Submission to the Productivity Commission Review of National Competition Policy Arrangements

Engineers Australia

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1. Introduction

Engineers Australia is the peak body for engineering practitioners in Australia and represents all disciplines and branches of engineering, including information technology. Engineers Australia has over 76,000 members Australia wide and is the largest and most diverse engineering association in Australia. All members of Engineers Australia are bound by a common commitment to promote engineering and facilitate its practice for the common good. Engineers Australia welcomes the invitation by the Productivity Commission to comment on the review of National Competition Policy (NCP) arrangements.

Engineers Australia supports the introduction of activities which seek to bring efficiency and productivity gains to Australian industry and government services. To be of real value, such gains must be sustainable in the longer term.

In their submission to the Hilmer inquiry, Engineers Australia and Professions Australia endorsed the principle of competition on the basis of merit for the provision of any specific service and supported the removal of unnecessary barriers to competition. The key recommendation was that barriers should not be removed if they can be shown to be in the public interest.

The NCP process was designed to be a flexible one. The obligation on governments was that they review legislation that restricts competition and remove those restrictions that cannot be properly justified. Governments were not obliged to remove restrictions that benefit the public, but they needed to objectively and independently establish that the benefits are real and cannot be achieved by less anti competitive approaches to legislation.

Despite the NCP reform process there are still areas where there is scope for NCP to deliver some further efficiency gains. Services, including professional services, account for an increasing proportion of economic activity in most mature economies. It is important that any future NCP arrangements reflect the fact that Australian business, including professional services, are operating in a global market. The ability of professional services to make a positive contribution to national economic and social outcomes will also be enhanced if the domestic market supports the development of new capabilities and fosters innovation and entrepreneurship.

It is therefore important that the review of NCP arrangements consider where the program has been more and less successful before further competition related reforms are undertaken. This review could then form the basis of any future reform agenda.

2. NCP and the Professions

A more competitive environment has encouraged many professions to recognise the need to allocate greater resources into maintaining and marketing their “brand”. Engineers Australia and a number of other professional associations have or are establishing registration systems to underpin their professional “brand” based on competency standards and ethical conduct. This allows the additional benefits and protection offered by registration to be marketed to the consumer.

A great difficulty with the provision of services is that members of the community are generally not in a position to assess the quality of the service, or for that matter, the qualifications of the provider. Professional services are often extremely complex and the assessments are often made according to the providers manner, presentation, advertising claims and prices without an awareness of their knowledge, skill and judgement.

Poor understanding of engineering services by some segments of the market is related to consumer education and information. Consumers become informed and able to transact successfully in a particular market place when they deal regularly with service providers in the market. There are few regular consumers of engineering services, as such, most consumers have difficulty in evaluating the competing claims of professional engineers and those of unqualified providers claiming to provide engineering services.

Engineers Australia has invested heavily in developing its brand to ensure it represents the highest in professional standards and quality assurance to government industry, consumers and the profession. The *Chartered Professional Engineer (CPEng), Chartered Engineering Technologist (CEngT) and Chartered Engineering Officer (CengO)* titles are exclusive to Engineers Australia. They stand for the highest standards of professionalism, up-to-date expertise, quality and safety, and for capacity to undertake independent practice and to exercise leadership within the engineering team. As well as competence, they denote commitment to keep pace with advancing knowledge and with the increasing expectations and requirements for which any profession must take public responsibility.

To a lesser extent brading has also occurred with the National Professional Engineers Register (NPER) and the National Engineering Technologists Register (NETR), which were developed to provide an objective national registration system to define standards for currency of practice. NPER and NETR are simple, consistent national databases which identify those persons whose academic qualifications, cumulative and current experience and competencies, and commitment to ethical conduct and continuing professional development are of the standard considered appropriate by the profession for independent professional practice (in a range of specific areas).

Continuous investment is essential to maintain brand equity in a market contested by a number of domestic and international competitors. Much of this investment is directed towards public education through our Raising Our Professional Standing (ROPS) campaign. The absence of legislated registration or licensing requirements for engineering means that Engineers Australia must work hard to educate the public on the advantages of seeking engineering services from *Chartered Professional Engineers, Technologists* and *Officers*.

Brand marketing gives consumers assurance of the level of qualifications held by the service provider and disciplinary processes in the event of dissatisfaction with the service. Problems develop however, when the public is unaware that a professional service is unregulated and that they need to be aware that some providers that call themselves “engineers” may not be formally qualified to offer engineering services.

While NCP has created a more competitive economic environment for the provision of services, it has done little to ensure that the services being provided are delivered by professionals who are formally qualified to carried out the work required. The failure of the NCP legislation review system to consider seriously the regulation of the engineering profession is discussed below.

3. Structural Reform and Public Monopolies

Governments have been tasked under NCP to take into account a number of factors when assessing the potential outcomes of any reform. Environmental and social welfare are considered along with efficiency and economic considerations.

There has been concern, particularly in rural and regional areas, that activities which are not commercially viable, but have other important societal benefits and are therefore expected to be undertaken on behalf of the community, may be undermined by the application of NCP, particularly when it is combined with the sale of government owned monopolies. Organisations that provide services with a community service obligation, for example electricity, water and telephone services, generally funded these services by cross-subsidisation from profitable parts of the organisations business. There was concern that some unprofitable services with a community service obligation would be undermined if they could no longer be supported through cross subsidisation.

