

Submission to IPART April 2016 Discussion Paper: *Prices for wholesale water and sewerage services*



Table of Contents

1	Exe	cutive Summary 4							
	IPART'	's tariff is a real world problem4							
	What's the solution?								
2 Findings									
	2.1	Context							
	2.2	Flow position							
	2.3 Basis for Flow's position								
	2.3.2	1 What IPART is proposing7							
	2.3.2	2 IPART proposal inconsistent with statutory criteria8							
2.3.3		Other policy considerations8							
2.3.4		Rejection of retail minus type approaches in water internationally11							
	2.3.5	5 ACCC 2007 access pricing decision							
3	Intr	oduction to Flow's submission13							
	3.1	About Flow Systems							
	3.2	Acknowledgement							
	3.3	Structure of this submission13							
4	Con	ntext and background14							
	4.1	Flow's interest in wholesale water and sewerage pricing14							
	4.2	Services purchased from vertical suppliers14							
	4.3	Substitution/competition attributable to Flow infrastructure and services							
	4.4	Brief summary of IPART Discussion Paper16							
	4.5	Brief summary of retail-minus or ECPR18							
5	5 IPART's proposed approach wrong								
	5.1	IPART's proposed pricing approach20							
	5.2	Negative effect of IPART's proposed pricing approach 22							
	5.3	IPART's responsibilities to WICA proponents under the IPART Act							
	5.3.2	1 Section 15 of the IPART Act24							
	5.3.2	2 Section 15(1)(a) - the cost of providing the services concerned							
	5.3.3	<i>3 Section 15(1)(b)- the protection of consumers from abuses of monopoly power in</i>							
	tern	ns of prices, pricing policies and standard of services,25							
	5.3.4	4 Section 15(1)(c) - the appropriate rate of return on public sector assets, including							
	аррі	ropriate payment of dividends to the Government for the benefit of the people of New South							
	Wal	les							
	5.3.5	5 Section 15(1)(e) the need for greater efficiency in the supply of services so as to reduce							
	cost	ts for the benefit of consumers and taxpayers							
	5.3.6 Section 15(1)(f) - the need to maintain ecologically sustainable develop								
	the meaning of section 6 of the Protection of the Environment Administration Act								
	appropriate pricing policies that take account of all the feasible options available to prote								
	E 2 -	7 Section 15/1)(a) the impact on pricing policies of herrowing capital and dividend							
	J.J.	y section 15(1)(y) the impact on pricing policies of borrowing, capital and alviagena							
	rono	ew or increase relevant assets							
	iene	עי טר וווכרכאסב דבוביעווד אססבנס,							

5.3.	.8	Section 15(1)(h) - the impact on pricing policies of any arrangements that						
the	gove	rnment agency concerned has entered into for the exercise of its functions by some						
oth	er pei	rson or body						
5.3.	.9	Section 15(1)(i) - the need to promote competition in the supply of						
the	servi	ces concerned						
5.3.	.10	Section 15(1)(j) - considerations of demand management (including levels of demand)						
and	l least	t cost planning28						
5.4	Oth	er policy considerations including postage stamp pricing "directions" and the WIC Act						
	29							
5.4.	.1	Infrastructure competition and overall industry efficiency29						
5.4.	.2	Operating Licence Review						
5.4.3		There appears to be only two valid and current directions for cost pass - through 30						
5.4.	.4	Competition impact of zero developer charges						
5.4.	.5	What postage stamp pricing in the WIC means						
5.4.	.6	WIC Act on price discrimination						
5.4.7		Water security						
5.4.	.8	The ACCC 2007 access pricing decision						
5.4.	.9	National Water Initiative (NWI) pricing principles						
5.4.	.10	Last resort						
6 Nat	tiona	l and international lessons learnt: retail-minus						
6.1	Fail	ed history of ECPR						
6.2	Def	initions of ECPR 40						
6.3	Rati	ionales for ECPR						
6.4 Failing of ECPR in Australia & around the world								
6.5	ECP	R failings in water & sewerage and other public utility industries						
6.6	ECP	ECPR negative impact on competition & efficiency						
6.7	Pro	Profit margins under ECPR						
6.8	Cos	Costs of ECPR						
6.9	Imp	mpact on service boundaries, assets & costs under ECPR						
6.10	UK	UK Albion Water case						
6.11	Vertically integrated infrastructure monopoly efficiency							
6.12	1.1	National Competition Policy and infrastructure context						
6.1	1.2	'Text book' economics arguments re vertically integrated infrastructure monopoly						
efficiency								

