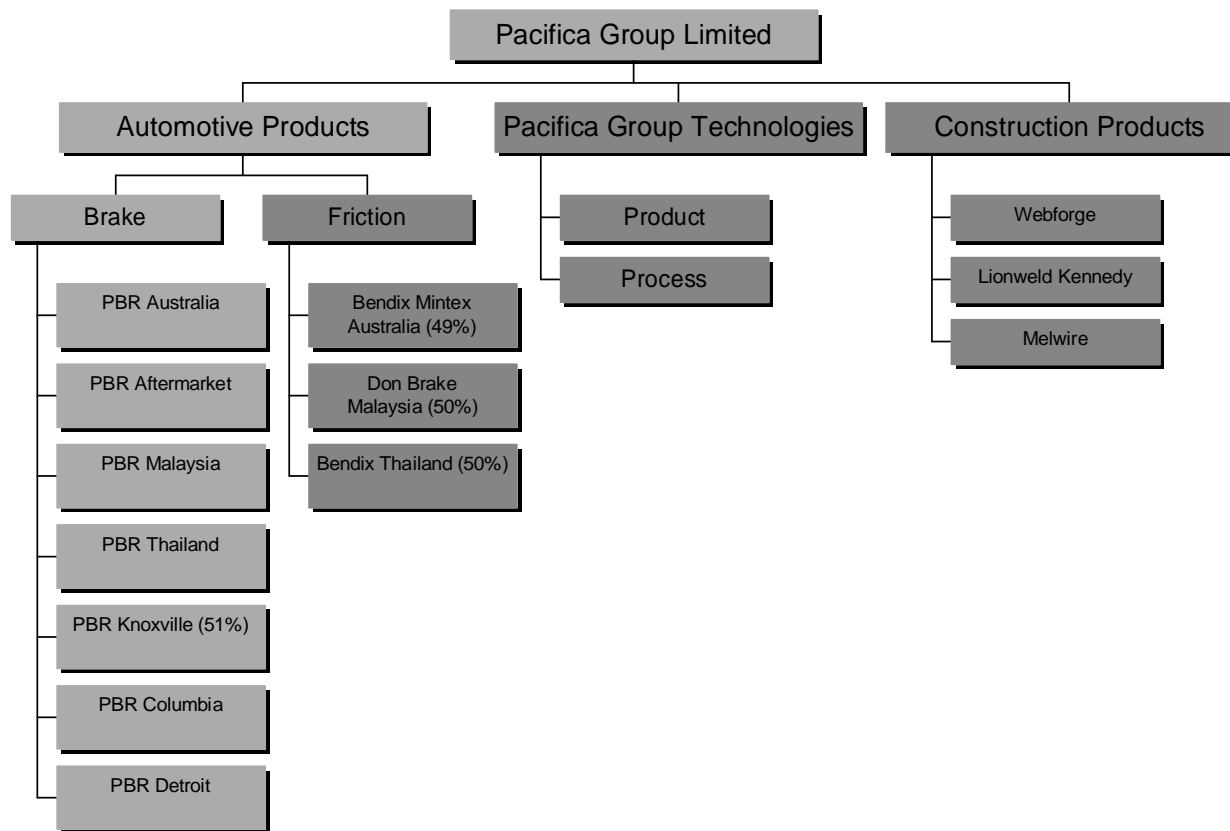
PBR International (PBR) is part of Pacifica Group Limited (Pacifica).

Pacifica:

- has three divisions:
 - Automotive** (Brake Systems – PBR International; and Friction Materials – Bendix Mintex, Don Brake in Malaysia and Bendix Thailand);
 - Construction Products** (Melwire, Webforge and Lionweld Kennedy); and
 - Pacifica Group Technologies;**
- has 26 manufacturing facilities throughout Australia, New Zealand, the United States, Europe, Asia and the Middle East;
- is listed on the Australian Stock Exchange;
- employs around 4,000 people worldwide;
- has a consolidated revenue of approximately AU\$1 billion per annum; and
- has around 12,000 shareholders.

This submission is on behalf of PBR.

Company Structure



PBR is a world-class designer and manufacturer of brake and clutch products and systems.

PBR's products are specified by automotive manufacturers (OEMs) in the United States, Korea, Malaysia, Thailand and Australia and are sold in replacement markets in some 45 countries.

PBR have technical centers in Australia and in the United States and manufacturing plants in Australia, the United States, Malaysia and Thailand. PBR uses state-of-the-art CAD/CAM/CAE technologies to design its innovative products.

Also within Pacifica's Automotive Division are the Bendix Mintex friction materials businesses. Pacifica has a 49% interest in Bendix Mintex and a 50% interest in Bendix (Thailand) and Don Brake Malaysia. Bendix Mintex is Australia's leading manufacturer of friction materials, disc brake pads, backing plates, clutch facings, truck blocks and drum brake linings.

PBR Profile

PBR International Limited	
Sales	A\$860 million
Employees	1,590
Production Plants	Australia: 4 Nth America: 2 Thailand: 1 Malaysia: 1
Engineering Sites	Australia: 1 Nth America: 1

2.2 Milestones in PBR's Company's Development

PBR was founded in **1927** as a Melbourne based brake specialist company. In **1948** we PBR was awarded PBR's initial OE contract on the first wholly Australian built vehicle, the Holden. Since then, PBR has continued to win OE contracts based on PBR's ability to design and develop new and exciting products. In **1963** PBR was responsible for introducing disc brake calipers to the Australian market. By **1967**, PBR's expertise in aluminium technology was gaining broader exposure through the release of aluminium master cylinders.

The **1970's** saw industry in the grip of a "world energy crisis" and PBR responded by developing lighter weight products. In **1975** PBR further extended the use of aluminium to disc brake calipers. The continual development of aluminium calipers paved the way for PBR to be awarded its first export contract to the United States in **1983** for the high profile Corvette program. This was followed in **1984** with the development of a lightweight plastic booster for the same vehicle. By **1987**, PBR had developed and

patented the “Pad Guided” and “Lock Actuator” caliper designs, which were also initially released on the Corvette.

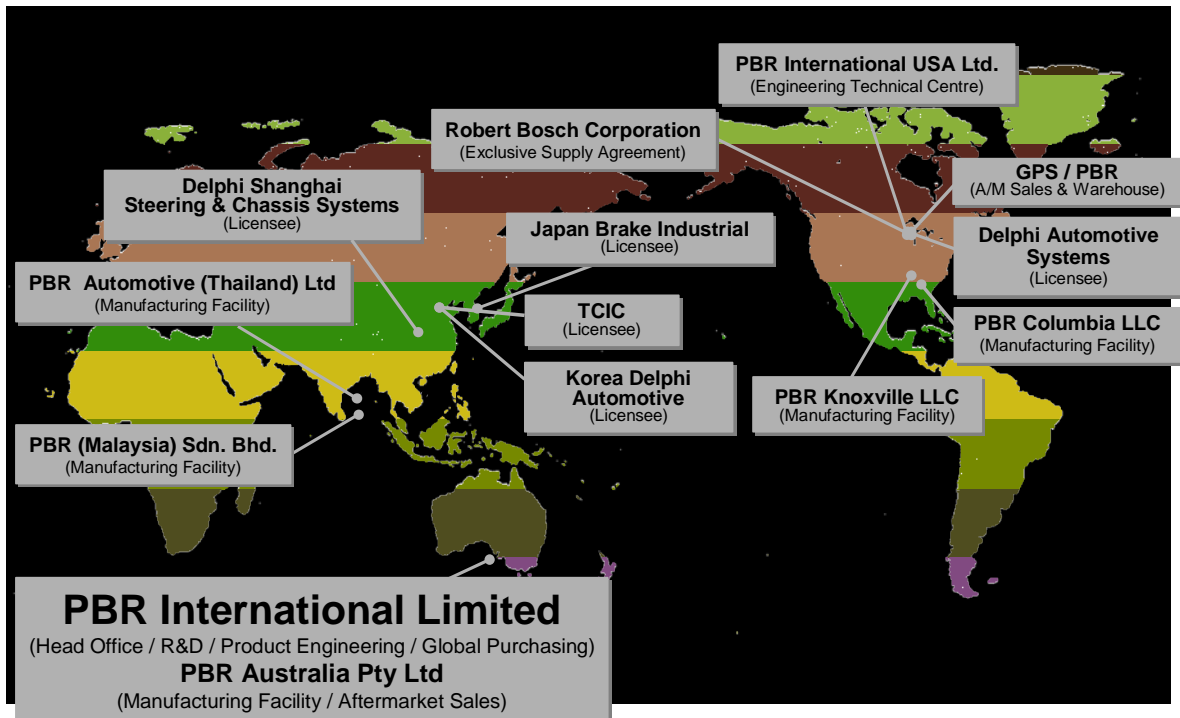
Following the successful launch into North America, PBR commenced an expansion of PBR’s manufacturing operations. This resulted in the establishment of PBR Malaysia in **1990**.

The most significant product development for the company came about in **1992** with the release of the patented “Banksia” single shoe park brake. This development was a key component in establishing the company’s first Korean export contract in **1993**, and has since represented a significant component of PBR’s global growth.

As PBR’s lightweight braking technology became more sort after, the company furthered expansion of manufacturing operations to Thailand and North America in **1998**. In **2000** a second production facility was commissioned in North America and PBR released yet another technology breakthrough with the release of the patented “Auriga” service brake.

Expansion into the North American market gained a further boost in **2001** with the establishment of an exclusive supply agreement with Bosch.

Global Activity



Australia

PBR Australia Pty Ltd (Production plants)

Established: 1927

Location: Melbourne Australia

Employees: 650

Site size: 47,372 sq.m. (Comprising 4 plants)

Capabilities: Aluminium casting, plating, machining, assembly, rubber production

Core products: Brake calipers, Banksia park brake, brake rotors, master cylinders, brake boosters

PBR International Limited (Engineering facility)

Location: Melbourne Australia

Employees: 130

Capabilities: Concept design production, prototyping, lab & vehicle testing, CAD/CAE/FEA/FMEA/DOE

Thailand

PBR Automotive (Thailand) Ltd
(Production plant)

Established: 1998

Location: Rayong Thailand

Employees: 30

Site size: 595 sq.m.

Capabilities: Machining, assembly

Core products: Brake callipers

Malaysia

PBR (Malaysia) Sdn Bhd (Production plant)

Established: 1990

Location: Kuala Lumpur Malaysia

Employees: 50

Site size: 2,593 sq.m.

Capabilities: Machining, assembly

Core products: Brake calipers, drum brakes

United States

PBR Columbia LLC (Production plant)

Established: 2000

Location: South Carolina USA

Employees: 159

Site size: 13,859 sq.m.

Capabilities: Aluminium casting, machining, assembly

Core products: Brake calipers, Banksia park brake

PBR Knoxville LLC (Production plant)

Established: 1998

Location: Tennessee USA

Employees: 449

Site size: 20,615 sq.m.

