Regulation and Efficiency
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Conference on Encouraging Efficiency and Competition in the Provision of Infrastructure Services

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1 Regulation and Efficiency

Introduction

This conference gives us the opportunity to reflect on 18 years of regulation of the key infrastructure services in NSW. It is useful to reflect on what we have learnt and what messages there are for the future. In line with the theme of the conference, it is also worthwhile to consider whether there has been an increase in the efficiency of the regulated sectors and what part that the economic regulator may have played in that process.

IPART was established as part of the government’s effort to improve the operating framework for state owned enterprises. Following its election in 1988, the Greiner government embarked on a policy of commercialisation and corporatisation. Percy Allan, one of the other speakers at today’s conference, has previously spoken about the impact that this policy has had on the operation of the public sector in NSW.\(^1\)

Allan’s view is that through corporatisation governments seek to achieve productive and allocative efficiency. He concludes that there were significant improvements in productivity due to these corporatisation reforms. The evidence for this is largely the increased profitability of the businesses. Allan attributes the improvement mainly to the downsizing of the workforce. However, Allan contends that these improvements have declined since the late 1990s/early 2000s.

But corporatisation was only one of a number of policy decisions adopted by the then government. The Government also established IPART’s predecessor, the Government Pricing Tribunal, to depoliticise utility pricing and to improve the efficiency of utilities and to improve the pricing of their services.

In making the Second Reading Speech, the then Premier, Nick Greiner, noted that the Tribunal would “ensure that the price-setting process is depoliticised and rational”\(^2\). In particular, he stated that the Tribunal would:

- Provide a proxy of conditions operating within a competitive market
- Encourage efficiency, equity and the appropriate allocation of resources
- Ensure that government monopolies are prevented from abusing their monopoly position
- Ensure that proper price reform and efficiency gains are encouraged
- Ensure that resources are rationally allocated and
- In the longer term these agencies would operate at least cost and maximum efficiency.

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The underlying theme in establishing the GPT was that regulation would result in more efficient pricing and contribute to greater efficiency in service provision. At the same time, the Tribunal was to have regard to the impact on customers.

This last point is critical as it emphasises that regulation is not just about economic efficiency. Community expectations for essential monopoly services are broader than this. If regulation and the policy framework do not recognise this the outcomes won’t have the community support necessary to be sustainable. These three factors – cost reflective pricing, efficiency and impact on customers have been critical elements in IPART’s regulation over the last 18 years.

In the remainder of this speech I will:

- Briefly describe the utility sector in 1992 and compare it to the situation in 2010
- Consider whether we have facilitated better price structures
- Examine the available evidence on efficiency, and in particular productivity changes over the period
- Provide some examples of how we have considered customer impacts
- Raise some of the challenges going forward.

How does the utility sector in NSW compare with 1992?

It is worthwhile comparing the utility sector in 2010 to what it was like in 1992, when the GPT was established.

In 1992

- Cross-subsidies were rife. In both water and electricity and residential customers and large businesses were the beneficiaries, funded by small to medium businesses. In our first Sydney Water review one small CBD business calculated that it would have been cheaper to use champagne than water for the small amount that they used.

- Hunter Water had been able to introduce ‘usage’ pricing for water, but despite several attempts Sydney Water had not been able to obtain the support of government for significant price reform. On average usage charges accounted for 38% of a residential customer’s water (excluding sewer) bill, and a property-value based charge, or tax, accounted for 7%, the remainder was the service charge.

- Sydney Water faced a legacy of large investments in underutilised assets on the urban fringe due to past inefficient patterns of development.

- Pacific Power (the integrated monopoly generator and transmission company at that time) was burdened with excess generation capacity from overinvestment in the 1980s. Despite this it was profitable and the 25 distributors that it sold power to were the ‘poor cousins’, with the financial viability of some questioned.
Except for Pacific Power, profitability was low, or in the case of the government-transport businesses large losses, funded by taxpayers, were made.

Government-owned public transport had been through numerous structural changes but was facing a decline in its share of the passenger transport business.