1 Executive Summary

IPART's Discussion paper draws the conclusion that a retail-minus avoided cost method is the only viable method for setting wholesale water and sewerage prices, consistent with government postage stamp pricing policies. Flow absolutely rejects this conclusion.

IPART's proposed tariff would be contrary to the IPART Act and the WIC Act international legal precedent, because:

- 1. It is inconsistent the Section 15 of the IPART Act, because it imposes charges for by-passed services of the two water corporations. This would be an illegal margin squeeze on Flow.
- 2. The tariff does not provide competitive equality and prevents efficient entry. It renders competition unfeasible and deters future private investment. This is contrary to the intent of the WIC Act and IPART's acknowledgement competition may lead to efficiency gains.
- 3. There is clear precedent under section 15 to optimise (deduct from regulated prices) inefficient or by-passed costs, such as in IPART's 1996 electricity prices determination.
- 4. IPART's proposal misinterprets 'revenue sufficiency' to mean a transfer of optimisation risk from suppliers to customers. In setting the Weighted Average Cost of Capital (WACC) for the NSW Water SOCs, there is no evidence IPART discounted to reflect a transfer of asset optimisation risk from suppliers to customers.
- 5. Pass through directions under Section 16A of the IPART Act are the only proper basis for postage stamp pricing. The rationale for retail minus for Hunter Water no longer applies. The rationale for Sydney applies only to desalination.
- 6. The only operative direction relates to Sydney Desalination plant (SDP). Flow's service bypasses water security provided by SDP. There appear to be sound grounds for reviewing the efficient pass through of Sydney Water's SDP costs, as required under Section 16A at each price review.
- 7. There appears to be no legal basis for pass through of costs arising from setting developer charges to zero. The Treasurer's approval of setting developer charges below cost does not require pass through.
- 8. Flaws in the present operating licences should be addressed by bringing forward a planned 2017 review and do not represent reasons for the proposed pricing method.
- 9. The proposed retail-minus approach was found to be unsound in the landmark GB Albion/Welsh Water case by the Competition Appeal Tribunal (CAT) in 2006. It found that an earlier conclusion that retail minus placed the access seeker and vertical supplier on an equal footing was an 'error of analysis. The CAT Decision was in turn appealed and upheld by the GB Court of Appeal.
- 10. A 2007 ACCC access pricing decision cited by IPART overlooked the CAT findings. It is of limited relevance because it was not obliged to apply s15 of the IPART Act.

IPART's tariff is a real world problem

If implemented, IPART's tariff will put private water innovation projects like Barangaroo and Central Park, out of business, leading to the loss of hundreds of millions of dollars in private investment in NSW sustainable water infrastructure. If this tariff is introduced western Sydney along with growth corridors and strategic developments such as The Bays, Green Square, Central to Everleigh, Parramatta Square, Parramatta North Urban Transformation Precinct, Sydney Science Park will be deprived of world's best water innovation and downward pressure on pricing. Greater Sydney Commission will also miss out on world's best water innovation and infrastructure solutions. A retail-minus methodology will be detrimental to other government objectives including:

- Faster land release and economic productivity
- Competition in water infrastructure
- Enhanced liveability
- Greater water security
- Innovation and Integrated Water Cycle Management (IWCM)
- Climate resilience

What's the solution?