Capabilities: Aluminium casting, machining, powder painting, assembly

Core products: Brake calipers

PBR International USA Ltd.
(Engineering/Customer support)

Established: 1982

Location: Michigan USA

Employees: 18

Site size: 3,067 sq.m.

Capabilities: Design & development, prototyping, lab testing

Japan

Established: 2002

Location: Tokyo

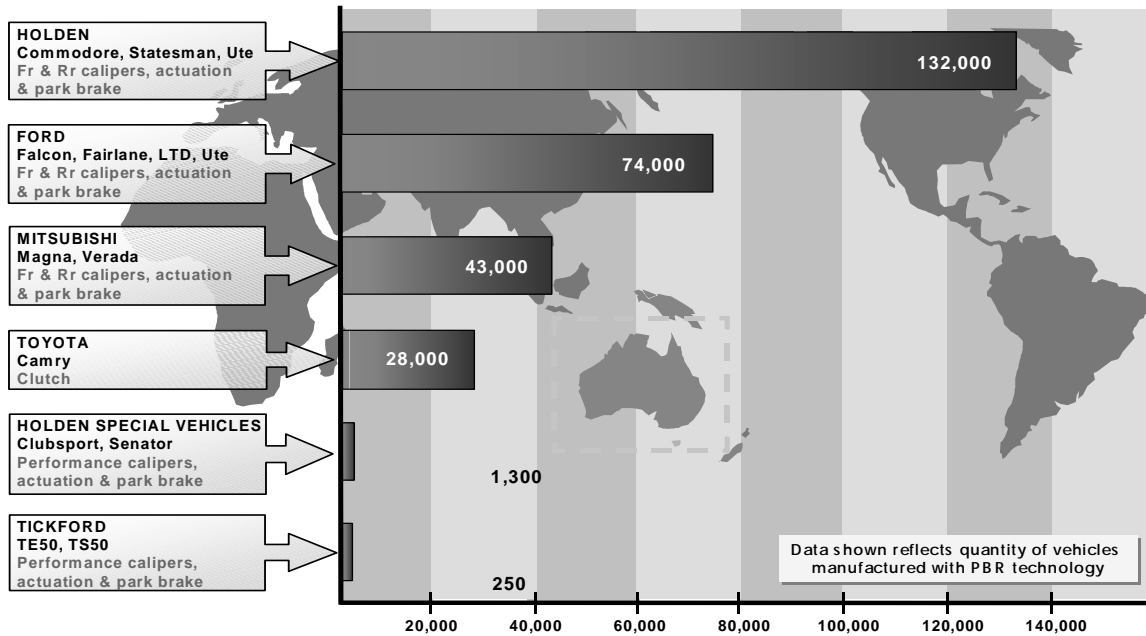
Employees: 1

Site size: 3,067 sq.m.

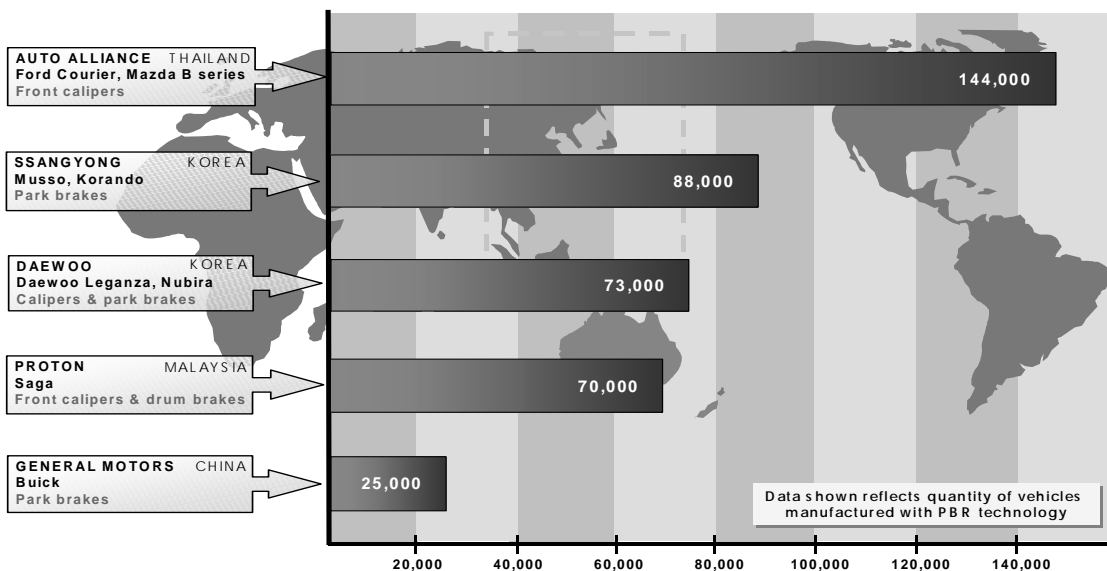
Capabilities: Business development Manager established to provide Engineering support, prototyping and customer liaison

2.3 OEM Programs – Australia 2001

In Australia, PBR supplies each of the four OEMs – Holden, Ford, Mitsubishi and Toyota.



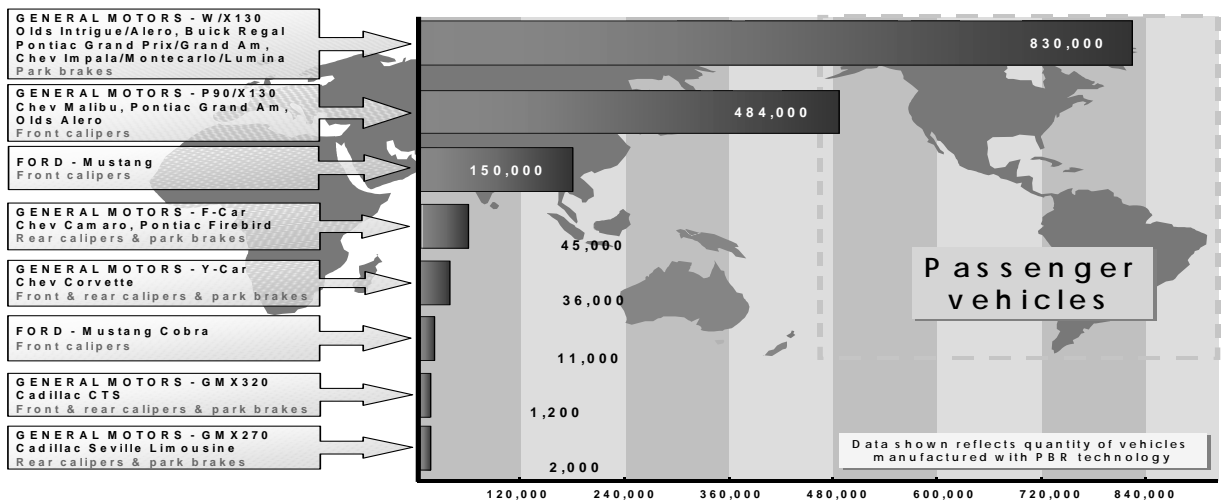
2.4 OEM Programs – Asia 2001



2.5 OEM Programs for Passenger Vehicles – Americas 2001

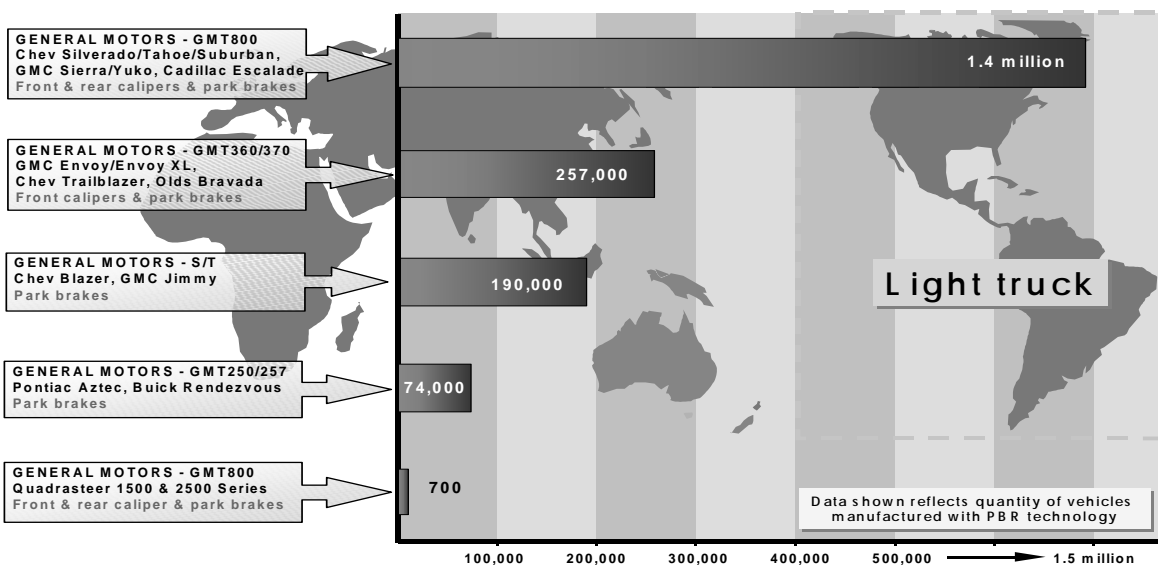
PBR’s major OEM customers in the Americas are General Motors and Ford.

PBR’s recent signing of an Exclusive Supply Agreement with Robert Bosch Corp. extends that customer base to DaimlerChrysler, Mitsubishi, Mazda, BMW and Nissan in the United States, Canada and Mexico.