So what has happened since then? In short:

- Cross-subsidies have been largely eliminated
- Prices now provide better signals for the use of scarce water resources and, until recently, more efficient development of greater Sydney, the Central Coast and the Hunter
- Profitability in the energy and water sectors has improved and the businesses can now invest in the expectation of a commercially viable return.
- Through the 1990s efficiency improvements and greater utilisation of capital in the electricity and water sectors enabled real price reductions for most customers
- But in recent years there have been quite large real increases in prices and reductions in measured productivity as the electricity and water businesses have had to make large investments to:
  - Replace aging assets
  - Meet new standards for environmental outcomes, reliability and security of supply
- Public transport fares have increased in real terms in most years but this has been more than matched by increases in costs so that little progress has been able to be made in improving cost recovery

**Changes in prices over time**

One of the ways that IPART keeps track of the overall impact of its pricing decisions is through a composite index of household charges. Figure 1.1 shows the index relative to CPI and Average Weekly Earnings[^3] since 1993.

[^3]: Adult Full Time Ordinary Hours
In the first decade of IPART’s existence, prices for electricity and water fell in real terms. While prices for public transport rose over the same period, the composite index of utility prices decreased in real terms from 1993 to 1996.

Although the index has increased in real terms since 1996, the index remained below the 1993 level until 2005. Since 2005 utility prices have been higher in real terms than in 1993 (see Figure 1.1).

However, IPART’s index has grown by less than average weekly earnings over the period from 1993 to 2006. This indicates that expenditure on services that are regulated by IPART has fallen in relation to average income over this period.

While the level of prices may have changed over time, the various changes in pricing structure have been significant from an efficiency perspective.

For example, in 1992, water charges (and hence revenue) were largely dependent on property values and fixed (service) charges. In Sydney, “excess” water charges generally only applied after water usage exceeded generous water allowances. As a consequence, ratepayers using less than their “water allowances” or whose properties were unmetered did not see price signals for each unit of water they consumed. Thus, these charging arrangements did little to ensure the efficient use of water. Underpricing water use encouraged growth in demand with rising standards of living and population. As Hunter Water had shown in the 1980s, pricing water better can help defer the need for major new investment.

At the same time, the commercial and industrial sectors were subsidising the residential sector. Therefore, Sydney had one of the cheapest residential water and

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Data source: IPART and ABS

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4 IPART’s own calculations, undertaken for our Annual Report 2008-09.
wastewater bills in Australia and the most expensive non-residential bills in the
world.

In 1993:

- The residential sector made up 93% of properties provided with a water service,
  consumed 66% of water and yet only contributed just over 50% of revenue to
defray the cost of water and sewerage services.

- More than a third of Sydney Water’s total revenue was derived from property
  value based taxes and a further 40% from fixed service charges. Only 20% of total
  revenue was generated from charges that depended on the amount of water
  consumed or sewerage discharged.

Following its review of water services in 1992 and 1993 the Tribunal put in place a
program of reforms for the metropolitan water agencies of NSW. Key elements of the
reform process were:

- The elimination of water allowances where this had not already occurred.

- The progressive elimination of property value based rates as a source of revenue
  with priority to be given to the reform of the non-residential sector.

- The move to a simple two part tariff with a uniform usage charge to apply to all
  water used. In recent years the usage charge has been set in relation to the long
  run marginal cost of water – the additional cost of making more water available.

- The rigorous pursuit of efficiency gains by the water supply agencies
  accompanied by real revenue reductions over the short to medium term. This was
  accompanied with a recommendation that water agencies benchmark their
  activities against similar agencies internationally.

- adopt charging arrangements for land developers which ensure that costs of
  infrastructure provision are fully recovered through a combination of common
  periodic charges and upfront contributions.

Sydney Water had the scope to contribute to reforming its pricing regimes through
making cost savings. Over the course of the reform process Sydney water was able to
reduce its staff numbers substantially. By 2005 it employed less than half the staff it
had employed in 1993. I should note that the establishment of SCA in 1998 took some
staff from Sydney Water.
These staff reductions also translated into reductions in operating expenditure. Over the 4 years to 1996 Sydney Water was able to reduce operating costs by 10% and it was not until 2000 that its operating expenditures had increased to match 1993 levels.

I should point out that some changes have not survived the test of time. One example is the use of developer contributions to fund the construction of water and sewer infrastructure in new developments.

Charging developers for the cost of providing infrastructure charges provides signals regarding the costs of urban development and the true relative costs of providing...
such infrastructure. This should encourage less costly forms and areas of development. This will ensure that the charges do not distort the form and sequence of urban development.

IPART made its first determination of developer charges in 1995. As a result developers were paying up to $15,000 per residential lot for the provision of water and sewerage infrastructure associated with their developments, in some areas. In other areas there were no developer charges or they were very small.