The aim of competitive neutrality is to ensure Australia's resources are used efficiently by removing any net competitive advantage that public businesses accrue from their government ownership. The application of competitive neutrality principles allows resources to flow to efficient government and private businesses as a result of merit rather than any artificial advantage from public ownership. The Competition Principles Agreement (CPA) sets down governments competitive neutrality obligations, requiring governments "where appropriate", to corporatise large government enterprises and impose full Commonwealth, State and Territory taxes, debt guarantee fees and regulations equivalent to those faced by private sector businesses.

These reforms were designed to place government business activities on an equal footing to that of their actual or potential private competitors. Competitive neutrality establishes conditions for increased private sector participation in industries with flow on effects to consumers through increased competition.

While it may not have been the intention of the government to encourage the wholesale sell off of government agencies, there can be no doubt that focus on competition policy has created an environment where commercialisation, contracting out, privatisation and competition policy are seen as administrative options for a whole range of government activities.

The role and responsibilities of governments have changed, with governments choosing to either privatise or contract out functions which until recently were seen as wholly governments responsibility.

The issue is not so much whether certain sectors should be run by the private or public sectors, the issue is how important is this good or service to the functioning of a civilised society. The basic tenet of competition is that you have the choice whether or not to purchase particular items. The problem with areas such as health, electricity, education, water, is that they are not matters of choice, but rather they are inherent part of living within an advanced society.

In July 2000, South Australia joined the National Electricity Market (NEM) allowing South Australia's electricity companies to compete against a number of other electricity suppliers already part of the NEM to provide services to businesses and households. As part of this program the South Australian government also leased out the electricity network.

Unlike Victoria, where Government Traded Enterprises were sold off, South Australia's electricity assets were leased out to private owners for a period of 100 years. The leasing process involved companies bidding for leases to South Australia's three main power stations.

The bidding process, for the leases, faced criticism from the Auditor-General Ken Macpherson. In particular, Macpherson criticised the terms of the lease which related to the running down of the electricity network. It was assumed that there would be a reduction in capacity, and alternative power supplies would meet demand. However no details were given as to how the demand would be met with the government relying on the NEM to cover any shortfall.

Unlike other states, such as New South Wales and Queensland, who have an excess supply of electricity, South Australia has a tight market. Over summer the electricity network is placed under strain, with blackouts and power shortages occurring.

The question is whether the lease holders of the South Australia electricity market will ever be able to cope with future demand and compete successfully in the NEM. In theory, the NEM should be an open market place where different companies compete for customers. This should provide strong competition and low prices for consumers. In practice however, the price paid varies dramatically and South Australia is at a distinct disadvantage due to lack of supply.

While the application of NCP in the electricity sector led to the creation of NEM, which in turn led to South Australia being able to purchase electricity from Victoria to meet shortfalls, major problems still exist in the South Australian electricity market. These problems have developed through the application of NCP principles via the leasing of energy generators without sufficient planning by the State government to ensure that the private leaseholders would operate, invest and upgrade their generators to ensure current and emerging needs for energy are met. An under investment in South Australia’s energy sector continues today.

The provision of services within the public sector raises issues of access, honesty and fairness. A private sector organisation may choose not to offer its products or services in a remote area. Government, on the other hand, has obligations to the entire community. The community, for its part, has particular expectations of government in terms of the way its services are provided. There is also a presumption that certain

standards of behaviour will be met, particularly in matters such as how government tenders for goods and services from the private sector, and an expectation that the decisions of government agencies will be open to scrutiny.

The issue then becomes how to balance commercial outcomes with equitable outcomes. However, given the broad range of government activities being subjected to influence from commercial measurements, there are other outcomes besides those of equity which should also be taken into account.

These can include environmental, educational and technological outcomes. For example, in the past government departments have provided training opportunities for a vast range of technical skills. As government departments downsize, there is no guarantee (unless commercially viable) that the private sector will meet emerging needs.

3.1 Training

In 1998, Engineers Australia in conjunction with the then Department of Employment, Education, Training and Youth Affairs (DEETYA) completed a study into the impact of contracting out and downsizing on training opportunities for engineers. "Engineering Training Opportunities into the Future", found that as a result of downsizing, privatisation and contracting out the private sector would have to take major responsibility for training. Never before had the private sector had to take the major responsibility for training of the engineering workforce.

From research undertaken in the past and research undertaken as part of the 1998 study, it is clear that the private sector is having difficulties training to the extent the public sector once did. The public sector deliberately trained more than it needed in order to have the required numbers, knowing that there would be slippage to the private sector. This movement of training requirements from the public to private sector has resulted in a number of skills shortages emerging. Key examples are in the power and electrical engineering sectors where acute shortages are being felt, but limited opportunities for training exist as a result of the privatisation of energy utilities.

A survey undertaken as part of the study of consulting firms found that the main barrier to training was (not surprisingly) the costs and the time taken off the job by the trainees. It is also well established in training economics literature that training rated vary positively with the number of employees within an enterprise. A 1997 report of the Small Business Research Program within the then Department of Industry, Science and Tourism found that the larger the firm, the more it spent on training. Only 1 in 10 micro firms ie. those employing less than 5 people, undertake training. In contrast about 80% of enterprises employing more than 100 persons undertake some formal training of employees.

Smaller, medium sized industries may find it harder to provide training. They work on very tight margins, often in situations of rapid development. The training that SMEs undertake will more often than not be limited to what is needed to assist in achieving commercial and short-term outcomes.