Retail-minus should be replaced by an efficient-cost tariff. Setting tariffs prices in accordance with statutory criteria would reduce current non-residential tariffs, especially for Hunter Water. This is because current tariffs paid by Flow recover costs outside the scope of valid pass through directions, notably the cost of setting developer charges below cost at zero. This unauthorised and excess cost pass through would be removed under Flow's proposed approach.

A broader review is necessary if IPART maintains its current stance:

- 1. A broader review will positively influence IPART and Government to modernise the urban water market to support contestability, innovation and a transition to 21st century water infrastructure.
- 2. The current IPART tariff review under Section 11 of the Independent Pricing and Regulatory Tribunal Act 1991 (NSW), *see Appendix 1* is limited to pricing only
- 3. A new review either by Government or under section 9 or 12A review of the Act, *see Appendix 2,* can examine efficient outcomes to enable contestability, productivity and innovation.
- 4. As the Minister for IPART, the Premier can redirect IPART to undertake a broader review. These functions of the IPART Act are regularly used in this way, *see Appendix 3.*
- 5. There is clear public interest in infrastructure solutions that are more sustainable and affordable and enable the transition to 21st century utility solutions.
- 6. Alternative water infrastructure approaches facilitated through WICA are better equipped than traditional non-IWCM approaches, to drive liveability and innovation and to future-proof communities.
- 7. The Chair of IPART, Peter Boxall is in favour of a broader review, expressing his desire for Government to redirect IPART to consider the broader benefits of the WICA market to the economy. *Wholesale Pricing Review Transcript 08/12/2015 pp17 &18.*
- 8. Infrastructure Partnerships Australia (IPA), UDIA, Green Building Council Australia (GBCA), City of Sydney, CRC Water Sensitive Cities among other organisations have also requested a broader review. <u>Submissions to Wholesale Pricing Review</u>

2 Findings

2.1 Context

Flow Systems (Flow) welcomes the opportunity to respond to the Independent Pricing and Regulatory Tribunal (IPART) April 2016 Discussion Paper: *Prices for wholesale water and sewerage services* (Discussion Paper). Flow has a keen interest in the outcome of IPART's determination of wholesale prices for Sydney Water and Hunter Water (each referred to in this submission as 'vertical supplier'), under IPART's standing reference for these two corporations. Flow is both a wholesale customer and a competitor to the vertical suppliers. Flow in particular:

- competes with and fully by-passes certain services provided by the vertical suppliers, including local reticulation and water security;
- competes with and partially by-passes certain services provided by the vertical suppliers, such as bulk water and wastewater services; and
- purchases water, wastewater, and some other services under various agreements with the vertical suppliers, at IPART determined non-residential tariffs.

2.2 Flow position

Flow does not agree with IPART's conclusion that retail-minus plus net facilitation costs (also known as the efficient component pricing rule or ECPR) is the only viable wholesale pricing approach, while a postage stamp pricing policy applies. Firstly, retail-minus, as proposed, is clearly inconsistent with section 15 of the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) (**IPART Act**), among other things because it represents a margin squeeze.

Secondly, that there is no apparent evidence to support IPART's preliminary conclusion that, in considering possible pricing methodologies, it is obliged to take into account government 'postage stamp pricing policies', other than with respect to the two directions under 16A of the IPART Act regarding water security. The Hunter Water direction is no longer operative due to a later decision not to proceed with the Tillegra Dam, while the inclusion in full cost to Sydney Water of the Sydney desalination plant should, in Flow's view, be reviewed. (as set out in Sections 4.3 and 4.4 of this submission)

Flow recommends that IPART abandon its current approach. Wholesale prices should be set on the basis of relevant costs, in accordance with Section 15 of the IPART Act, relevant policy considerations, national and international precedents, and sound economics. This approach may involve ¹optimisation of 'unavoidable' costs, consistent with previous IPART practice under Section 15 of the IPART Act, where industries are entering competition.