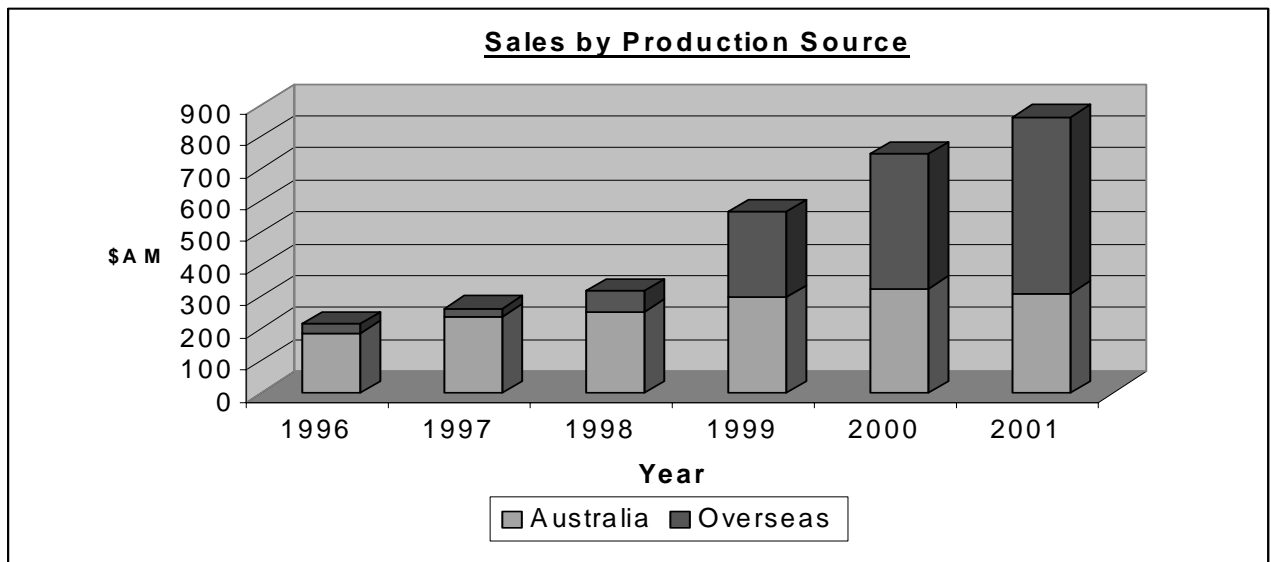
2.6 OEM Programs for Light Trucks – Americas 2001

Light trucks produced by General Motors in the Americas are a major market for PBR



2.7 Sales

PBR's growth has been substantial with sales rising from \$214 million in 1996 to \$860 million in 2001.



In 2001, PBR's sales breakdown by source of production was:

North America	\$522m	61%
Australia	\$311m	36%
Asia	\$27m	3%
TOTAL	\$860m	100%

Australian customer sales have remained relatively stable over this period. The bulk of PBR's growth has come from the establishment of two USA plants in Knoxville, Tennessee and Columbia, South Carolina. These plants were established to supply major new contracts with North American customers. These contracts were won (in part) based upon the credibility PBR gained over many years of successfully and reliably exporting from PBR's Australian production base.

2.8 Employment and skills

The Pacifica Automotive Division employs some 2,575 people globally. PBR employs approximately 1,000 people in Australia and Bendix Mintex employs approximately 700 people in the regional center of Ballarat.

PBR invests significant resources in the training and development of employee skills both globally and in Australia. PBR provides financial support to managers and supervisory employees to undertake relevant under-graduate and postgraduate studies. Managers also receive training in project management and “lean manufacturing” principles.

PBR conducts extensive on-the-job training covering Quality practices and concepts as well as developing strong Safety and Environmental skills. PBR is also an employer of highly skilled engineers scientists and other graduates and has recently employed physics engineers to support the development of Brake-By-Wire and other technologies. A schedule of all competencies currently in use or required by the Company in the future is attached.

2.9 Innovation and R&D capability

PBR's outstanding success over recent years can be largely attributed to market advantages created through innovation and technological breakthroughs. PBR's ability to be an innovator has enabled the Company to grow from a small local operation into a world competitive international supplier of automotive components.

PBR owns a number of worldwide patents including the Banksia Park Brake, Auriga Service Brake and Aluminium Caliper. PBR's innovation capability has also led to valuable industry recognition through design awards such as the SAE-Australasia's Automotive Engineering Excellence Gold Award received in March last year for PBR's revolutionary Auriga single shoe service brake. The Auriga is the first significant breakthrough in foundation brakes in 30 years. PBR's Chief Engineer, Mr. Nui Wang is a 2001 Clunes Ross medallist, which PBR believe recognises his contribution to the design and develop of the both the Banksia and Auriga products.

While PBR's engineering and product design innovations are well known, an innovative approach to manufacturing is just as important in providing optimum value to PBR's customers. PBR's manufacturing utilises state-of-the-art technology enabling the integrity and performance of every component to be validated.

To maximise the benefits of IT technologies and remain an industry leader in this field, PBR has recently restructured its IT department. The result has been the formation of an IT strategy incorporating new technology to improve customer requirements management, reduce costs and increase profitability. E-Commerce technologies, especially those in the global automotive industry, have greatly improved the business-to-business e-Commerce between PBR facilities, customers and suppliers. PBR has invested in a Virtual-Private-Network (high speed data lines) between all its major sites and uses this capability to share real time production data and solve quality, safety and productivity issues globally using video conferencing and other collaborative tools. It also leverages this network externally to link with major Automotive exchanges in Australia and the USA including ANX, AANX and Covisint. These links facilitate virtual product design with Tier 1 and OEM customers and PBR's global network of product and

process suppliers.

PBR has R&D facilities in Melbourne, Australia and Detroit, USA with a future planned European office. Standard test equipment in PBR's technical centers include:

- CAE tools such as FEA
- Dynamometers
- Noise dynamometers
- Vibration rigs
- Environmental chambers

To complement PBR's in-house facilities PBR have extensive Proving Ground and Real World Extreme Condition testing capabilities. PBR's CAD design network is completely integrated internally and externally with PBR's major customers and suppliers.

Drive-by-Wire is a dominant trend within the automotive industry globally. This new technology, which replaces the traditional mechanical and hydraulic linkages with electronic control systems, has the potential to revolutionise vehicle design.

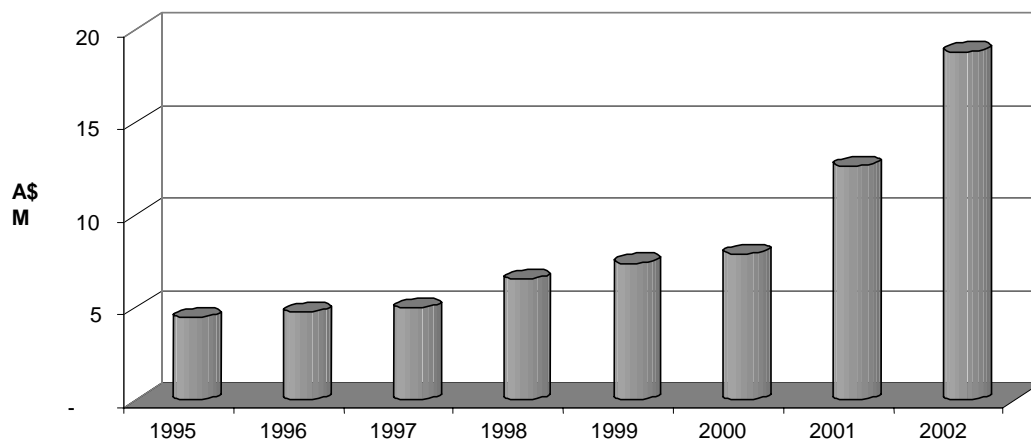
Incorporating drive-by-wire technology into Australia's industry will provide a focus for the local industry. Manufacturers throughout the supply chain will be compelled to adapt and incorporate drive-by-wire technologies not only to be competitive but because it is imperative to the industry's survival.

PBR is leading the way to incorporate this technology into Australia's automotive industry. Currently, plans are afoot to develop a drive-by-wire "centre of excellence" at its East Bentleigh facility. This facility will conduct research into drive-by-wire design, simulation, mechatronics and vehicle dynamics. This facility will harness the specialist knowledge of four collaboration partners including Pacifica Group Technologies, The University of Melbourne, Bishop Technology Group and Swinburne University of Technology. In addition to specific R&D product and process outcomes, this facility will have in its objectives the development of

educational programs and cross-industry collaboration activities that will ensure that Australia has the infrastructure in place to be a long term player in this emerging technology.

This groundbreaking initiative is the first of its kind in Australia. ACIS, with its focus on research and development will assist in creating the circumstances for the R&D aspects of this technology to be established locally. This will then create the opportunity for the local manufacture of product incorporating this technology.

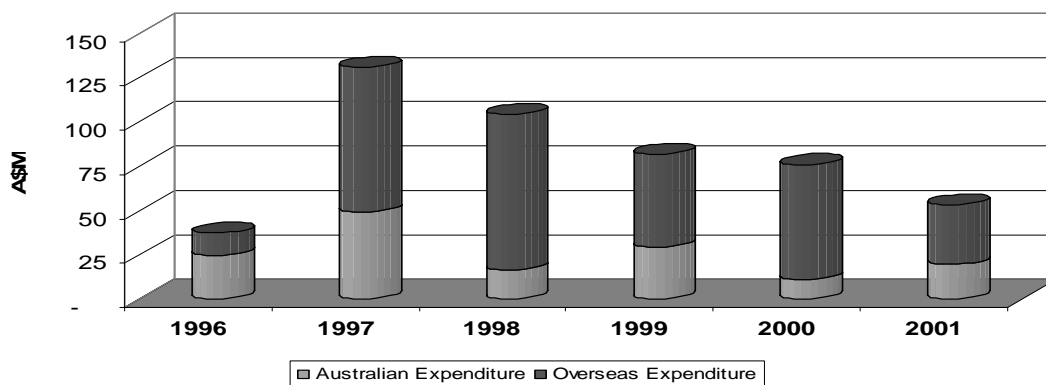
R&D Expenditure



PBR's commitment to R&D is evidenced by the above data. PBR has seen its R&D expenditure more than quadruple over the past 5 years and, with the ongoing investment in Brake-by-Wire development, this investment will continue to grow.

2.10 Capital Investment

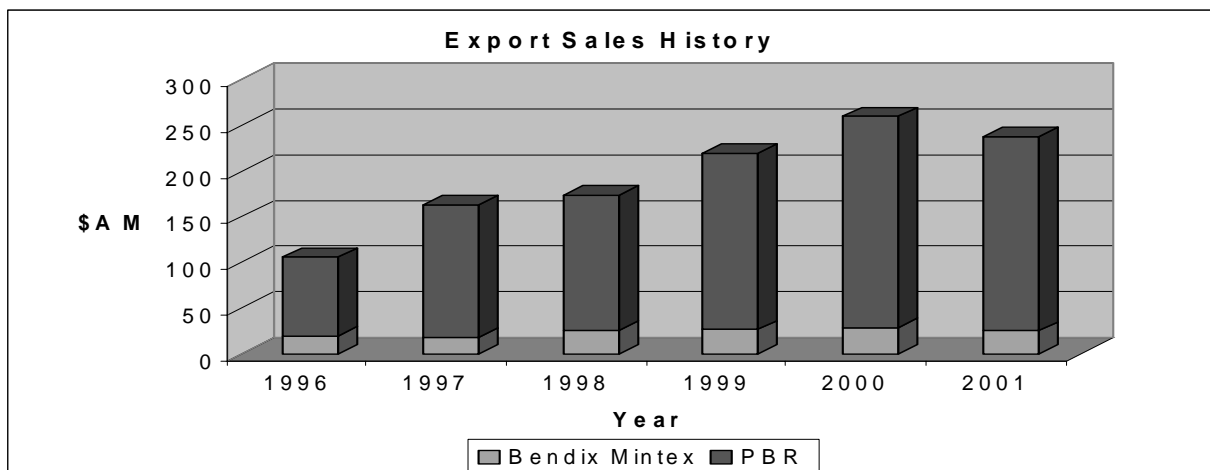
Capital Expenditure



PBR undertook a major investment program in 1997 focussed on establishing the capacity, both locally and in North America, to supply a number of large customer contracts. Since this initial spurt, considerable ongoing investment has followed. In the majority of cases, the production systems and capacity that this investment represents was designed, developed, and in some cases, assembled, installed and initially managed by Australian Engineers and Managers based here in Melbourne. The skill and experience they have gained in indertaking these activities is in many ways as valuable to us as the equipment itself.