Contracting out is having a major impact on training. In some sectors such as mining and roads the percentage of work being undertaken by contract is significant. Companies working under contract have to be ready to operate from day one of the contract. Contractors do not see training as part of their role, which means that with an increasing amount of work being done under contract, there are less opportunities for graduates.

There is still a need to understand more clearly the linkages between investment in training and economic growth. It is vital that Australia, as a major player in the global technology market, guard against undervaluing our substantial intellectual resources. Australia is a small economy and governments in this country and other countries of similar size have always recognised the need to ensure that market failures are not allowed to obscure the fundamental benefits of allowing the free market to operate wherever it is reasonable.

While it is true that individuals and the professions themselves will have to take an increasing responsibility for their own development and for the development of the profession in the future, it is also true that there are opportunities for governments to support the training of professionals.

Partnerships between universities, industry, private training firms and the profession are still needed to take over from the large government utilities and instrumentalities to provide training opportunities into the future.

While NCP has been a driver in the shift in public sector employment and training, very little support has been given by governments to ensure that appropriate training is provided to fill the gaps left by government employers. Engineers Australia believes that it would be appropriate for governments to return some of the funding obtained through competition payments to training initiatives.

3.2 Government as an Informed Buyer

Another issue related to the implementation of NCP is that the outsourcing now common in many government departments at a Federal, State and local level is exacerbating a situation where government departments now no longer have the expertise to make good or informed decisions when awarding government contracts.

Over the last decade, State, Territory and local government public sectors have been reduced in size. This has resulted in a corresponding decrease in the number of specialists within the public sector, including engineers. The loss of technical expertise in Australian governments increases the risk that contracts for engineering, information technology and other technical goods and services will not achieve government or taxpayer expectations. Consequently, governments need to adopt new approaches to ensure that they have access to the technical expertise they need to be an informed buyer of technology.

Having and utilising technical expertise is a pre-condition for being an informed buyer of engineering, information technology and other technical goods and services.

It is crucial that buyers are well informed so that they are able to select and justify the option which offers best value for money; select and justify an innovative solution; reduce contractor risks by providing relevant technical details in tender documents; and prevent unscrupulous contractors taking advantage of the buyer's lack of knowledge.

The publication "Government as an Informed Buyer" by Engineers Australia outlines these concerns. The publication focuses on improving government contracting. The report's recommendations are equally applicable to both the public and private sectors. They also apply to other professional groups, which provide subject matter expertise including health practitioners, lawyers, accountants, economists, scientists, information technology professionals, and urban planners.

In a relatively small economy, the importance of government purchasing policies in fostering competition and innovation in the development and delivery of products and services cannot be over-emphasised. Quite apart from the benefits that flow from having an expert, domestically based customer as a leading-edge client, the imprimatur of government thus conferred can be a vital element in securing export orders. The primary objective of government purchasing policies should be to provide early and constructive support to initiatives that address demonstrated market needs, are soundly based in technical and economic terms, and can reasonably be expected to become and remain internationally competitive.

Partnerships between the public and private sectors are vital in achieving effective markets in technology services. Government can lead the way through their purchasing processes that reward value and innovation.

All too often, the cheapest price can have the highest long term cost. Service lifetime, maintenance requirements (including availability of spare parts and expertise), and upgradability need to be seen as important considerations. Government and industry purchasers need to focus on value for money. In some situations, because of downsizing and de-engineering of government departments, the use of inadequate expertise in the assessment of a tender can result in an increased risk to public health and safety.

While NCP has created many opportunities for small business and providers of professional services, the loss of technical expertise in the public sector is of concern. Government agencies need to address this loss of technical expertise. Some initiatives could include:

- Examine the good or service to be procured to determine the level of technical expertise required to be an informed buyer.
- Evaluate the relevant existing level of in-house and external technical expertise available.
- Undertake a cost benefit analysis of in-house versus contracted-in expertise at each stage of the contracting process.
- Obtain and, where appropriate, retain the required expertise.
- Ensure that purchasing decisions are supported by relevant expertise, whether available in-house or from independent consultants.

- Base government purchasing on qualifications based selection (rather than the initial purchase price being the sole factor), where appropriate.
- Take into account whole of life costing issues in purchasing decisions.
- Only use Chartered Professional Engineers and technologists or engineers registered on the National Engineering Registers when procuring engineering services.
- Ensure that risk is allocated efficiently, that is to the party best able to manage the risk.

4. Legislation Review and Public Interest Test

4.1 Legislation Review

The recommendations of the Hilmer Report were made on the basis that there was a need to improve competitiveness and efficiency in all sectors of the Australian economy, including the professional services market. Underlying the Hilmer Report is an assumption that competition is essential for economic growth, employment and higher living standards. The Report also recognised that Australia must respond to the globalisation of markets, and the increasingly competitive international economy, by decreasing domestic barriers to competition.

Differing regulatory regimes for professional practice were recognised as creating barriers to competition, as well as reducing national productivity. A key recommendation, implemented through the Competition Law Reform Act, the Competition Code, and the Competition Principles Agreement (CPA), was that all State, Territory and Commonwealth governments commit themselves to review all legislation which may be "anti-competitive" in nature. The agreed terms for the legislation reviews are set out in clause 5 of the CPA:

- the guiding principle is that legislation (including Acts, enactments, ordinances or regulations) should not restrict competition unless it can be demonstrated that:

- the benefits of the restriction to the community as a whole outweigh the costs; and

- the objectives of the legislation can only be achieved by restricting competition.