Flow anticipates setting wholesale prices relative to efficient costs would result in regulated wholesale prices that are a lower than those under current IPART determined non-residential tariffs, especially for Hunter Water. This is because current tariffs paid by Flow incorporate recovery of costs that have not been subject to a pass through directions under Section 16A of the IPART Act. Notably, this includes recovery of the cost of setting developer charges below cost at zero. This unauthorised and excess cost pass through would be removed under Flow's proposed approach.

¹ Optimisation may be required to the extent competition renders certain assets partly stranded in an economic sense, or under the recoverable amounts (impaired assets) test under International Financial Reporting Standards (IAS36.12).

2.3 Basis for Flow's position

The basis for Flow's position is set out below.

2.3.1 What IPART is proposing

In Flow's view, IPART does not provide analysis to support key conclusions about the implications of its proposals. **Figure 1 below** sets out Flow's understanding of what IPART's proposals entail. The key points are that:

- IPART is proposing that wholesale customers should effectively pay twice for the same service (both the cost of the by-passed services and a payment to the by-passed service see right hand cost stack in Figure 1 below).
- The wholesale customer faces substantially higher costs, even if assumed it is no more or less efficient than the vertical supplier, simply by virtue of the selection of the proposed retail-minus approach.
- Contrary to the Discussion Paper, the vertical supplier and the wholesale customer do not compete on equal terms.
- The wholesale customer would almost certainly bear total costs that exceed regulated retail prices for the vertical supplier.
- The practical effect is a margin squeeze which would most likely optimise the wholesale customer's assets and business.
- The proposed retail-minus pricing approach would deter future private investment and reduce competition.



Figure 1: Depiction of retail-minus avoided cost wholesale pricing²

² The cost stacks depicted could represent average unit cost components, the components of typical retail bills or aggregate costs for a given area of operation or customer segment. The size of the cost components should be viewed as indicative only. The relative size of the by-passed cost and avoided cost elements is important and discussed below. However, the relative size of the other cost components does not affect Flow's analysis of IPART's proposals.

2.3.2 IPART proposal inconsistent with statutory criteria

If IPART maintains its proposed approach, a Final Determination on wholesale prices would be open to judicial review in the NSW Supreme Court Common Law Division. This would be on the basis of jurisdictional error (*ultra vires*), or more generally that IPART took into account irrelevant considerations and failed to take into account relevant considerations.

Neither Section 15 of the IPART Act nor the Section 41 of the *Water Industry Competition Act 2006* (NSW) (**WIC Act**) pricing principles refer to the concept of setting wholesale/access prices on the basis the wholesale customer has an obligation to pay for the cost of the vertical supplier's services that are being by-passed by the wholesale customer. IPART appears to be suggesting the introduction of a new pricing principle (ie 'revenue sufficiency', read in a very strong sense).

The proposed principle has the effect of imposing a margin squeeze on wholesale customers, in order to protect the vertical supplier in full from asset stranding or optimisation in the event of their services being by-passed. This squarely conflicts with the requirement in Section 15(1)(i) of the IPART Act that IPART must consider: 'the need to promote competition in the supply of the services concerned.'

The proposed approach is inconsistent with a major IPART pricing decision under Division 3, Section 15, relating to electricity pricing.³ In that decision, IPART properly applied an optimised deprival value (ODV) methodology⁴ to set the Regulated Asset Bases (RAB) of the regulated entities, which influence capital and depreciation charges.⁵ IPART optimised the assets of existing suppliers, in recognition of the effect of competition for existing capacity and previous inefficient investment.

2.3.3 Other policy considerations

Other policy considerations do not provide any basis for contravening Section 15 of the IPART Act.