At the end of 2008, the Government removed developer charges in Sydney Water’s and Hunter Water’s areas of operation. However, developer charges have been retained for recycled water schemes. The reason for removing the charges was to boost the NSW housing industry and improve housing affordability for families.

The removal of developer charges means that new developments in high cost areas, which includes much of western Sydney, are subsidised by existing customers of Sydney Water and Hunter Water. As a result, at the margin, development may occur in areas that are more costly for the community to provide with essential services.

Productivity

Productivity is one (albeit, a narrow one) measure of efficiency. Put simply, productivity is the ratio of outputs to inputs. Typically, a business will seek to improve productivity by improving the quality and utilisation of its capital, labour force and other inputs. Better processes within the business and more flexibility in the use of resources can be an important component of improving productivity.

There have been a number of studies of productivity in NSW over the years these include:

- The performance of the NSW Electricity Supply Industry (Pierce, Price and Rose) which examined the productivity of the NSW generation and distribution sectors over the period 1978-79 to 1993-94.5

- Using performance measures to drive change within the public sector – the NSW experience (Pierce and Puthucheary) which examined a number of NSW agencies over the period 1987-88 to 1994-95 using TFP and DEA analysis.6

- Efficiency and benchmarking study of the NSW distribution businesses undertaken for IPART by London Economics in 1999.

- A comparative study of the productivity performance of Sydney Water and Hunter Water with their peers by Coelli and Walding.7 This study mainly used DEA analysis.

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6 NSW Treasury TRP 97-3.

7 Performance Measures in the Australian Water Supply Industry CEPA Working Paper Series No.1 2005
DEA studies undertaken by IPART in the electricity (in the mid 1990s) and gas sectors (in 1999).8

These studies were mainly conducted in the mid to late 1990s. They generally demonstrated the improvements in productivity that had been occurring during the 1990s. However, in general there was scope for further productivity gains in each of the sectors.

Except for the water study, there has been little work done on productivity in the utility sector in NSW in the last 10 years. The Productivity Commission has, however, published its analysis for Australia, including for the energy, water and wastewater sectors.9

We have combined this analysis with our own observations of the trends in inputs and outputs for the regulated water and electricity businesses in NSW to draw some conclusions about productivity in NSW.

But first some caveats.

Firstly, productivity is a narrow measure of efficiency. Improvements in the quality of outputs are difficult to measure and are not reflected in the productivity trends reported here.

Secondly, the position in the asset cycle is critical. These are asset intensive industries with long-lived assets. Arguably, in the 1990s we “lived-off” aging assets many of which are now coming up to replacement. This inevitably results in a decline in measured productivity. The benefits of asset investment in providing services in future periods are not considered in productivity measurement.

Thirdly, the utilities are more affected by government policies and changing standards. They provide services that are commonly seen to be essential services. Access to affordable electricity, water and transport inevitably has a social policy dimension. For example, the Government directed Sydney Water to construct a desalination plant, among other projects, to ensure a secure water supply for greater Sydney.

Policies can prescribe certain types or levels of service or control input choices and methods of service delivery. Such policies constrain the production choices available to businesses and this must be borne in mind when considering productivity performance. Any assessment of a utility’s performance should take into account its other policy requirements.

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8 IPART, Benchmarking the Efficiency of Australian Gas Distributors, Research Paper, Gas99-9, December 1999
9 See for example, Productivity Commission, Australia’s Productivity Performance, Submission to the House of Representatives Standing Committee on Economics, September 2009 and Speech by Dr D Brunker to CEDA, Sydney, 29 April 2010.
Fourthly, the results are highly sensitive to the measurement methodology including the scope of capital costs included, the time period of the analysis, and the specific price indices used to estimate input quantities.

Measures of productivity using, for example, Total Factor Productivity (TFP) may not be an accurate representation of a utility’s underlying productivity performance as the TFP index is subject to important caveats in respect of a number of methodological issues:

- Choice of the ‘output’ variable
- Alternative methods of measuring capital inputs
- Possible mismatches in the timing of capital formation and its impact on ‘output’
- Sensitivity to key assumptions
- Sensitivity to the time period of the analysis.

Because of these methodological limitations, and in particular the inability to integrate into the analysis adequate quantification of the multiplicity of objectives, productivity estimates are inevitably subject to wide margins of error.