The legislative review process requires those responsible for the reviews (and there are different reviewers for each piece of legislation) to make a judgement on the balance between the economic and other benefits of securing the public interest by maintaining social, environmental, or safety standards, and those that might be expected to flow from introducing a more competitive environment.

Factoring qualitative criteria into cost benefit analysis of professional services in a manner which generates objective estimates of both input and output costs is vital.

Guidelines provided by government departments to officers undertaking reviews have included simplistic cost benefit calculations based on an assumption that an increase in the numbers of persons delivering professional services in the market, achieved by accepting a reduction in the level of qualifications and experience required of such practitioners, would decrease the cost of professional services.

No corresponding effort appears to have been made to estimate the cost impact, for individual clients or the community, of any increase in the proportion of incomplete or incompetent work. Additional factors, including maintenance of service quality to ensure protection of public health and safety, and the likely impact on trade and commerce, both nationally and internationally, should also be addressed (but very rarely are) in any credible cost benefit analysis.

The legislative reviews have placed considerable emphasis on the short-term economic benefits that might follow deregulation of the markets for professional services. A fundamental requirement for the operation of a partially or completely deregulated market is that consumers can make informed decisions on the merits of those purporting to deliver professional services. In the absence of informed consumers, deregulated markets do not work properly. Furthermore, the legislative review process requires those who are seen to have benefited from allegedly anti-competitive elements of certain Acts to argue for the retention of those elements. Much more effort needs to be made by governments at all levels to ensure that consumers are informed as to the merits of the arguments in order to participate in such debates in any meaningful manner.

A profession is characterised by the following attributes:

- a requirement for special knowledge and skills in a widely recognised body of learning, derived from research, education and training at a high level;

- a requirement that practitioners exercise their knowledge and skills in the interest of others;

- standards of competence and conduct that are established and enforced by an association or similar body which represents the profession as a whole and which operates under a charter or articles of association which define its gatekeeper role; and

- adherence by practitioners to a code of conduct which includes requirements that they place the health, safety and welfare of the wider community ahead of any loyalties to clients, colleagues or the profession, and that they practice only within their area of competence.

These attributes are fundamentally designed to offer some protection to the public, as professional services by definition involve areas where the practitioners have information which is not readily available to the general consumer. The information accessible to consumers may be incomplete, potentially misleading, insufficient to enable a reasonable choice to be made, or may simply be costly and/or difficult to acquire. Asymmetry of knowledge thus becomes an important factor in the dealings

between practitioners and their clients, making it difficult for consumers to choose between alternative service providers.

At the outset of the legislative review process, there was an expectation that, where mutual recognition considerations were a factor, States and Territories would undertake national reviews. This has only occurred in a small number of cases eg. architects. National reviews should have been undertaken of Acts which have mutual recognition implications, or alternatively, if State and Territory based reviews results in changes, there should be an over-riding requirement that any proposed changes not disrupt the existing mutual recognition agreements.

International agreements for reciprocal recognition of professional competency will also be under threat if mutual recognition schemes within Australia are dismantled. Central to the export of many professional services is the fact that registration of practitioners in their home country provides a secure point of reference as to their ability to practice the profession in another country.

4.2 Public Interest Test

Considerations of the public interest lies at the heart of good regulation. It is with this outcome in mind that much of the regulations restricting competition have developed. In response to the public interest aspects of good regulation, NCP has allowed anti-competitive regulation to be subject to robust and transparent analysis. If found to be in the public interest, regulations have been allowed to continue. This ensures that restrictions on competition serve the wider community, rather than advance the interests of those able to exert undue influence on decision makers.

Ultimately, the guiding principle of NCP is that governments need to reform legislation if anti-competitive restrictions cannot be justified. Governments must remove restrictions on competition unless a net community benefit is demonstrated that the restrictions are warranted.

Australia is the only country in the world that has undertaken such a massive review of legislation on the basis on competition. Other countries have deregulated and privatised, but a process of subjecting individual pieces of legislation to competition scrutiny, and assessing it systematically against public interest criteria has not been attempted elsewhere.

The legislation review and reform program tasks governments to review around 1800 pieces of legislation from 1996 to 2003. The review represented a comprehensive reform effort over a relatively short time span.

Overall outcomes: review and reform of legislation

	Priority Legislation	Non priority Legislation	**Total Legislation**	% of priority complying	% of non priority complying	**% of total legislation complying**
COMM	57	68	**125**	33	66	**51**
NSW	118	98	**216**	69	79	**73**
VIC	91	119	**210**	78	83	**81**
QLD	118	60	**178**	61	92	**71**
WA	117	157	**274**	31	54	**44**
SA	75	96	**171**	37	82	**63**
TAS	100	138	**238**	77	90	**84**
ACT	78	178	**256**	59	97	**85**
NT	57	40	**97**	47	83	**62**
Total	**811**	**954**	**1765**	**56**	**81**	**69**

Source: NCC, 2003 NCP Assessment Page 4.14. Excludes regulation related to electricity, gas and road transport. Data derived from the NCC legislation review database.

This table not only highlights the differences in the relative performance of jurisdictions in the undertaking of their legislation reviews, but also outlines the magnitude of the original undertaking. It is concerning however, that so much remains to be done, particularly when the NCC has identified that a new body of regulation is emerging that is contrary to NCP.