2.3.3.1 Infrastructure competition and overall industry efficiency

A possible rationale for IPART's proposed approach is a view that infrastructure competition leads to inefficient duplication, reducing overall industry efficiency. Flow points out however:

- IPART's Discussion Paper notes that competition may lead to efficiency gains.⁶
- NSW Parliament via the WIC Act has accepted the principle of water industry competition.
- Significant investments in water industry infrastructure have been made on the basis of the regime established under the WIC Act.
- IPART's proposals appear contrary to the objective (Part 21) of the WIC Act.
- The water sector is in the early stages of substantial evolution and change, driven by technology and market factors, which improve efficiency and effectiveness (value) of services. Infrastructure competition is necessary for dynamic efficiency.
- There is significant international evidence that vertically integrated supply chains increase rather than decrease total supply costs (see **section 5.11 below**).
- Infrastructure competition enhances rather than reduces industry efficiency.

³ See IPART's report, *Electricity Prices*, March, 1996

⁴ The optimised depreciated replacement cost (ODRC) leg of ODV was applied to avoid the well-known circularity problem with the NPV leg.

⁵Alongside the cost of capital and remaining asset lives for the purpose of estimating depreciation.

⁶ See Figure 2 on p20 of the IPART Discussion Paper.

2.3.3.2 Flaws in operating licences can and should be addressed

The Discussion Paper states that an Operating Licence Review should follow rather than precede the present review.⁷ Flow disagrees. Any shortcomings in the current operating licences should be addressed. The existence of these shortcomings should not be used as a reason for proposing a pricing methodology that contravenes IPART's obligations under Section 15 of the IPART Act.

2.3.3.3 There appears to be two valid and current direction for cost pass - through (SDP)

The only cost-recovery -directions under Section 16A of the IPART Act that Flow can locate, relate mainly to water security:

- a direction to IPART to include the efficient operating costs of the desalination plant in Sydney Water's prices in its determination of regulated prices for Sydney Water, dated 4 March 2008;
- a direction to IPART to include the cost of the construction of the Tillegra Dam and certain other recycling costs, dated 15 July 2008; and
- a direction to Sydney Water dated January 2014 regarding stormwater amplification and other works

5.4.1.3 There appear to be only two valid and current direction for cost pass – through

The Tillegra Dam direction is no longer operative due to a later decision by the NSW Government not to proceed with the Tillegra Dam. The inclusion in full cost to Sydney Water of the Sydney desalination plant should, in Flow's view, be reviewed (see discussion in section 4.4.1.7 below).

On request, IPART referred Flow to a letter attached to a 2009 pricing decision for Hunter Water Corporation⁸. In December 2008 the then acting Treasurer wrote to the water corporations advising that the government had decided to abolish immediately Hunter Water and Sydney Water's developer charges for water, sewerage and stormwater assets. The letter notes this results in charges that are lower charges than would apply under the then current methodology determined by IPART. The letter notes this requires the Treasurer's approval under S18(2) of the IPART Act which states that:

(2) The approval of the Treasurer must be obtained if another Minister, an official or an agency fixes (or takes action to fix) the price below the maximum price determined by the Tribunal or calculated in accordance with the determination of the Tribunal.

The December 2008 policy "direction" does not appear to constitute a cost-recovery-through direction under Section 16A of the IPART Act. The Treasurer's letter instead merely authorises the nominated price to be set below the price that would otherwise have been applied by IPART. The existence of the Authorisation under S18(2) of the IPART Act does not appear to impose on IPART any obligation to pass these costs through as if there has been a direction under Section 16A of the IPART Act (i.e. to apply postage stamp pricing). Indeed, it suggests IPART need not (and should not) make any consequential changes to its pricing decision. IPART's statement in its Discussion Paper

⁷See page 23 of the IPART Discussion Paper.

⁸ Review of prices for water, sewerage, stormwater and other services for Hunter Water Corporation From date of Gazettal Water — Determinations and Final Report July 2009

that there was a direction to the corporations (and implication that this direction creates an obligation for IPART to the recovery of the cost of developer charges being set at zero) does not appear to have been substantiated, and does not appear accurate.