That said, our observations indicate the very considerable effect of investment cycles and rising standards on measured productivity.

- For the range of utilities in this paper, investment decisions are important. Each of the utilities has very long-lived immobile assets, where investment is lumpy and provides for growth over a number of years. Capital utilisation is particularly important for these utilities and so is getting the investment decision ‘right’. But even the right decision will see significant changes in productivity over time as capacity provided for future growth is gradually taken up. Thus the cyclical nature of productivity must be borne in mind when interpreting productivity trends.

- The measured productivity changes do not, for the majority of utilities, take into account improvements in quality of service provided, as it may not be possible to objectively quantify, and therefore, include changes in quality in the output index. Hence, to the extent that the quality of services provided has improved over time and it has not been captured in the index of outputs (or expenditure incurred removed from the index of inputs), the measured productivity of the utilities may be understated.

**Productivity growth in the utility sector**

The following chart shows the productivity growth of the electricity, gas and water sector across Australia since 1974-75. The chart shows a number of distinct phases of growth:

- High growth between 1985-86 and 1988-89
Low growth between 1988-89 and 1998-99
A decline in growth since 1998-99.

**Figure 1.4 Growth in value added, capital and labour input (weighted) and MFP in EGW & WS, by productivity cycle (average annual growth rates)**

Note: Includes electricity generation.
Data source: Productivity Commission, Speech by Dr Brunker to CEDA 29 April 2010.

The Productivity Commission has suggested that the productivity of the energy, water and waste water sectors has been affected by the drought together with changes in demand. For example, output in water treatment and supply has been severely impacted by a lack of rain and by the introduction of demand management measures. This has resulted in a drop in the measured output at the same time as major capital expenditures.

**Our observations**

Our observations from the trends in inputs and outputs for regulated water and electricity businesses in NSW suggests a similar trend, although the decline in productivity has perhaps started later in NSW utilities. The decline in productivity should not be surprising. IPART, and other regulators, have determined real price increases as a result of measured inputs increasing more rapidly than outputs. However, one needs to look beyond this to the reasons for inputs growing faster than outputs. These include:

- Higher standards.

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- Capex renewal.
- Improved quality of outputs.
- Whether output is measured by volumes, number of connections or value added. Note that the drought and water conservation measures have reduced the volume of water sold.

**Water**

For the major metropolitan water and wastewater businesses, Sydney Water and Hunter Water productivity appears to have followed a similar trend to that shown in the PC’s analysis. A decline in productivity has resulted from:

- Outputs, as measured mainly by number of customer connections (or value added), have increased
- Inputs have risen more
  - operating inputs, measured including a return on capital, have generally been stable,
  - capital inputs have risen sharply in recent years, mainly because of projects to secure water supply in line with the Government’s Metropolitan Water Plan (eg, construction of the desalination plant).
- Capital productivity has fallen.
- Staff labour productivity has increased with the reduction in staff (see Figure 1.2).

In our reviews, we identified increased water quality and sewerage discharge standards as the main drivers of capex, with large expenditure more recently on the desalination plant.

Hunter Water is widely regarded as being at the forefront of price reforms and efficiency improvements from the mid 1980s. Even so it has continued to show efficiency gains in the early 1990s to 2000 and since then labour productivity has been fairly flat. There has been a substitution of contractors for employees but it appears Hunter Water has been unable to drive further efficiencies. However, it appears that Hunter was operating near the frontier in terms of operational cost efficiency in 2003.

The change in capital productivity has had a big impact on overall productivity. This seems to be driven by government decisions and licensing requirements imposed by the environmental and other regulators.

**Electricity Distribution**

In New South Wales government-owned supply businesses include electricity distribution and retail functions, however, the retailing function has been excluded from this discussion.
For each of the distributors, productivity improved slightly in the period to 2004. This reflects a continuation of the improvement shown in earlier studies. However, it has then decreased since then. For each of the 3 networks, the growth in inputs was more than double that of output growth over the period.

A number of specific factors have contributed to this outcome:

- Large increases in capital investment. All NSW distribution network service providers have stepped up the levels of investment in their networks over recent years to replace ageing assets, build capacity and to improve security and reliability. High levels of capital formation are expected to persist for a number of years.