The Competition Principles Agreement clause 5(5) obliges governments to show that proposed new legislation that restricts competition provides a net benefit to the community and that the restriction is necessary to achieve the objectives of the legislation. This obligation has existed since the signing of the NCP agreement in 1995.

While all jurisdictions have gate-keeping mechanisms in place to vet the compliance of new legislation to NCP principles, the National Competition Council found in its 2003 NCP assessment, that governments have implemented legislation that restricts competition even where it had not been demonstrated that the legislation provides a net benefits to the community. This is an indicator that while a gate keeping mechanism exists to support good regulatory outcomes, the mechanisms is proving to be insufficient.

Scrutiny of the operation of these mechanisms is the responsibility of all governments to ensure that only best practice regulation is enacted. The gate keeping systems need to be enhanced and supported further by governments and those deficiencies highlighted by the NCC need to be addressed.

The Productivity Commission will need to look carefully to identify if actual gains have been made through the legislation reviews, particularly as much legislation remains to be assessed and new legislation which does not comply to NCP principles is being enacted.

4.3 National Legislation Reviews

NCP provides for the possibility that different governments might evaluate similar issues differently and thus reach different conclusions on an appropriate approach. Given that Australia is basically one national market it is important that uniform or consistent regulation exists across jurisdictions. This is important as consistency in regulation across jurisdictions is likely to benefit the community through the removal of divergent regulatory imposts on businesses and service providers, which would ultimately, flow on as reduced prices to consumers.

NCP was to facilitate legislative consistency through the operation of national reviews. Twelve national reviews were originally identified and while nine have been completed, the relevant governments still need to undertake the necessary action in many cases.

Engineers Australia is of the view that the State based legislative review process may have led to some loss of consistency between States in legislation governing individual professions, in particular engineering. It seems that different interpretations of NCP objectives and application of the public interest test has resulted in different outcomes from State based review processes.

While the NCC has encouraged jurisdictions to coordinate review processes impacting on the professions, this has only occurred on two occasions, for architects and pharmacists.

The infrequent use of national reviews has also resulted in a duplication of resources, not only for the multiple government agencies undertaking the reviews, but for professional associations (and others) who needed to respond to multiple review processes.

The engineering profession, like many other professions, was looking for the NCP reform process to address deficiencies in legislation regulating the professions. Ultimately, it was hoped that the reform process would lead to a national registration system or the mutual recognition of legislative requirements between States.

The legislative review process under NCP required the engineering profession, and professions generally to question barriers to entry, barriers to practice, licensing restrictions and ownership of practice. This debate demanded that an understanding of what constitutes a profession and what constitutes the public interest needed to be established. Engineers Australia believes this has not fully occurred.

Engineers Australia has been advocating for some time for the terms “registered professional engineer”, “professional engineer” and “engineer” to be legally protected and defined through legislation. The significance of this is that anyone can currently call themselves an engineer without any qualifications or experience. This situation puts the public at risk.

There is purpose to a registration system in that it guarantees the public that they are employing an individual or company who holds themselves to have engineering expertise. Permitting others to call themselves engineers and to hold that they have

expertise without the associated education and training simply exposes the public to unexpected and unwanted risks. The central purpose of a registration system is to provide protection for the consumer and the public, they are not designed to provide protection to the engineer. This is why Engineers Australia supports the co-regulation of engineers in Australia, particularly in areas related to public health and safety.

Engineers Australia has supported removing constraints that inhibit competition, but is also concerned that the community continues to be provided with the protection it is entitled to expect, from unqualified and inadequately experienced practitioners.

Restricting areas of practice to persons holding particular qualifications is one means to provide protection to the community. In the case of engineers, this is achieved in many different ways and in many specialised areas by the various State and Territory governments.

It is unfortunate that the legislative reviews related to engineering were undertaken on a State and Territory basis and were not looked at on a national level. While Queensland has retained and strengthened its Professional Engineers Act after the NCP legislative review, engineering continues to be poorly regulated throughout the rest of Australia.

There would be benefits to both consumers and professionals from pursuing opportunities for national registration arrangements for the engineering profession. There are a number of benefits, in putting national registration firmly on the agenda in any future reform process including:

- Pursuing consistency of State legislation as an important objective towards the adoption of best practice principles, consistent with NCP.
- Providing freedom for professionals to practice interstate if registered anywhere in Australia;
- Single registration fee, irrespective of State or Territory;
- Administrative efficiencies particularly if an outcome was a single registration authority;
- Full cost recovery may be a viable option as a result of administrative efficiencies.
- The health and safety of the community would be protected from unqualified persons offering professional services.

It would seem that if NCP was to operate effectively for the engineering profession, moves would have been taken to support the consolidation of engineering regulation into a mutually compatible system between all States and Territories in Australia.

4.4 Current Australian Regulatory Environment for Engineers

For the public, the risk of inadequate engineering depends on their exposure to engineering services. Every person's lifestyle is dependent on engineering via transport, communications, manufacturing and utilities. Therefore, every person has some risk exposure to engineering services.

There are many regulatory and quasi-regulatory regimes maintained by local, State and Territory governments that come into existence because of the absence of a comprehensive regulatory system for engineers. Each State and Territory has different notions of what constitutes an effective regulatory regime. Some jurisdictions have implemented registration through a statutory board, while others have introduced co-regulatory regimes with professional associations and government taking on various roles in the registration process. Other jurisdictions have elected to have no regulatory regime, preferring to leave the profession to self-regulate. Various government agencies and departments keep their own lists of engineers for procurement, certification and employment purposes. These "registers" are usually based on highly subjective and often biased or ill-informed judgements as to who is competent to practice as an engineer.