2.11 Exports

Pacifica Exports have increased from \$85 million in 1996 to a peak in 2000 of \$230 million, with the 2001-year easing back to \$213 million.



Export sales by major geographic region in 2001 were:

North America	173
Asia / Pacific	25
R.O.W	15
Total	<u>213</u>

2.12 Service and Community Linkages

One of the ten PBR values is to value and respect each other, the community and environment. This respect is manifested in the extensive contact PBR maintain with residences in the local community, to work with them to ensure that they view PBR as a good neighbour. PBR supports Oz Child and representatives visited the site on a number of occasions to talk to associates. PBR has donated a number of personal computers to local schools and a church. Employees have received time off to support Red Nose day and to participate in the Planet Ark Tree Planting day.

2.13 Links to other industries through PBR's supply chain

Purchases of raw materials, subsidiary systems and components account for over half of every sales dollar. Ignoring payments for labour, more than two third of PBR's total sales are spent with it's, predominantly local, supply base.

PBR is a major purchaser of Australian goods and services and it's involvement and support of local suppliers in a wide array of industries has helped these businesses in many ways.

Traditional supplier development activities assist suppliers by helping them improve their processes, eliminate waste & inefficiency and achieve significant improvements in quality and throughput. PBR adopts a pro-active approach in all of these areas. The application of processes such as Value Stream Mapping, FMEA and advanced Japanese manufacturing techniques amongst the supply base has realised significant gains. PBR and it's Car Company customers do share in these gains, but the benefits to the supplier's business often extend across their entire product range.

PBR's involvement and partnering with key Australian suppliers has directly resulted in domestic, export and international sales growth for a number of businesses. A number of local suppliers (in some cases with limited automotive capability at the time they start working with us) have worked with PBR to deliver a product suitable for one local vehicle platform and subsequently been successful in selling their products to a number of other local vehicle platforms. Others achieve export related growth by supplying products into brake assemblies that PBR export overseas.

PBR's activities in expanding overseas both initially through export and subsequently through the establishment of large overseas plants have seen a number of PBR's key suppliers "latch onto PBR's coat-tails" and achieve significant export and international sales growth themselves. One of PBR's major fastener suppliers not only supplies PBR's Australian plant directly but also exports to both of PBR's Plants in the USA. This involvement effectively triples the volume available to this supplier had PBR only been an Australian manufacturer.

Another example is a pressed metal supplier who supported PBR's international growth initially through export and is now establishing its own manufacturing presence in the USA, using PBR's volume to "base-load" its new facility. Interestingly, this supplier's first supply point into the US market was co-located in one of PBR's new facilities. PBR firmly believes that Australian manufacturers are capable of competing with the best in the world. The key to success is being able to take that critical first step into a new market. Export assistance programs are one thing, but one would be wise not to underestimate the multiplier effect when one Australian business achieves global penetration with its products and technologies.

PBR also invests heavily in IT infrastructure to support its global operations and uses this technology to communicate with its local supply base. PBR purchases over 80% of its MRO items electronically. This has significantly reduced the administrative burden and delivery time, in some cases by up to 80%.

2.14 The Future

Pacifica is currently in transition – from being a traditional diversified manufacturer to becoming an automotive technology company. The transition program has three key phases:

- the rationalisation of existing businesses and business activities;
- the extraction of greater returns from existing assets; and
- the creation of long-range, sustained growth through further exploitation of existing product and process technologies and the development and commercialisation of new technologies.

By the end of 2002, Pacifica will have divested its construction products businesses to concentrate on the development of its existing strengths - automotive technologies with an emphasis on innovative products and processes possessing a high degree of intellectual property.

Within PBR, the Company's strategy is to place greater focus on the design and development of products and processes. Core manufacturing activities will be retained and non-core activities outsourced or divested. Less capital per part manufactured, combined with an excellent manufacturing culture, will be required to extract better earnings from revenue streams. Strategic partnerships are being established with global manufacturers, universities and research and development organisations to help achieve these objectives.

Ultimately, Pacifica believes that the technologies being developed for the automotive industry will be applicable to a range of other industries. Where appropriate, it is possible that the Company will license such intellectual property to other sectors. In the meantime, the short-term focus is to extend its share of the international automotive markets with the clear objective of increasing shareholder returns.

Chapter 3 – ACIS is Providing the Right Incentives for PBR

ACIS underpins PBR's global strategy. It encourages the key elements of international competitiveness for PBR – product innovation and manufacturing excellence. ACIS is providing much needed policy stability. There is a substantial community benefit from R&D on braking systems. The 125% tax concession alone would be inadequate to encourage PBR to continue sourcing R&D in Australia.

3.1 Why ACIS is Critical to PBR's Business

PBR's business is built on utilizing PBR's comparative advantage in applying leading edge technology to the development of innovative automotive braking systems and then being able to supply PBR's products to the highest standards of manufacturing excellence. This requires substantial on-going expenditure on research and development and capital investment. For component producers, ACIS is targeted at providing incentives in both these two areas of expenditure. It is therefore well designed for companies which recognize the importance of maintaining comparative advantage through product and process innovation.

PBR and other automotive component manufacturers are essentially investing in the future of the automotive industry. As a company, PBR must be at the forefront of change and take the risks about the industry's future directions and expected consumer preferences. More and more, component manufacturers are being required by the OEMs to develop potential new products at PBR's own cost.

For every automotive component supplier, the costs of new product development must be weighed against the expected returns. The costs are fairly well known but the expected returns are often uncertain. The potential OEM markets are easily identified but accessing those markets can be quite a difficult task. Even if successful, new products usually have to wait for the introduction of the new model vehicle.

The small size of the Australian market is also a limiting factor on innovation expenditure. The incremental returns from developing a new product specifically for supply to the Australian OEMs are unlikely to be sufficient in most cases to justify the outlays required. That is why PBR thinks first of the global potential for any new product before committing to new product development.

The demands of PBR's global customers for rapid responses to product design and testing issues is requiring us to place additional technical resources into PBR's development center in Detroit. Australia remains the "mother-ship" of PBR's product and process design and development activities despite these demands and the simple logic of placing product and process R&D resources closest to the largest users of PBR's products (PBR's US customers) and processes (PBR's US production plants). The decision to keep Australia as the centre of PBR's product R&D and manufacturing process development activities is influenced by a number of factors. Ongoing availability of ACIS level R&D support is key, as is the availability of highly educated engineers and technical resources and access to international standard development partners / suppliers. The later two of these factors can, in PBR's view, only be guaranteed by the continuation of a viable automotive industry in Australia.

By providing a 45% incentive for R&D, ACIS gives us the confidence to back PBR's global approach to new business development with a very strong innovation commitment. PBR's signing of an Exclusive Supply Agreement with Robert Bosch Corp. is an example of how PBR's automotive technology is winning business overseas. ACIS is a vital element in such alliances. It assures PBR's alliance partners that the Australian Government is prepared to continue its support for PBR's innovation efforts and PBR's drive to be a major part of the global automotive business.

By providing a 25% incentive for new P&E, ACIS gives us the confidence to continue to invest in the highest standards of manufacturing technology, not only for supply of product to the Australian market but on a scale to be a global supplier.

So ACIS is vital to PBR's business on two counts - ensuring that PBR continue to push the boundaries on product innovation and that PBR can supply products to PBR's customers at the

highest standards of manufacturing excellence. The proof of its impact is in the alliance PBR now have with Bosch, one of the world's foremost automotive technology suppliers. PBR can commit to such alliances not only because of the confidence PBR have in PBR's ability to supply quality product but also because of the underpinning of PBR's efforts provided by ACIS. It is a very important signal to PBR's customers that the Australian Government is willing to back automotive component suppliers with tangible support in the areas which mean most to them – continued product innovation and manufacturing quality.

Without ACIS, Australia may not remain the knowledge center of PBR's global business in the medium to long term. There is no doubt that the relative cost effectiveness of local R&D and the ingenuity inherent in the Australian culture will always help support a decision to keep R&D in Australia. There are other factors however that may support a decision to move R&D to North America or Europe. These factors include:

- Increasing pressures from Car Company and Tier 1 customers to respond in person to design issues and participate on-site in development programs
- The lack of appropriately trained and experienced researchers and engineers in Automotive disciplines in Australia
- The practical ability to collaborate with overseas based development partners on key research projects
- The availability of comparable R&D incentives to ACIS in other jurisdictions

3.2 PBR's Response to ACIS

Information on ACIS credits earned by PBR is commercial-in-confidence information that PBR are not prepared to make public. However, we supply the following comments regarding PBR's response to ACIS in general terms:

[Commercial in Confidence Data excluded from Public Submission]

PBR estimates that the majority of total incremental expenditure on ACIS eligible R&D over the period 2001 to 2005 would not be undertaken without ACIS.

[Commercial in Confidence Data excluded from Public Submission]

PBR estimates that around **half** of total incremental expenditure on ACIS eligible plant and equipment over the period 2001 to 2005 would not be undertaken without ACIS.

The ACIS R&D benefit at 45% is underpinning PBR’s push into the next generation of braking technology – Brake-By-Wire. Just as By-Wire systems have revolutionised how aircraft are controlled, a similar revolution is currently under-way in the automotive industry. Current research suggests that 40% of cars produced in Europe by 2010/12 will have significant amounts of by-wire technology aboard. These by-wire systems will replace traditional mechanical and hydraulic linkages in areas such as braking, steering and suspension.

	Current Systems	By-Wire Systems
Brakes		
Stopping Profile / Stability	Caliper / Friction Design Efficiency of Hydraulic system & boosters	Caliper / Friction Design Efficiency of software / sensors & electromechanical actuators
Traction Control	Driver skill plus ABS and "Smart Booster" technology	Software algorithms based upon real-time sensor data of road conditions & vehicle positioning
Steering	Power assisted, Variable Ratio Rack and Pinion Hydraulic Systems	Software controlling electromechanically actuated linear ratio systems
Suspension	Springs, shock absorbers	Electromechanical actuators linked to sensors measuring road conditions to deliver programmed ride parameters

In current systems, smart, high precision mechanical systems are critical to performance. In By-Wire systems, smart software and electronically controlled systems will change the paradigm as to how vehicles are controlled, potentially delivering much higher levels of safety, performance, efficiency and security in all types of vehicles.

Without a major investment in R&D in this area, PBR and other Australian automotive component companies with otherwise strong technology are in danger of losing markets or, at best, being relegated to the position of commodity producers.