- Increased reliability standards. Over recent years, NSW licensing requirements relating to network design, reliability and performance have been enhanced. Compliance with the new licence conditions requires greater expenditure by the network businesses. In August 2005, the Minister for Energy & Utilities introduced the New Licence Condition for the DNSPs relating to reliability performance. IPART, subsequently, approved efficient and incremental levels of expenditure required to meet the network design planning and reliability standard elements of the new licence conditions and approved substantial increases in DNSP expenditure. The New Licence Condition impose the following new obligations upon the DNSPs:
  - minimum and average reliability standards, specified by feeder type
  - minimum network design planning criteria
  - guaranteed customer service standards (GCSS), requiring the DNSPs to make payments to customers (on application) if they experience more than a certain number or duration of interruptions in a given year.

- The reduction of the maintenance backlog. During the 1990s, as the distributors were striving for efficiency gains they tended to push their assets more. In the long term this policy was not sustainable and the network operators have needed to replace ageing and obsolete assets. 11

- Faster growth in maximum demand compared with energy consumption. 12 The distributors have needed to make additional investment in network augmentations to meet rising peak demand across the networks and significant load growth in regions including the north coast, the Sydney central business district and western Sydney. This demand growth has been largely driven by appliances such as air conditioners that operate during the peak period

- the merger with Australia Inland (in the case of Country Energy)

- Growth in demand from new developments (in the case of Integral Energy)

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Financial viability

It is interesting to note how the utilities have fared financially through the changes in price structures and productivity changes. It is difficult to compare the utilities today against the same organisation in 1992 as there have been many structural changes in the interim. In fact, of the utilities discussed above, only Hunter Water has not been subject to substantial structural change.

Figure 1.9 shows the return on assets for each of utilities since 1994-95. This analysis has been based on Productivity Commission data. This data uses replacement costs, not regulatory asset values.

The figure shows:

- The water businesses are in a relatively healthy financial position
  - commercial returns on regulatory asset values
  - modest, but improved, returns on replace asset values
- The electricity distributors are achieving commercial rates of return (valued at replacement cost).

I note that returns the water utilities have realised in the recent past, have been lower than forecast in the water determinations. This is largely due to the impact of the drought and raises the issues of revenue volatility and who bears the risk.

**Figure 1.5 Return on assets**

*Note: Note the relevant asset valuation that has been used.*
*Data source: Productivity Commission*
**Addressing customer impacts**

I mentioned earlier that consideration of customer impacts is essential to our regulation of prices. I would like to give a couple of examples of where IPART has attempted to minimise customer impacts and how this has impacted on efficient outcomes.

**State Water**

In our 2006 final report on bulk water prices, we noted that two valleys, North Coast and South Coast, are substantially below cost recovery. In order to achieve full cost recovery levels in these valleys price increases of several thousand per cent would be required.

We noted that we did not believe that it was feasible to glide towards full cost recovery for these valleys without wider structural adjustment issues being addressed. We therefore adopted the approach of applying a cap on the size of the annual increase in prices for these valleys, and recommended that State Water should review the future of these services and consult with government in those cases where it considers that the service could be recognised as a Community Service Obligation.\(^\text{13}\)

**Hunter Water – Tillegra Dam**

In our July 2009 determination of the prices charged by Hunter Water Corporation, because of the need to fund large capital expenditures, particularly the construction of Tillegra Dam, Hunter Water had proposed a large increase in the annual bill of a typical residential household.

Analysis commissioned by IPART highlights that the dam would be initially under-utilised, raising concerns about inter-generational equity. It found that, while some augmentation of the Hunter water supply system was likely to be required in the next 15 years, the dam would not be fully utilised until 2058. It also found that the key benefit for the current population was a very significant improvement in drought security. The community’s willingness to pay for this drought security is unknown, however HWC estimated that the cost of alternative measures to provide this level of drought security was equivalent to 40 per cent of the cost of the dam’s construction.

It was not possible for IPART to defer the inclusion of the costs of the dam into the regulatory asset base as it had received a direction from the NSW Government to recognise these costs in prices. Rather, IPART considered different pricing options that would recover the efficient cost of the dam, ensure the utility’s financial viability and be affordable and equitable for customers.

At the end of the day, IPART considered that the portion of Hunter Water’s notional revenue requirement associated with Tillegra Dam (ie, part of the allowances for regulatory depreciation and a return on assets) should be recovered in a manner that reflects the distribution of benefits of the dam to Hunter Water’s current and future customers and hence ensures inter-generational equity. This means that some of the revenue requirement related to costs in the 2009 determination period should be deferred and recovered from future prices.