Engineers Australia takes the view that self-regulation is appropriate as applied to the provision of some, but not all, engineering services. A joint approach by government and the profession, with appropriate legislative support (co-regulation), is required for those areas of engineering practice that represent a risk to public health and safety or where there is a significant asymmetry of knowledge between the engineer and the consumer.

Engineers Australia supports the following regulatory measures:

- Restrictions on who may deliver a service — legislation that reserves the provision of services to qualified and/or experienced persons. This clearly delineates the boundaries of what activities are to be confined to professional engineers, engineering technologists and engineering associates while allowing other activities to be performed by less qualified or skilled persons.

- Regulation as to professional conduct— provides for the adherence to codes of ethics and disciplinary measures to minimise the incidence of malpractice and unprofessional conduct, and to provide a visible assurance to clients that practitioners can be trusted to act in their interests.

- Regulation as to continuing professional development— provides for a practitioner to undertake continuing professional development as a requirement for continuing practice after initial registration or attainment of chartered status.

Australian governments should facilitate the introduction of a consistent registration system for the engineering profession in areas of highest risk to public health and safety and should adopt a co-regulatory approach to regulation of the engineering profession. It is disappointing that NCP and in particular the legislation review process did not work towards this goal.

4.5 Negative Impacts on International Trade in Services

At the outset of the legislation review process there was an expectation that where mutual recognition issues were concerned, State and Territories would undertake national reviews. This was seen as vital to ensure that domestic and international polices do not undermine the achievement of policy outcomes for either.

Legislation reviews, where they have occurred for the professions, have not taken into account the value of international trade in professional services to the Australian economy and the relationship between registration systems, mutual recognition agreements and the ability to practice overseas. Support of a national registration system for professional engineers would place Australian engineers at an advantage in the international market, where the proliferation of mutual recognition agreements is necessitated by compatible national registration systems.

In most countries, engineering is an "accredited" profession and as a result, engineers are required by law to be licensed before they provide professional services or use the title "professional engineer".

Many other accredited professions such as accountancy and legal services are also subject to accreditation or licensing requirements. These licensing requirements can often operate as significant barriers to trade in professional services. This is because in addition to having professional qualifications, licensing requirements contain other conditions such as completing practical training, passing examinations and meeting language, good character and reputation, citizenship or residency conditions.

While several OECD countries including the United Kingdom, Denmark, Australia, Switzerland and Finland have no, or very limited legal restrictions on the provision of engineering services, the US, Canada, Japan and Singapore operate restrictive licensing procedures. The removal of these hurdles will rely on increasing the international recognition of qualifications and practice competency and the negotiation of professional accreditation and reciprocity agreements. These developments are an important means for professional service providers to gain international market access.

As a result of globalisation, the economic performance of one economy is increasingly affected by the quality of the regulatory environment of its trading partners. Accordingly, it is becoming increasingly important that governments introduce, amend and operate their domestic regulation regimes with an understanding of its potential positive or negative effects on international trade. Overall, good regulatory practices, support the growth of effective and efficient regulatory outcomes and enhance the operation of domestic economies. This in turn supports the growth of international trade.

The extent to which recognition of qualifications is a problem is likely to vary by type of professional service supplier, by sector and by country. Given the different regulatory environments operating for professionals internationally, the most important issue for Australian professional service providers becomes the transparency of local regulations and licensing requirements operated by foreign governments. Instability and inconsistent application of regulation increases difficulties for firms operating in markets with which they are relatively unfamiliar. Many professionals have been discouraged from pursuing projects in countries where regulations are not clear or transparent.

Australia is a major exporter of engineering services. The pull-through effect into the Australian economy is also significant. There has been a failure of the legislative

review process to appreciate the role that registration plays in the successful export of engineering services into foreign markets.

5. Energy

For a national energy market to function efficiently and effectively, competition between different energy resources needs to occur. As a result of NCP, the Council of Australian Government's (COAG) National Energy Policy already recognises the need for competition between different energy sources. The National Electricity Market (NEM) is an attempt to establish a national framework for electricity market development. This is also being considered for natural gas energy markets in Australia.

An issue that must be addressed is the implementation of full nodal pricing for the management of energy supplies. This involves establishing a price at each node of distribution in the electricity market, allowing for more market based transmission pricing to occur. This would potentially create a balanced distribution of electricity through establishing a price mechanism to determine the location of a new electricity load, generation or transmission. This is particularly important in terms of security of supply for energy markets because it can help to determine where congestion is and how transmission infrastructure can be improved to manage it. Full nodal pricing can further avoid excessive use of market power by electricity distributors who are currently able to set an artificial price for distribution.

A competitive market can also assist with developing renewable energy resources. Incentives such as subsidies for development and usage of renewable energy need to be considered further. Consideration also needs to be given to increasing the cost to consumers and businesses of purchasing greenhouse producing energy resources, to assist in developing renewable energy production in Australia.

Demand management through modification of consumption behaviour is essential in ensuring sustainable energy utilisation and production. As part of demand management, State and Federal Governments have established education campaigns to encourage energy users to adopt more sustainable energy practices. Consumers are encouraged to use less energy intensive products and use alternative transport methods such as public transport and cycling.

Engineers Australia believes that these campaigns need to be maintained to encourage a reduction of energy consumption. Future NCP reform agendas could focus on supporting the reduction of energy consumption and more sustainable energy practices. This could move the energy agenda beyond one that is simply about creating competition and reducing prices, towards a more sustainable energy future.