In light of these points, it appears IPART has so far not provided evidence to support its preliminary conclusion that, in considering possible pricing methodologies, it is obliged to take into account government 'postage stamp policies', other than with respect to the Sydney desalination plant. In other words, even leaving aside other considerations set out in this submission, the basis for IPART adopting retail-minus is far weaker than is suggested in the Discussion Paper.

2.3.3.4 IPART's proposals inconsistent with S41(3) of the WIC Act

Postage stamp pricing, as defined in Section 41(3) of the WIC Act, is <u>not</u> equivalent to a uniform price for every customer within the territories serviced by the two NSW water corporations. Flow's customers are different types of customers receiving different types of services in different areas of operations within the geographical territories traditionally serviced by the vertical suppliers.

2.3.3.5 Developer charges

As noted earlier, on examination there appears to be no formal basis for IPART's view there is a requirement for the cost of developer charges being set at zero to be recovered from all customers, including Flow. Moreover, setting developer charges at zero, including for services where Flow is the designated supplier, is equivalent to predatory pricing. If Section 46(1)(aa) of the *Competition and Consumer Act 2010* (Cth) applied to these services, zero cost recovery of developer charges would in Flow's view be a clear breach.

2.3.3.6 Water security

Water security costs represent a significant component of water bills, and provide for the recovery of the standing cost to Sydney Water of its contractual obligations for the Sydney desalination plant. This also includes the cost of transfers from the Shoalhaven system once water storage falls below certain levels.

The cost-recovery direction under Section 16A of the IPART Act to Hunter Water ceased to have any practical effect from the end of June 2015, after Hunter Water made a final write-off of costs relating to the Tillegra Dam. The cost-recovery direction to Sydney Water relating to the Sydney desalination plant may continue to apply, but in Flow's view should be reviewed.

Flow notes that industry experience before and since the Sydney desalination plant was completed suggests large-scale remote desalination is not a cost efficient means of providing water security, and that lower cost options such as those provided by Flow are significantly more efficient. Accordingly, Flow queries whether standing costs of the Sydney desalination plant to Sydney Water could be a candidate for optimisation. For example, while IPART allowed the full cost of offsetting carbon emissions from the Sydney desalination plant in its 2008 Sydney Water Final Determination, there was no cost-recovery direction under S16A of the IPART Act to do so.

Flow's recycled water services contribute efficiently to water security by reducing demand for drinking water. Flow considers IPART's Discussion Paper has not made out a case for Flow and similar wholesale customers to contribute to the cost of water security provided by the vertical suppliers.

2.3.4 Rejection of retail minus type approaches in water internationally

The landmark UK Albion/Dŵr Cymru (Welsh Water) case is a recent and clear rejection of a retailminus avoidable costs approach for wholesale water and wastewater services in the sub-UK jurisdictions of England and Wales. Because of similarities in regulatory frameworks and industries, the Albion case could be influential in any future legal proceedings around the adoption of a retailminus avoidable costs approach to water pricing in Australia.

Albion Water took over the retail supply to Shotton Paper Mill from Welsh Water, and subsequently sought to buy water upstream from United Utilities, while paying a 'common carriage' network access charge to Welsh Water. The access charge related to the transportation of recycled water offered to Albion by Welsh Water across what is known as the Ashgrove system, so that Albion could supply Shotton Paper Mill (an inset appointment).

The arrangement left Albion Water with no effective margin. In 2001, Albion Water complained to the economic regulator (Ofwat) that the access price was excessive and gave rise to margin squeeze.

In a decision dated May 2006, Ofwat did not agree there was a margin squeeze. It found that the proposed access price was justified on the basis of a retail-minus approach under which the access price subtracted any avoided costs to the network owner from providing access. In Ofwat's view there were no avoided retail costs, and therefore no margin squeeze.