In making its determination, IPART used an approach for recovering the efficient costs associated with Tillegra Dam that has three key elements.

1. The approach recognises that the dam will provide a very high improvement in drought security for the current customer base.\(^{14}\) However, for many current customers the extent of the improvement in drought security may seem excessive relative to the risks and the cost.

2. IPART’s approach aims to match the profile for the recovery of regulatory depreciation and return on assets in relation to Tillegra Dam with the utilisation of the dam’s capacity, noting that the value of drought security will increase as water becomes scarcer as the population grows or climatic conditions change.

3. The approach ensures that in net present value terms, Hunter Water is no worse off than it would be if all the efficient costs were recovered in the 2009 determination period.

Importantly, the approach adopted aligns the recovery of costs with the benefits that the dam provides to the current and future populations in the Hunter Region. The figure below (Figure 1.6) shows how the annual revenue required per connection will change over the next 40 years compared to how it would have been had the full cost of the dam been incorporated in the current determination (the “base case”).

\(^{14}\) As noted above, SKM estimated that the construction of the dam will reduce the probability that the Hunter Water region will enter into restrictions in the period to 2025 from 1 in 21 years to 1 in 1,250 years, and in the period 2025 to 2050, from 1 in 8 years to 1 in 170 years.
The figure illustrates that the approach adopted means lower bills in the early years and higher bills later on. Before adopting this approach, IPART analysed the longer term impacts on prices and HWC’s financial viability. The modelling showed that the average projected annual increase in a typical residential bill would be around 1.7 per cent. This is expected to be affordable and yet will not result in any deterioration in HWC’s financial position.

These examples demonstrate that efficiency is not the sole objective and that there are other objectives such as customer impacts that need to be considered. Often there is a tendency to overstate the tension between these can be overstated, when in fact, it is often a matter of the time that it takes to get there rather than the endpoint.

**Challenges**

I consider that there are a number of challenges facing the infrastructure sector. Some, such as increased reliability standards, have already been discussed. However, some others are:

- Commonwealth State Issues for water
- Heightened environmental awareness
- The position many infrastructure services providers are in the investment cycle.
- How well does the regulatory framework encourage dynamic efficiency?
**Commonwealth State Issues**

Under the Water Act (Commonwealth) the government has established water planning and management charge rules and water infrastructure charging rules.

Under the water planning and management charge rule, entities, such as IPART, that set regulated charges caught under the *Water Act* will face an enforceable obligation to publish information about these water planning and management charges. In relation to IPART, the vast majority of the information to be published about the setting of water planning and management rules is already published by IPART as part of our normal processes.

Under the draft water infrastructure charge rules:
- large non-member owned entities such as State Water’s basin activities will be subject to independent price regulation under the rules
- independent pricing regulators can be accredited by the commonwealth to undertake this function. This would mean that IPART would need to seek accreditation if we wished to regulate the pricing of the basin activities of State Water.

While the Water Act makes provision for the water charge rules to apply beyond the basin if a State so wishes, State Water’s non-basin activities would most likely continue to be regulated by IPART Act. This would result in different pricing regimes for the one organisation.

In relation to future regulation under the Water Act:
- We have achieved substantial increases in prices and more are foreshadowed. Progress in NSW under IPART is well ahead of other states.
- Even so there is significant community concern of the impact of price increases.
- The infrastructure and services of State Water are provided to achieve other community objectives and the cost shares approach reflects this.

One particular concern is the how the Draft Rules propose to treat cost sharing arrangements. As drafted, the Draft Rules prevents the ongoing application of cost shares. This would result in very significant price increases to State Water’s prices after July 2014. This would occur regardless of who determines these prices. Further, it appears that the rules limit the capacity of a regulator to make a determination that does not fully recover the notional revenue requirement but rather transitions to new price levels over one or more determination periods.

We have some concerns about the incentives arising from the content of the Draft Rules and the practicality of their implementation. For example, the limitations of the Draft Rules on the factors that can be considered by a regulator in determining prices; the absence of a prudency test in the roll forward of the regulatory asset base; the lack of a materiality threshold for annual price reviews; the asymmetry of Draft
Rules for the reopening of price determination; and the absence of a power for regulators to compel the provision of information by operators.