5.1 Energy Research and Development

The government is seeking to encourage innovation at a time when parts of the energy industry are reducing or withdrawing altogether from investment in RD&D. The application of NCP has undermined investment in RD&D as the structure of the

Australian energy industry has changed dramatically, often in direct repose to NCP requirements.

Deregulation and selective privatisation of the original state-owned, vertically integrated utilities has produced a more competitive energy market with separate businesses in generation, transmission, distribution and retailing. This has had implications for energy RD&D, particularly the ability to undertake higher-risk projects which are in the long-term national interest. Australia is not unique in this: papers by the UK Office of Gas and Electricity Markets (OFGEM)[1] and by the Electrical Power Research Institute (EPRI) in the US[2] both stress the need for changes in government policies and/or regulation to encourage the industry in "unleashing innovation".

Industry restructuring has also affected RD&D providers. Industry's inability to fund all but essential research and pressure from the government for greater emphasis on commercial outcomes, is pushing energy RD&D providers into taking on more short-term consultancies and becoming risk averse. While there is nothing inherently wrong in a shift towards greater commercial emphasis through the application of NCP principles, it must not be allowed to dominate the total RD&D effort. Developing frontier technologies and transforming industries is a high-risk activity and, even if technically successful, depends on the development of sound partnerships between researchers and business for it to become commercial. This process takes time and long-term investment.

5.2 Expertise – The People

The Government's *Backing Australia's Ability* initiative quite appropriately identifies developing and retaining skills as one of the three essentials for successful innovation. Skills in this context relate to scientific expertise and the engineering and business knowledge to bring successful research outcomes to the market.

One of the results of the energy industry's deregulation and increased competitiveness has been the loss of experienced industry personnel and a lack of new entrants to the industry. There is an immediate need to train replacements. Some of those displaced continue to provide consultancy services to the industry and research organisations but many are now at or near retirement age.

This loss of expertise from industry means fewer technologists and engineers are available to provide an effective link with research providers.

This loss is also part of a broader problem, identified by several industry associations, of too few people entering the engineering profession. The Government quite rightly places stress on the need to develop new areas of science and, while there is no doubt that future energy solutions will depend on scientific advances in nanotechnology, biotechnology, Information Technology & Communication (IT&C), it must be

[1] Innovation and Registered Power Zones, UK Office of Gas and Electricity Markets, July 2003

[2] The Electricity Sector - Framework for the Future, EPRI, August 2003

recognised that the more traditional engineering skills will still be required to translate the scientific outcomes into commercial realities.

Since the deregulation of the electricity industry through NCP, there has been no responsible body to identify, secure funding and commission research to address major industry-wide RD&D issues. Neither is there strong industry support for expert groups within Australia. Generators and the utilities are increasingly using UK and US groups to perform consultancy R&D work and, however good the service, this is unlikely to adequately address specific Australian requirements or longer-term issues.

The present market provides little incentives for commissioning research in support of increased gas utilisation. RD&D in the downstream gas industry has almost disappeared with the disbanding of Victoria's Gas and Fuel Corporation and is not a priority for the industry body, the Australian Gas Association.

6. Water

NCP included a package of reforms aimed at achieving environmentally sustainable and economically viable water use and management. Water is unique however, because the focus is not on increased competition but on increasing sustainable use of a vital national resource, by making pricing better reflect both the market value and cost to the environment.

The introduction of consumption based pricing gives the consumer more control over their water bills and the community benefits through the overall reduction in demand for water, which in some areas has reduced the need for new investment in costly new dams.

In rural areas, water reform is more complex. Water rights have been tied to particular properties or irrigation schemes, though licenses, permits and agreements to share the resource among water users. These were traditionally ad hoc arrangements which did not take into account the need for water or the resources available.

Under NCP, water reform in rural areas is working towards the conversion of existing ad hoc and imprecise water allocations into tradeable entitlements. Water entitlements will be better defined and separated from land titles. The result of the reforms will be to give water users greater certainty and security over their water rights. Users can increase the security of their water supply and sell excess water.

Engineers Australia is a strong supporter of NCP policy in relation to water, particularly the Council of Australian Government's (COAG) National Agenda for Water Reform. This agenda has been established to gain agreement between State and Federal Governments with regard to the management of water resources in urban and regional areas. The implementation of this agenda will significantly assist urban and regional areas with sustainable water management.

Engineers Australia also supports increased investment in water infrastructure maintenance and R&D into water resource management.

Maintaining funding for water infrastructure is important in terms of collection and treatment of wastewater, water reuse and water quality management. The growth in urban populations in Australia is impacting on the capability of water treatment systems. Australia faces problems with aging sewerage systems and control of urban water runoff. Additional capital expenditure will be required by governments on wastewater treatment facilities to avoid environmental and public health concerns over water quality management.

There is a further lack of investment by governments in recycling water. Currently, less than 10% of water generated in Australia's cities and towns is being reused. Government can address this problem by implementing programs to increase water reuse in domestic and industrial environments.

R&D in water resource management can contribute to the development of innovative solutions for water efficiency and research into the impact of water usage on biodiversity. The increased pressure being placed on water resources in urban and regional areas in Australia emphasises the need for new innovations to tackle problems such as salinity, water quality and reusing water resources. There may be some scope in future NCP reform agendas to support solutions to continuing problems in the water sector.