PBR via it's sister company Pacifica Group Technologies is attempting to put together a consortium of automotive component companies, universities and research organisations to develop advanced By-Wire Technologies. This consortium will aim to:

- Establish a world-class by-wire research facility
- Establish Australia as a world leader in by-wire technology and associated fields such as mechatronics and vehicle dynamics
- Be a commercial catalyst to develop by-wire market opportunities
- Strengthen the education and research infrastructure in by-wire related fields
- Be a show-casing facilities for by-wire technology

The key research areas to be pursued by the consortium include:

- **Electronic Interfaces and Controls** - The development of electronic interfaces and controls which will enable replacement of physical connections with electronic systems.
- **Man-Machine Interfaces** - Mechatronics R&D focussing on man-machine interfaces and feedback mechanisms.
- **Safety-Critical Software** - Development of Safety-Critical / Fault-Tolerant Software systems to support by-wire applications.
- **Advanced Simulation** - Development of advanced, software based, simulation and testing systems to enable rapid prototyping and advanced vehicle dynamics research.
- **Vehicle Dynamics** - Establishing and developing an extensive vehicle dynamics knowledge base.
- **By-wire Education** - Development of educational facilities and initiatives and facilitation of growth and development in the by-wire industry

The consortium plans to provide many spin-offs which will benefit a wide range of industry sectors in Australia including:

- Road vehicles and infrastructure
- Rail
- Marine
- Robotics and automation
- Machine tools
- Biomedical
- Defence
- Aerospace

PBR believe that the flow-on benefits to these industries are illustrative of the benefits that flow more generally from having a viable, technology focussed automotive industry in Australia.

Developing the consortium and pursuing an Australian based Brake-By-Wire capability will require a substantial commitment to additional R&D spending by the Pacifica Group, a commitment, that while significant, is dwarfed by the investments made by PBR's global competitors (e.g. Delphi, TRW, Continental Teves) in similar research. It is a competitive reality that, without ongoing government assistance arrangements such as ACIS, investments of this type could not be justified.

3.3 Importance of Policy Stability

Successive Governments have presided over a number of automotive industry policies since the early 1980s. At various times, the industry been supported by high import tariffs (which were subsequently phased down); an 80/20 market sharing arrangement enforced through import quotas (which was subsequently replaced by a local content scheme – the so-called Button Car Plan); abandonment of the local content scheme; an Export Facilitation Scheme (which was subsequently abandoned also under WTO pressure) and now ACIS.

From the viewpoint of a components manufacturer, such changes have been destabilizing particularly given the substantial investments and long lead times in bringing innovative products to the automotive market. High tariffs were in favour with the Government and then out of favour; import quotas were acceptable and then unacceptable; local content was the solution and then the problem; exports were rewarded but then abandoned. To be fair, most of these policies were in place at a time when the Australian automotive industry was inward looking and much more commercially vulnerable. But it did make long-term decision-making difficult because of the uncertainty of Government policy.

PBR is successfully building a global industrial technology business built on a domestic base market and growth from an expanding business offshore either through exports or through direct investment overseas. To do this, PBR need policy stability domestically.

PBR understand that the Government went to considerable lengths to make sure that ACIS is compliant with the WTO rules that do not allow incentives to be related to local content or exports to discriminate against imports. The fact that the rules have been available for around two years and remain unchallenged by other WTO members suggests that it is considered to be generally consistent with the WTO rules.

ACIS provides not only the right incentives for innovative companies such as PBR but it also has the potential to provide the necessary policy stability provided it is allowed (unlike most other recent automotive industry polices) to remain in place as a long-term policy.

3.4 Community Payback from R&D on Vehicle Braking Systems

All the evidence suggests that R&D has a positive impact on GDP and the country's rate of growth:

- although returns from R&D vary greatly between projects, firms and industries, generally the pay-off from investment in R&D exceeds the pay-off from increased expenditure on plant and equipment;

- R&D has a significant positive effect on an economy's factor productivity; and
- there can be substantial spillover effects from undertaking R&D.

R&D expenditure on vehicle braking systems is an area where there is likely to be substantial spill-over effects, that is, where the net private benefits to PBR may not match net public benefits. There are likely to be unpaid-for benefits to the community, or unrecouped costs to PBR, arising from R&D expenditure on improved braking. These include:

- Education
- R&D and spin off benefits amongst the supply base
- lower health and insurance costs associated with enhanced accident prevention.

3.5 Inadequacy of the 125% Tax Concession for PBR

The main Government support for automotive R&D without ACIS is the 125% tax concession. One of the major deficiencies of the 125% tax concession in respect of PBR's operations is its very narrow scope. The R&D activity must, among other things, involve:

“systematic, investigative and experimental activities that involve innovation or high levels of technical risk, and are carried on for the purpose of:

- (i) *acquiring new knowledge; or*
- (ii) *creating new or improved materials, products, devices, processes or services...*”

There are some major limitations of the 125% tax concession for PBR's operations including:

- the narrow definition of what is regarded as eligible R&D;
 - the assistance it provides varies with changes in the corporate tax rate;
 - the benefit depends on company decisions about dividend distribution and imputation;
- and

- companies in a tax loss situation receive no benefit from a tax concession. Last financial year, Pacifica made a tax loss and would have been unable to make use of the 125% tax concession.

PBR's future does not lie in supplying 'commodity' type automotive components. PBR have developed a reputation for world-class innovation in braking systems and are prepared to continue PBR's strong commitment to supporting that reputation in Australia. But as PBR's company becomes more global so does the location choices in which R&D is carried out. If PBR had to rely solely on the 125% tax concession (effectively 7.5 cents in the dollar at a company tax rate of 30%), PBR would have to look very closely at alternative locations for carrying out the substantial R&D required to support PBR's products. The community benefits arising from performing that R&D in Australia may then be lost.

Chapter 4 – The Automotive Tariff Rate is Important to PBR

There should be no change to existing legislated tariff rates for automotive products. The benefit from removing low tariffs is small. There must be a uniform tariff rate across imports of all automotive products. APEC 2010 is a key milestone date for achieving international competitiveness across the Australian automotive supply chain.

4.1 Phase-Down in Automotive Tariff Rates

Over the last 20 years, the Australian automotive industry has been subjected to a substantial phase-down in tariff assistance. The rate of duty on most imported components has fallen from 45% in 1988 down to the current rate of 15%. This rate is set to fall further to 10% on 1 January 2005 (5% for developing countries). Further reductions are anticipated in 2010 when the APEC rate for Australia is Free.

These tariff reductions increased competition in the Australian automotive market to such an extent that the share of the local vehicle producers has fallen from around 60% in the early 1990s to less than 40% today. Annual domestic sales of locally produced passenger vehicles in Australia have fallen from around 275,000 vehicles in 1995 to currently less than 230,000. These changes also impacted adversely on domestic component producers supplying the domestic OEMs. PBR lost available base markets from which to further grow PBR's business.

Domestic vehicle platforms provide the test vehicles many of PBR's new products and PBR's East Bentleigh production plant is where PBR test many of PBR's new process developments and enhancements. Almost all of PBR's new products and processes are implemented in Australia first before being rolled out to PBR's customers and production plants globally. If local vehicle production volumes were to drop significantly, PBR would need to seriously review PBR's strategy of using PBR's Australian base as the test bed and development centre for PBR's global operations.

Over the 1990s, PBR established offshore manufacturing operations to support PBR's global strategies but a strong and viable domestic base market remains a vital element in achieving PBR's business goals. PBR have developed those goals based on the expectation that the current legislated tariff rates of 15% up to the end of 2004 and 10% thereafter will not be changed. PBR would be very concerned if those rates were reduced further.

It takes years to develop new products and to have those products accepted by the OEMs. PBR's production and supply must then be linked in with the cycle of new model releases. PBR has incurred considerable costs in up-front investment in product development predicated on expected volumes from the domestic OEMs at the legislated tariff rates. If those volumes did not eventuate due to further tariff-induced market erosion, it would have a detrimental impact on PBR's business – an impact unrelated to either PBR's efficiency or performance.

4.2 The Benefits from Removing Low Tariffs Are Small

In 2000, the Government considered the issue of Australia's general tariff rates and chose not to reduce the 5% duty rate on most imported dutiable goods on the grounds that "such benefits would be relatively small".¹

PBR considers the 10% duty rate on imported automotive products to apply from 2005 to also be a low duty rate. It is low compared with historical duty rates for automotive products and low compared with many of the duty rates applying in countries in which Australian companies are trying to develop markets for automotive products. If there are small community benefits from reducing a 5% duty then there would be small benefits also from reducing the 10% duty on automotive components to apply from 2005.

In addition, there seems to be little value in Australia reducing its duty rate on automotive products below 10% as it heads into negotiations with APEC members leading up to the implementation of the Bogor Goal in 2010. Australia is likely to need some 'negotiating coin' to

¹ Costello, P. (Treasurer) and Minchin, N. (Minister for Industry, Science and Resources) 2000, 'Government Response to the Productivity Commission Report on Australia's General Tariff Arrangements', *Media Release*, T00/116PC, 19 December.

offset offers on automotive products by other countries with tariff rates well in excess of those applying to Australia's automotive imports.

4.3 A Common Tariff Rate Across All Automotive Products

As far as possible, industries should have a common tariff rate to minimize potential resource distortions arising from one sector of an industry being favoured over another sector. Although some imported components are dutiable at 5% and some at Free, most attract the general current automotive tariff rate of 15%. PBR sees no reason why this should be changed.

PBR strongly opposes any suggestion that the tariff rate on automotive components should be reduced to lower costs for the local OEMs. Other than the potentially adverse effect this would have on PBR's own operations, it would be contrary to the principle of a uniform industry rate. It would also substantially increase the effective rate of assistance to the OEMs to a level well above that of manufacturing industry and certainly well above that for the manufacture of automotive components.

PBR also strongly opposes any suggestion that automotive components be removed from the list of goods that are excluded from Tariff Concessions. A Tariff Concession may be granted if there are no substitutable Australian made goods which have a use corresponding to the use of the imported goods. In 1994, the Government announced amendments to Schedule 2 of Customs Regulation 185 (generally known as the Excluded Goods Schedule) to ensure that any goods of a kind used as replacement components in passenger motor vehicles are excluded from the Tariff Concession System. There are good reasons for supporting this approach not the least of which is administrative simplicity for Customs and the avoidance of unnecessary costs for local component suppliers in opposing Tariff Concession applications.

PBR also see examples where advances in technology are outpacing the Customs Departments ability to properly classify automotive components. With the increasing amount of electronics in vehicles today, classifications need to be regularly reviewed to ensure that automotive

components do not make it through the system at lower tariff levels for lack of an appropriate classification.

4.4 APEC 2010 is a Key Milestone Date

If the full Bogor Goal of Free trade between the developed countries in APEC is achieved, it will have a significant impact on the Australian automotive industry. The United States, Mexico and Canada are large suppliers of automotive components. Each has the potential under Free trade to make substantial inroads into the Australian automotive components market. By 2010, the People's Republic of China may well be a major automotive components supplier also.