**Heightened environmental awareness**

Heightened awareness of environmental issues in the community has led to an increased expectation that utilities will provide their services in an environmentally sensitive manner. This has resulted in utilities being required to undertake increased capital expenditure to meet these increased environmental requirements.

For example, in the water sector, the Government is responsible for imposing standards or requirements on the utilities to address any negative environmental impacts. For instance, the Department of Environment and Climate Change is responsible for setting standards for, and monitoring the environmental impacts of, the effluent a water agency discharges from its treatment plants and sewerage systems.

In setting prices for Hunter Water, we noted that relative to the current situation, Hunter Water’s service performance in some areas is expected to improve over the determination period. These improvements are largely the outcome of government or environmental regulator decisions and, as such, have not been subject to customer willingness to pay analysis (or similar) which IPART would ordinarily require to support a decision to increase prices.

**The position many infrastructure services providers are in the investment cycle**

With infrastructure businesses it is important to note that provision of new capital is very lumpy.

All utilities are undertaking or have undertaken, significant capital expenditure to provide for future demand, to replace assets, and/or to meet new service standards. In each case, during the period of investment, this will generally result in a suppression of productivity, and the timing of expenditure will affect trends in productivity.

A utility that has just completed a large capital expenditure program in anticipation of future growth in the demand for its services will have relatively high capital inputs. Its TFP and capital productivity will be lower than a utility whose capacity expansion has not yet begun.

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15 New investment will embody new technology which may reduce other costs, increase service quality or provide the opportunity of providing additional services that can improve productivity. But where the investment is, for example, a large dam or desalination plant to provide new capacity, these benefits are unlikely to offset the cost of the new capacity during the investment period.
The electricity distributors have distinct cyclical fluctuations in the commissioning of network assets which contrasts with the smoother trend growth in energy delivered.

However, assuming that the investment is efficient and prudent, increases in capacity and asset replacements may lead to productivity improvements over time as capacity utilisation increases.

**Conclusion**

Twenty five years ago independent public utility regulation was largely a “US-thing”. Since then it has arguably been one of fastest growing industries internationally – particularly in the form of incentive regulation – and increasingly applied to government-owned businesses. Looking back it is worth asking “why did governments, such as the NSW Government, delegate the setting of prices for their own businesses to an independent body? And what has been achieved?”

When it established IPART the Greiner Government hoped that it would help establish more efficient prices and encourage the utilities to be more efficient.

I think we have made considerable progress in improving the efficiency of prices. The level of cost recovery has increased and the opportunity cost of the large amounts of capital tied up in these businesses has been signalled to consumers as we have moved to commercial rates of return. Controversial price changes – such as the move to greater usage charging for water – have been made to remove cross-subsidies and provide more efficient prices. Of course we do not know if these reforms would have been achieved in the absence of regulation. But I would argue that regulatory processes can push out the boundaries of price reform that are acceptable to the community. Many people may still not like the outcomes but, through transparent engagement over an extended period and independent decision-making based on public information, they may be more likely to accept the outcome. These processes have been enhanced where regulators have been able to carefully explain the reasons for decisions. Under these circumstances, Ministers may feel less compelled to intervene.

However, most discussion of regulation and efficiency focuses on incentives to improve the efficiency of the utilities. Regulation can create strong financial incentives for the utility to improve efficiency. But its effectiveness depends on the alignment of the incentives of the management of the utility with those of the shareholders around financial performance and profits. This may be stronger for a well-run privately-owned business, than for a government-owned business. Conversely, a government business may be more sensitive to public scrutiny. Two implications flow from this. Firstly, one should be cautious in drawing conclusions on the impact of regulation on efficiency because it depends on the effectiveness of governance arrangements. Secondly, there may be merit in placing greater emphasis on transparent scrutiny of past performance and projected spending and less emphasis on complex financial incentives for government-owned businesses.
Regulators can also emphasise what outputs have been achieved for customers in return for the price that is paid for the service.

We have seen improvements in productivity in urban water utilities through to the early years of this decade. Since then rising capex due to increasing standards and asset replacements have driven costs and prices up. The increase costs have been even more marked in electricity. However, in each case the independent expert reviews and benchmarking have not identified significant opportunities to improve performance. The key driver appears to be changing service and environmental standards. Perhaps the challenge for regulation will be to make the costs of these more transparent ahead of the decisions. This may help government make a fully-informed decision on the trade-off between prices/affordability and standards of service.