7. Transport

Engineers Australia is concerned about health, congestion, resource use (particularly fuel use), costs and atmospheric change and air pollution associated with Australia's transport system.

Engineers Australia believes there is a driving need to reduce the deleterious health and environmental impacts of current energy consumption and to reduce greenhouse emissions and other pollutants. There are opportunities to achieve greater economic and environmental efficiencies and overcome the current lack of transparency in the pricing of transport facilities and services. NCP has a role to play in supporting increased efficiencies in the transport sector.

Change must occur at all levels – government, professionals, industry, communities and individuals. There is no simple solution to the problem. Building more infrastructure by itself will not solve it. Simultaneous action is required in many areas.

Engineers Australia's, Railway Technical Society of Australasia (RTSA) has submitted a detailed and in depth analysis of the impact of NCP on the transport sector, which welcomes the initiative of the Federal government in producing the AusLink Green Paper in November 2002. Engineers Australia with support from the RTSA has also welcomed the announcement of AusLink funding in 2004.

Engineers Australia suggests that the Productivity Commission carefully consider the recommendations of the RTSA in regards to the interaction of NCP on transport in Australia. Overall, there still remains scope for a future reform agenda to review taxation and fiscal instruments to encourage sustainable transport by accelerating the

introduction of user pays pricing regimes to reflect and communicate the full environmental, health and economic costs of transport systems, fuels and choices.

8. Sustainable Communities

A reform agenda which has a focus on the development of sustainable communities has the potential to make a significant contribution to productivity growth through efficiency gains and the removal of the impediments to more innovative approaches to urban/regional development.

Engineers Australia understands that this is an area where it has proved difficult for NCP to deliver significant reform despite there being many opportunities to achieving better outcomes from urban/regional planning processes. These processes are multidimensional and can suffer from a lack of integration between different levels of government and the various public sector policy and program activities that impact on the sustainability of urban and regional communities.

Sustainable communities are defined as communities that are environmentally, socially and economically sustainable. They have achieved more efficient use of natural resources, minimal waste and pollution, equity and equal opportunity for the various groups within the community. This includes the provision of adequate services and maximising the economic potential of the community.

There are a number of ways in which well-planned and managed cities and regional communities can make a contribution to productivity growth:

- Through the provision of high quality and efficient transport and communication networks urban and regional communities will be better connected to domestic and global markets.

- How cities are managed with respect to settlement patterns, density, distribution of activity centres, public and private transportation systems and environmental quality can have a significant effect on the cost of doing business. Good urban design can also positively influence social and health outcomes and contribute to lower costs for the provision of health and other services.

- Well designed, managed and resourced urban communities can provide an environment which fosters innovation by offering a depth of cultural and lifestyle experiences. As a result, they are better placed to attract and retain highly skilled or knowledge workers who take lifestyle considerations into account when choosing where to work. Other important considerations include for example, the co-location of business clusters, with provision for interaction with R&D and education providers within communities.

There are significant costs resulting from poorly managed urban environments; for example, poorly designed regulations and poor planning can impact on the cost of housing and the delivery of services. A national initiative on sustainable communities would provide a strategic context for a number of Commonwealth policies and programs including housing, immigration, infrastructure spending,

environmental policies and water policy. It would also provide a framework for the integration of the relevant activities of all levels of government.

Implementation of sustainable development strategies and building more effective links between planning, economic, social and environmental outcomes will require:

- the introduction of institutional reforms to bring about better integration of planning and budget processes;

- improved institutional arrangements for development assessment and infrastructure provision;

- addressing impediments to connecting government functions which have previously been seen as separate;

- Addressing impediments to the provision of some social infrastructure services (such as health, education and training and community services) to urban or regional communities to provide opportunities for more readily available and innovative services;

- The use of market based instruments to deliver better environmental outcomes, for example, charging or pricing regimes to encourage the reduction of energy consumption and greenhouse gas emissions, introduction of national energy and greenhouse auditing for all new and existing residential and commercial buildings or applying demand management to restrict the amount of water used by the community and industry.

While urban management and planning are largely a State and local government matter, the COAG NCP framework could be adapted to facilitate reform of institutional arrangements and responsibilities and might include some of the following mechanisms:

- By establishing a "Sustainable Development" Commission to develop a framework and set broad objectives;

- Conducting a national inquiry to inter alia, identify impediments to the development of sustainable communities and make recommendations about alternative approaches;

- The provision of resources to research and develop pricing models which would be of assistance to individual communities in pursuing their sustainable development objectives.

The COAG model would require some adaptation, that is, it would need to be less top down to allow communities to make their own decisions within the overall framework.

A commitment by governments at Federal, State and local government level to the development of sustainable communities can also contribute to productivity growth through the development of new capabilities which leads to the export of innovative

services, for example, by developing innovative solutions to specific planning or environmental problems.

8. Conclusion

It may still be many years before the full benefits of NCP reform agenda are realised, however the associated costs and risks have accrued more immediately. Consequently, it is increasingly important that developments in the reform process continue to be closely monitored to ensure that the full range of benefits are actually being delivered.

We are at a time where we cannot go back. The reforms have gone ahead with speed and enthusiasm. Engineers Australia believes that it is the responsibility of all those involved to monitor the effects of the reforms to ensure that the benefits are delivered, and that problems are rectified when they occur. A number of the concerns of the professions will need to be addressed in the short term if NCP is to be judged as a program that had successful outcomes for the engineering profession.