While some markets will open up more for Australian component suppliers in 2010, it is not at all clear that there will be net benefits to the local industry. The developing countries within APEC can maintain their relatively high tariffs on Australian exports until 2020 – including Malaysia (42%) and Thailand (up to 46%). Both Canada (6%) and the United States (2.5%) have lower current tariff rates on automotive components than do Australia and in that sense have relatively more to gain.

PBR has worked hard to make sure that PBR are part of globalisation rather being an observer of the process of change. PBR have established manufacturing operations offshore and entered into vital long-term supply arrangements with Robert Bosch Corporation. PBR's ability to be an innovator in this fiercely competitive industry has transformed PBR from a small local operation into a world competitive international supplier.

It is this type of transition and adjustment that is required across the whole of the automotive supply chain in Australia in the lead-up to 2010. It will take time but PBR's experience shows that it is possible if sufficient commitment is made to the highest levels of engineering excellence, to industrial technology, to innovation and R&D, and to embracing investment in the production of automotive components where there is a higher degree of intellectual property and higher returns. Low tariffs on imports and Free trade within APEC ensure that Australia has

little future in the production of commodity type automotive components. PBR's comparative advantage lies in providing technologically advanced automotive components.

Chapter 5 – Business Growth Through Global Product Supply

PBR's business growth comes from PBR's global strategy and recognition as an industrial technology company supplying high quality value-added braking systems. The time from new product conception to commercial production takes years. Having manufacturing operations close to customers can be an important factor in winning OEM contracts overseas. PBR's recently signed Exclusive Supply Arrangement with Bosch is an important alliance for PBR and offers opportunities for broader customer reach.

5.1 The Necessity of Becoming a Global Business

Australian production of passenger vehicles is only a fraction of total world production. Lower tariffs on imports of vehicles into the Australian market have resulted in loss of market share for locally produced vehicles and a consequential decline in production volumes. While local assembly provides an important base, growth for component companies can only come about by becoming a global supplier. Relying solely on the local OEM market over the last decade would have been a recipe for contraction for most local component suppliers.

The high cost of investments required to develop new products and to meet the exacting manufacturing and product quality standards set by global OEMs is unlikely to be able to be recouped from supply to the Australian market alone. The payback is simply not there because of the limited domestic volumes.

In the early 1980s, PBR recognized the need to look beyond the Australian market in order to grow PBR's business. In 1983, PBR exported PBR's first OEM braking systems to United States - the world's lightest slimline caliper & lightest booster (plastic) for the Corvette. By 1990, PBR's export sales reached \$A15 million. In 1991, PBR made a strategic decision to:

- Focus on R&D in Australia;
- Introduce Lean Manufacturing to achieve higher levels of manufacturing efficiency and lower costs;

- Drive PBR's business expansion through export growth;
- Obtain world recognition as an industrial technology company supplying high quality value-added braking systems.

In 1993 PBR were awarded PBR's first Korean contract. The attraction of PBR's lightweight and high performance calipers and unique patented Banksia park brake led to further OEM contracts in the United States. By 1998 PBR's export sales had risen to \$A120 million. The establishment of PBR's Knoxville, Tennessee joint venture plant saw PBR's US sales grow to \$A678 million by 2001. This was followed by the construction of a wholly owned facility in Columbia, North Carolina. PBR are now in a position where 60% of all GM vehicles produced in the United States incorporate PBR technology and PBR have contracts to supply all of the US Big Three Auto Manufacturers. PBR's business plan is that by 2003, export sales from Australia will be \$A215 million or around 26% of total automotive sales.

5.2 Pre-requisites for Being a Global Supplier

It has been PBR's experience that the vital pre-requisite to being a global supplier of automotive products is the development of world-class technology. PBR has invested heavily in PBR's Australian R&D facility which supports continued high levels of product and process development.

PBR have also found that in quoting for new global business opportunities, OEMs require the establishment of engineering support close to the vehicle design source to provide engineering liaison, prototype design and testing services. In the early 1980s, PBR established an Engineering Technical Centre in Detroit with one engineer. PBR Automotive Services Inc US now has 17 employees.

Continued high levels of R&D underpinning the development of highly innovative products and providing the customer technical support for those products has worked well for PBR. Being able to manufacture those products to very high quality standards and to meet the supply conditions of the OEMs are the other essential pre-requisites for global success. This has driven

considerable investment in PBR's manufacturing processes. Both require high levels of investment not only in dollars but also in the commitment of management and employees.

The fierce level of competition in the world automotive industry and the need to contain costs of assembly has recently caused OEMs to require suppliers to develop new products without any commitment to purchase, with a requirement that they share ownership of the product technology. This is not a particularly desirable position for suppliers to be in but is just one of conditions which has to be met to be a global participant.

5.3 The Banksia Brake Experience

The idea for the Banksia park brake was first conceived by PBR's Research and Development team in 1988. It offered many advantages over existing park brakes including improved hill performance and dynamic emergency brake performance, lighter weight, easier maintenance and part replacement and reduced wear. But in the automotive industry, the time from concept to commercial production can be a protracted process. The first low volume production of the Banksia was for the Ssangyong Musso 4WD in 1993 followed by volume production for Australian produced vehicles in 1994 and volume exports to the United States in 1997. A total of between 6 and 7 million Banksia brake pieces are now being produced at PBR in Melbourne.

5.4 Locating Manufacturing Offshore for Global OEM Supply

To be an OEM global supplier in the automotive components business requires the establishment of manufacturing facilities close to OEM assembly. PBR has four offshore manufacturing facilities:

- **PBR Columbia** in South Carolina employs 132 people and manufactures brake calipers and the Banksia park brake
- **PBR Knoxville** in Tennessee employs 432 people and manufactures brake calipers
- **PBR Thailand** in Rayong employs 34 people and manufactures brake calipers
- **PBR Malaysia** in Kuala Lumpur employs 50 people and manufactures brake calipers, drum brake assemblies.

In the case of PBR Thailand and PBR Malaysia, relatively cheap labour, high tariff barriers on imports of automotive components from Australia and the need to support PBR's OE customers globally were also important factors in the decision to locate there.

Over time, such offshore operations, which are a necessary part of the globalisation of the Australian automotive industry, will dampen the value of commodity exports of automotive components as recorded by the ABS. However, the financial inflow into Australia still occurs in the form of increased revenue from royalties earned overseas, from exports of services, and from dividends earned from overseas operations. Over the period since PBR have pursued this strategy, revenue from these sources has risen to \$19 million per year and is projected to increase further.

[Commercial in Confidence Data excluded from Public Submission]

5.5 Mutual Benefit from Global Strategic Alliances

In September 2001, PBR entered into an Exclusive Supply Agreement for the supply of brake products in North America to the global industrial giant Robert Bosch Corp. The Agreement enables PBR to supply aluminium calipers and Banksia park brakes to Bosch for inclusion in

complete braking systems for Ford, DaimlerChrysler, Mitsubishi, Mazda, BMW and Nissan in the United States, Canada and Mexico. Although 60% of all General Motors' vehicles in the United States are already fitted with PBR braking technology, the Agreement has the potential to substantially expand PBR's customer base in that region. Initial volumes under the contract will be delivered from PBR's plant in South Carolina with additional volumes produced in PBR's Melbourne plant.

In March 2002, PBR announced an additional expected \$365 million in turnover over five years from PBR's second United States supply deal with Robert Bosch Corp. Under this new contract, PBR will supply lightweight aluminium calipers for the brake systems of a new vehicle platform for a new customer. It will involve additional production in excess of 900,000 calipers (front and rear) - enough units for a model run of about 230,000 vehicles a year. The contract was for the expected five to seven year life of the new vehicle model.

The Agreement with Bosch is an example of an alliance between two organizations committed to leading edge automotive technology. As OEMs move more towards requiring delivery of systems, alliances between complementary component suppliers will become a common feature within the automotive supply chain. For Australian automotive component companies, it will be increasingly difficult to secure a global mandate without being part of such alliances.

Technical alliances have also been an important contributor to PBR's product development. PBR is a licensee to Japan Brake International, TCIC and Korea Delphi Automotive in Korea and Delphi Automotive Systems in the United States.

5.6 PBR's Global Future is Dependent on Continued R&D and Innovation

PBR's success demonstrates the correctness of PBR's strategy to become a global technology company in automotive braking systems. There is no doubt that PBR's future growth will come predominantly from strategically positioning ourselves in the global automotive market and in supplying highly innovative value-added products to that market. PBR will continue to seek mutually advantageous alliances such as those with Robert Bosch to expand PBR's markets.

Substantial investments in R&D will be required to maintain and grow PBR's leading technological position in braking systems. Development of next generation braking products such as electric brakes and brake-by-wire will require a substantial additional R&D commitment by PBR. Initial markets for these products are unlikely to be in Australia which again reinforces the essential nature of PBR's global activities. PBR also intend to widen PBR's product range by developing OEM disc brake rotors and brake and corner modules.

Component suppliers must also have the R&D capability to adapt new product development to changes in consumer preferences. For example, the market emergence of passenger vehicle derivatives in the United States market required PBR to develop its technology to suit these types of vehicles. Because such vehicles are not produced in Australia, PBR's payback from such work was dependent entirely on securing contracts to supply overseas although there are spin-off benefits for PBR's locally supplied products and manufacturing processes.

Automotive technology is changing at a very fast pace. The range of concept cars now produced around the world show the possibilities for the cars of the future. PBR has positioned itself to make sure PBR will continue to be a leading participant in this process of global change. But it requires large and on-going expenditures on R&D. ACIS type incentives are thus extremely important to PBR's capacity to continue to fund the expenditures required to support PBR's global strategy.

Pacifica Group Technologies will develop new technologies that may not be directly related to the current automotive industry needs, however as the line between automotive, telecommunication and information technology becomes more blurred, such will find their way into the automotive industry.

It is therefore critical that Government develop R&D programs that effectively provide the required support allowing for local development and local access.

Chapter 6 – Vehicle Safety Standards, Greenhouse and the Environment

PBR supports mandatory vehicle safety standards. There are some problems with delays and procedures in setting and enforcing Australian standards. Differing international safety standards can impose additional costs on global companies. PBR is an active participant in Greenhouse programs and has a strong environmental program.

6.1 Vehicle Safety Standards

PBR supports minimum design and safety standards for vehicles and components and the type approval process used in Australia.

From the viewpoint of a manufacturer and supplier, a single national system of uniform Australian standards applied to all road vehicles prior to first use is much better than a number of different States-based systems. But the State-based registration process in Australia can complicate the achievement of national safety standards and can unnecessarily delay the process. National vehicle safety standards established under the *Motor Vehicle Standards Act 1989* require the passage of complementary State and Territory legislation to gain national effect.

The time it takes to secure a mandatory standard even when there are apparently clear safety reasons for doing so has been an issue of concern to the automotive industry for some time. The enforcement of such standards has also been an issue.

Similar issues apply with the international harmonization of safety standards. Most countries have their own vehicle standards and procedures for design and safety. Because PBR exports to more than 50 countries, differing safety standards and procedures between those countries is a matter that PBR have to manage.

PBR also foresee a great deal of change in how vehicles are controlled. The onset of By-Wire technologies will require careful review by road safety authorities. By-Wire systems in systems such as braking and steering will see mechanical and hydraulic connections replaced by electric

motors and software driven controllers. These changes have the potential significantly enhance vehicle dynamics control and hence road safety, but they need to be implemented with the appropriate amount of fail-safe systems, redundancy and regulatory oversight to prevent fly-by-night operators damaging the industries reputation and future potential.

6.2 Greenhouse

PBR has been active participant in Greenhouse abatement issues. PBR were involved in the development of the aXcess Australia concept car, which is powered by an electric motor and has a fuel-efficient motor to drive the generator that charges the batteries. PBR supplied the front and rear calipers which have twin aluminium pistons and lightweight aluminium housings. The calipers are fully recyclable (including the rubber and friction material). PBR also supplied the world's lightest 9 inch brake booster, produced in plastic and the Banksia park brake which automatically engages when the transmission is shifted to the PARK position.

Energy monitoring is undertaken monthly by using the bills received and the smart meters that have been installed on each of the 5 sub-stations that are situated across the site. The metered results are then separated into plants and sections, allowing monthly budget reports to be collated. The reports are then distributed to Senior Management and Line Supervisors.

Computerised, Instantaneous Usage Monitoring Systems have been installed which allow PBR to read directly from the smart meters to determine the patterns of Electricity usage across the site. Sags, Surges and Peak loadings can be viewed at any time. Reporting can be viewed in spreadsheet or graphically, depending on the requirements. Installation of computerised, Instantaneous Usage Monitoring allowing PBR to determine where energy is used and wasted. Monitoring and Reporting is also completed for Effluent, Compressed air and Natural Gas. These monthly reports make it easy to track improvements and also highlight the areas where improvements are required. Monthly meetings (or more frequently if required), are then held to determine actions required for continuous improvement. Future programs being investigated include:

1. Surge Protection across the East Bentleigh Site

2. Smart meters to be installed on Gas meters
3. Daily reporting to the Plant General Managers.

PBR has a Health safety & Environmental Committee, which comprises members of the senior management team and meets on a bi-monthly basis. The objective of the Health, Safety & Environmental Committee is to develop policy and direction with regards to the environmental management program. Reports are tabled at the committee meetings on the progress and implementation of energy reduction programs.

Energy management forms a critical part of PBR's overall environmental management systems, which are being developed in line with the requirements of ISO 14001 environmental management systems. PBR is a signatory to the greenhouse gas challenge and the Sustainable Energy Authorities Partnership Program.

In 2001, the Sustainable Energy Authority of Victoria awarded PBR an achievement of excellence award in the manufacturing category of its Energy Smart Awards for PBR's work in reducing energy usage and green house gas emissions. These awards are presented to organisations that have demonstrated outstanding innovation, achievement and commitment to the reduction in the use of fossil fuel energy and green house gas emissions.

The Sustainable Energy Authority recognised PBR's continued excellence in environmental protection through efficient use of natural resources and waste management in PBR's manufacturing process. This was the second such award that PBR has won for its work in this area.

6.3 PBR's Environmental Policy

PBR's policy is to strive to operate in a manner that protects the environment, promotes efficiency in the use of natural resources and energy, minimises as far as practicable all waste, and is compliant with all applicable environmental legislation. Through a process of continuous improvement PBR aims to ensure:

- the provision of safe systems of work to prevent accidental releases and spillage's, including discharge to air, water and land;
- that environmental consideration is taken into account when planning the development of new processes and operations;
- that an effective standard of training and instruction are maintained for management and employees;
- the ongoing programs of auditing, inspection and monitoring;
- that products are designed, manufactured and distributed in a manner that protects the environment;
- that there is a consultative process that encourages employees to participate in environmental matters;
- the conservation of resources by the efficient use of energy and the minimisation of waste;
- the selection of contractors that can demonstrate responsible and effective environmental standards.
- the appropriate maintenance and application of emergency procedures.

All managers and supervisors are accountable for environmental performance in their areas. All employees have a responsibility to follow the procedures for protecting the environment and to report hazards to their supervisors.

In PBR's quest for never-ending improvement in all aspects of PBR's activities, PBR set out to achieve the highest international standard of environmental management for manufacturing businesses – ISO 14001. PBR sought to gain ISO 14001 certification for PBR's manufacturing

facilities at East Bentleigh where PBR manufacture world-class brake systems for Australian automotive manufacturers and for export markets.

A comprehensive, integrated Environmental Management Program (EMS) was implemented over an 18-month period. Building on PBR's existing commitment to environmental management, energy conservation and health and safety, the team identified opportunities for improvement to existing programs and potential environmental risks. Based on the findings, appropriate processes were then designed and implemented.

The Environmental Management Program developed by the team was audited by DNV Certification. PBR achieved the standard in October and the certificate was officially presented to PBR in November 2001.

For some time PBR has also promoted the benefits of ISO 14001 to PBR's key suppliers encouraging them to seek their own certification. To this end PBR now have 17% of these suppliers accredited to ISO 14001 with the balance working towards accreditation in the foreseeable future.

Having achieved this standard PBR are now looking at opportunities for further improvement.

Chapter 7 – A Policy Framework for Business Growth

The automotive industry is not only one of the most sophisticated and competitive manufacturing industries in the world, it is an industry that drives considerable sophistication, efficiency and economic activity in the communities in which it operates. This is a fact that governments around the world recognise in their policies towards the industry. Despite the fact that these policies create a playing field that is far from level, it is an industry where the ability to compete globally in terms of technology, cost, quality and delivery is an essential prerequisite of success. Australia must adopt competitive policy settings that support Australian component manufacturers finding their place in this sophisticated, technology-driving, global industry, and ensure that these settings match those in force amongst PBR's current and emerging trading partners.

7.1 A Critical, Growing Australian Industry

Both the Australian Automotive Components industry and the Automotive Industry more broadly make a significant contribution to the Australian economy. The industry produces around 360,000 vehicles annually from a wide range of locally sourced components supplemented by imported components. It accounts for around 6% of total Australian manufacturing value added and around 1% of Australia's total GDP. It employs more than 50,000 people directly and about the same number in indirect support activities. In 2001, exports of automotive products were valued at over \$4.9 billion up 17% on calendar 2000.

The Australian automotive industry is a major consumer of output from other local industries including iron and steel; glass; plastics, paints and chemicals; services; and increasingly research. It is a vital industry for South Australia representing about one-quarter of that State's manufacturing turnover, around 17% of the State's total exports and 2.3% of the State's GDP.

Not only is the industry's economic contribution significant, it is growing even in the face of declining total market share in Australia. This has been achieved through exports that have grown from around 22,260 vehicles in 1994 to well over 100,000 vehicles in 2000.

The Australian automotive industry is one of the key drivers of the manufacturing sector – in investment, skilled jobs, engineering, technology, innovation and R&D. It is a large consumer of inputs from the scientific and technical research sector of the economy purchasing over \$200 million of such services annually.

But it is an industry dominated by the structure of the four assemblers. This means that any downsizing of the industry through reductions in support from Government would not be evenly spread between plants. Closure of any of the existing plants would have disastrous consequences for component suppliers because of the loss of critical mass.

7.2 A Benchmark Industry that drives others

PBR believe that the highly competitive nature of the automotive industry drives it's participant businesses to achieve quality, productivity, safety and environmental standards that often represent national best practice and are constantly improving. By way of example PBR have seen PBR's key cost, quality, delivery and safety measures improve significantly over the past 10 years.

The tough standards that the car companies impose and the exposure to global competition has made innovation and efficiency in all of PBR's products and processes essential to success and ongoing viability. Such high standards also mean that PBR must not only focus on PBR's own processes and activities but also on those of PBR's suppliers and service providers. The collaboration and development activities PBR have undertaken here and the innovative responses from PBR's supply base have driven products, service standards and capabilities, that would otherwise not have existed.

PBR have seen first hand how many of PBR's suppliers have not only achieved increased quality and productivity across their entire business as a result of automotive-driven initiatives but also how a number have achieved substantial local, export and international sales growth directly as a result of their involvement with PBR. Sophisticated economic models may attempt to illustrate

this “multiplier” impact, PBR have seen it in practice and can vouch for the real tangible outcomes.

7.3 A changing Global Automotive Industry

PBR believe that the global automotive industry is one of the world’s most challenging. It is characterised by cyclical, high capital investment requirements, consolidation and structural change. It is an industry where the benefits of the high productivity targets flow directly to the consumer in the form of more affordable, safer and technologically advanced vehicles.

PBR expects that these structural changes impacting on the assembly sector will re-define the traditional relationship between OEMs and their suppliers. There will be, among other things:

- fewer, larger component manufacturers;
- a greater transfer of responsibility for product development from OEMs to component manufacturers. This will require higher levels of R&D spending to develop technologically driven, innovative products with global market potential;
- more strategic alliances between major component suppliers with complementary technologies or products in order to meet the requirements of the OEMs for design and delivery of more complete systems, modules and sub-assemblies;
- being able to manufacture those products, either domestically or offshore, in greater volume at the highest levels of manufacturing quality and competitive cost;
- greater pressure on component suppliers to secure global supply mandates; and
- less reliance on domestic vehicle assembly as the main market and looking beyond the size and model type limitations of this market to global supply opportunities (for example Sports Utility Vehicles and Pick-up Trucks). This may well mean more Australian component suppliers diversifying the location of their manufacturing to be close to the source of assembly and other complementary component suppliers.

7.4 Finding our place in this Global Industry

One could easily review some of these trends and conclude that the outlook for Australia's small, somewhat isolated, component sector is grim. PBR believe that this is far from the case if the appropriate strategies are pursued. PBR believe that the Australian component sector, not only has a place in the global automotive industry of the future but has in fact started to etch out that place. PBR see the future very differently from the traditional view that Australian component manufacturers' place was as experts in short production runs and low volumes. PBR see three types of Australian component manufacturer existing in the future:

1. Australian owned global component manufacturers

These businesses will be characterised by:

- products and technology in their selected niches that is leading edge and globally competitive
- more than a third of their local production volumes being exported to international markets
- a number of overseas plants that they own, control or licence their technology to
- their technology in enough vehicles globally to ensure that they have the critical mass to continue to prosper in their selected segment

2. Local operations of Multinational component companies with a clear global mandate

These businesses will be characterised by:

- a mandate from their parent organisations to drive the global production and development of a selected range of high value components
- more than a third of their local production volumes exported to international markets
- a number of overseas plants that they control, support or licence their technology to

3. Operations (Australian or Multinational) producing solely for the local market

These businesses will be characterised by:

- short production runs, highly efficient at low volumes

- more than 90% of their production supplying the local market
- limited product development activity conducted locally (often license product technology in from Overseas)
- survival locally relies on local car makers attempting to avoid tariff, freight cost or supply security issues associated with importing the same components

Of these three types of component manufacturer PBR see the first two as defining our place in the global automotive industry of the future. PBR believes that, if Australia wants a long-term, sustainable, Automotive component industry, then it needs to encourage local operations to adopt business models that secure them a valuable and viable place in the strategies of both global vehicle manufacturers and global Tier 1 and 2 component and systems manufacturers.

This fresh picture of where Australian component manufacturers sit in the world should receive the Commission's, and the government's attention when reviewing industry policy settings. This picture is, of course, dependent upon state and Federal Governments creating policy settings that are commensurate with those of Australia's trading partners.

These comparable settings must go beyond the tariff rate and level of industry assistance. They also incorporate issues associated with trade access, on-going microeconomic reform and environmental and safety policies.

As an example, opening new export markets for Australian component producers will assist them in attaining global volume levels, and could be as valuable as other types of government assistance. It is critical however, that any reduction in tariff levels or industry assistance does not occur before the improved market access is locked in. Recent history has suggested that commitments to reductions in tariff levels amongst other countries have continually gone unmet.

7.5 Global competition for Auto Investment

Any policy that proposes a major reduction or elimination of incentives for the automotive industry will necessarily change Australia's position in the global competition for automotive investment. The State, Federal and local governments of almost every country in the world recognise (by their actions if not by their words) that the presence of a viable automotive industry is a vital part of their economy's future growth and development.

The market to secure investment funds in the globalised automotive industry is highly competitive not only between countries, but also between regions within countries and between groups of countries covered by Regional or Free Trade Agreements (such as in the EU).

It is a market characterised by a host of investment attraction incentives, import tariffs and non-tariff assistance (especially for less developed countries) and other forms of assistance.

However, accurately assessing the true extent of such assistance is difficult because of the lack of transparency of direct grants to individual companies protected under commercial confidentiality provisions. In their February 2002 report, the Allen Consulting Group and Deloitte Touche Tohmatsu examined assistance measures in a selected eleven² countries (both developed and developing) which compete with Australia for automotive investment. That report concluded that:

- developed nations have moved away from tariff protection and more towards providing investment attraction incentives and assistance to build innovation capability (such as R&D incentives and subsidised training), although Japan is the exception to this rule; and
- developing countries tend to have higher barriers to trade than developed countries but also provide significant incentives to attract foreign investment.

A range of other assistance measures are used overseas to attract automotive investment, to encourage R&D, and to promote education and training. These include cash grants, tax holidays, interest free loans, investment credits that can be used to offset import duties and/or taxes, production subsidies and incentives to support automotive activities in defined regional areas.

² Germany, Japan, USA, Canada, Sweden, UK, Republic of Korea, Malaysia, Thailand, Poland, South Africa.

Particular jurisdictions within developed countries, especially the US, the UK and Germany, provide generous investment incentives to attract and retain major investments in automotive industry production and R&D facilities. Tax holidays are sometimes offered to attract investment from global automotive companies.

Three countries - Malaysia, Thailand and the US - illustrate varying approaches to industry development assistance for capital investment, R&D, and skills development and training.

Malaysia has a 'national champion' model which excludes overseas automotive products and encourages direct capital investment. Investment incentives include payment of tax on only 30% of income for five years, an investment tax allowance of 60% for five years on new capital expenditure, an accelerated capital allowance of 40% in the first year and 20% in years two and three and a reinvestment allowance of 60% of capital expenditure for firms which have been operating in Malaysia for a minimum period of 12 months.

One reasonably unique aspect when comparing global support programs is that most nations do not require that their industry be the subject of an intensive review process every 5 years. This has provided a high degree of support for corporate investment decisions.

Automotive Tariff Rates in Australia's Region

Automotive Tariff Rates			
Country	Cars	Trucks	CKD/Parts
Australia	5% - 15%	5% - 15%	5% - 15%
Canada ¹	6.1%	6.1%	0%
Chile ²	10%	10%	10%
China (PRC) ³	80%-100%	30% - 50%	35% - 60%/20% - 50%
Philippines ⁴	30%	3% - 30%	3% - 10%
Peru	12%	12%	12%
Hong Kong	0%	0%	0%
Indonesia ⁵	65% - 80%	5% - 45%	0% - 50%
Japan	0%	0%	0%
Korea	8%	10%	8%
Malaysia ⁶	35% - 300%	30%	0% - 120%
Mexico ⁷	20% - 30%	23%	13% - 23%
New Zealand	0%	0%	10% - 17.5%
Russia	30%	10% - 20%	5% - 25%
Singapore	0%	0%	0%
Taiwan ⁸	30%	30% - 37%	15%
Thailand ⁹	80%	40% - 60%	10% - 20%
United States of America ¹⁰	2.5%	4% - 25%	2% - 4.4%
Vietnam ¹¹	100% - 200%	60%	30% - 60%

Source: United States Automotive Trade Policy Council, 2001, as modified by DFAT in respect of China and Taiwan Accession to the WTO

Notes:

¹ 0% for USA, Mexico and Chile.

² 0% for Argentina, Brazil, Canada, Mexico.

³ Acceded to the WTO December 2001. By Mid 2006 tariffs phased to: Cars 25%; Trucks 20% - 30%; Parts 10%.

⁴ Vehicle tariffs not bound in WTO. Commitment to reduce tariffs for AFTA countries to between 0% and 5% by 2002.

⁵ Vehicle tariffs not bound in WTO. Commitment to reduce tariffs for AFTA countries to between 0% and 5% by 2002.

⁶ Vehicle tariffs not bound in WTO. Commitment to reduce tariffs for AFTA countries to between 0% and 5% by 2002 (Cars by 2005).

⁷ 0% for Canada and United States by January 2004. 0% for EU, Colombia, Venezuela by 2007. 0% for Chile.

⁸ Acceded to the WTO December 2001. By 2010 tariffs will be phased to 17.5% (vehicles) and 9% (parts).

⁹ Commitment to reduce tariffs for AFTA countries to between 0% and 5% by 2002.

¹⁰ 0% for Mexico and Canada.

¹¹ Commitment to reduce tariffs for AFTA countries to between 0% and 5% by 2006. Not a WTO member.

In Thailand, the automotive industry is a 'targeted industry'. Companies investing in the industry receive an eight-year corporate tax exemption and exemptions from import duty on machinery. If the investment is in a designated investment promotions zone, further incentives, such as three- to eight-year extensions on corporate tax exemptions and a five-year exemption on duty payable for the import of manufacturing inputs, are available.

R&D support varies between countries. The US Federal Government offers a tax credit of 20% on R&D expenditure over historical levels and for any payments to research organisations, while a number of US states provide R&D assistance in individual company support packages. Both Malaysia and Thailand have a 200% tax concession on eligible R&D expenditure, while the Malaysian Government will also provide funding to majority-owned Malaysian companies of between 50% and 70% of eligible R&D expenditure.

Education and training measures in the US vary from state to state, with incentives ranging from education and training grants, courses and program development, and tax credits. In Malaysia, companies can claim 95% of eligible training activities and there is a 200% tax refund on a range of eligible training expenditure. In Thailand, there are no formal programs but assistance is offered on a case-by-case basis.

Countries around the world provide these sorts of incentives to attract automotive investment because of the sheer size and economic pervasiveness of such investment. Australia is competing with at least 20 other countries to secure automotive investment. Most of these countries offer similar infrastructure and institutional systems to Australia. Without the kinds of fiscal incentives offered by the ACIS scheme, Australia would not be on the map in terms of potential locations for new automotive investment.

PBR have experience in establishing plants in both Tennessee and South Carolina in the USA and also in Malaysia and Thailand. This experience tells us that considerable incentives are on offer to support, not only the initial establishment of production facilities in these jurisdictions, but also their ongoing expansion and development.

PBR believe that there is a baseline level of support provided to this industry in almost every relevant jurisdiction. The only notable exceptions are those jurisdictions where local market demand is so large and / or comparative advantage factors are so favourable that support is not needed. Should Australian legislators unilaterally contemplate providing a level of support below that baseline, this would jeopardise the significant ground made by the industry over recent years, and effectively stifle a sector that is emerging as a global player in its own right.

The costs of this course of action in terms of:

- Deterioration in Australia's trade balance;
- Loss of skilled employment; and
- Loss of wealth-generating opportunities

would be catastrophic.

7.6 The Policy Settings needed

Some of these changes will be matters of commercial strategy for component manufacturers to work through either with the OEMs or with their shareholders. But there are some broader issues in these trends that PBR believes requires a positive policy approach by the Government. These include:

- **Continued R&D support for component suppliers is required at the level provided by ACIS to sustain Australia's innovative capability.** This is extremely important at a time when automotive technology is set to change substantially and when responsibility for more R&D is being passed back up the supply chain by the assemblers. If component suppliers do not have the capacity (technically, physically and financially) to grow their R&D effort, the Australian automotive industry will be relegated to the position of short-run, commodity suppliers. If assemblers cannot get access to world-class domestic component technology they will be forced to either import it or provide locally produced vehicles with less than world-class technology. Without establishing their domestic credentials as leading technology companies, Australian-based component companies have little chance of being linked into the global automotive business.

- **Continued support for capital investment to improve automotive component supply capability and efficiency is important to both the international competitiveness of vehicle assembly and to establishing global markets for component suppliers.**

World-class technology is of little value in the automotive industry without the support of a highly efficient, robust and well proven manufacturing capability. Investment in leading edge capital equipment and continuous improvement of manufacturing capability

are prerequisites if component companies expect to remain part of the OEM's global supply base.

- **Continued innovative trade and industry capability marketing along the lines of the aXcess Australia concept car.** Support for further R&D and capital are supply-side measures. Complementary attention needs to be given also to demand-side measures. To achieve world-best practice in these areas requires a larger, more diverse market than that offered by the local market. The Australian Government is working within the WTO forums and in bilateral negotiations to reduce the barriers against Australian exports, particularly to emerging markets. While that is welcome, PBR believes the best long term growth opportunities for Australia exist in building on our comparative advantage in automotive technology. Demand for innovative automotive components in emerging markets, at least in the foreseeable future, is unlikely to be strong for such products. Rather PBR see the best prospects for Australia in supplying the more technologically advanced markets of North America and Europe, despite the fact that these markets are expected to show much lower overall growth. Government agencies such as Austrade and DFAT have largely been responsible for developing automotive trade strategies and events. PBR believes that there may be better returns from such expenditure by devolving more direct responsibility and funding to the industry associations for running such programs.

In PBR's view, these are, by far, the three most important Government policy measures for business growth in the Australian automotive components industry.