Ofwat's decision was appealed to the Competition Appeal Tribunal which handed down its decision in 2006.⁹ The Tribunal found that Ofwat had not assessed the alleged margin squeeze correctly. It stated that the retail-minus approach to access pricing in this instance was unsound, and that Welsh Water's access price was excessive in relation to the value of the service provided. It argued that the applied retail-minus methodology which subtracted avoidable costs only, meant that an entrant would need to support the incumbent's overheads (and loss in revenues) as well as its own overheads. This needed a new entrant to be 'super-efficient', rather than just 'efficient'.

The Tribunal similarly took the view that, in applying a test for margin squeeze, avoided costs (and by extension, short-term avoidable costs) were not an appropriate benchmark. Rather, the relevant imputation tests, set out in established cases, were the 'as efficient competitor' test (based on the incumbent's own downstream costs), and the 'reasonably efficient competitor' test (based on an entrant's downstream costs). As regards the former, the Tribunal argued that Ofwat's 'failure' to consider the costs of a notional Welsh Water downstream business, which would have placed Welsh Water and Albion Water on an equal footing, was 'an error of analysis'. The Tribunal ruled that there had been a margin squeeze, and also noted that ECPR is not widely applied internationally. The Tribunal decision was in turn appealed and upheld by the Court of Appeal.

In Flow's view, where ECPR is applied, this typically reflects a regulatory framework that does not promote competition and efficiency as is required by Section 15 of the IPART Act, but which instead seeks to protect incumbents from competition.

⁹ More details and extensive quotations from the Competition Appeal Tribunal decision may be found in section 5.10 below.

2.3.5 ACCC 2007 access pricing decision

In its discussion of the definition of avoidable and avoided costs, the IPART Discussion Paper refers to a 2007 access pricing arbitration decision under Part IIIA of the then *Trade Practices Act*.¹⁰ The ACCC decision is of limited usefulness and relevance in the present context, because:

- 1. The ACCC decision was not made under and was not required to make reference to the considerations under Section 15 of the IPART Act.
- 2. The ACCC decision was based on the proposition the then prevailing retail price (from IPART's 2005 determination) was, after deducting avoided costs, sufficient to provide for efficient entry to address concerns at the time over water security.
- 3. It appears the ACCC was not informed prior to releasing its decision on 19 July 2007, that the NSW Premier had on 13 June 2007 already written to IPART requiring it to bring forward its scheduled review of water prices by one year, in order to substantially increase the retail price to accommodate the additional cost of the Sydney desalination plant.
- 4. In its discussion of avoided cost, the 2007 ACCC decision did not identify the inconsistency between an ECPR-based approach and well established principles in economic regulation in Australia following market opening, notably that economic regulation should include consideration of asset optimisation.
- 5. The ACCC decision did not refer to the 2006 UK Competition Appeal Tribunal decision about the Albion Water/Dŵr Cymru case.
- 6. The ACCC decision explicitly assumes that postage stamp pricing is non-distortionary, because final demand for sewage services is inelastic (See ACCC page 55). The existence of Flow's services demonstrates that demand for sewage services delivered by the NSW corporations is in fact substitutable and hence (cross) elastic.

¹⁰For example, see footnote 41 of the IPART Discussion Paper.

3 Introduction to Flow's submission

Flow Systems welcomes the opportunity to respond to the Independent Pricing and Regulatory Tribunal (IPART) April 2016 Discussion Paper: Prices for wholesale water and sewerage services.

3.1 About Flow Systems

Flow Systems and its subsidiaries (Flow) build and operate local sustainable multi-utilities. Flow bundles energy and water services to reduce cost and achieve high sustainability outcomes.

Flow is an Australian company backed by Australian, New Zealand and international investment. In 2013 global asset management leader Brookfield Infrastructure Partners, took a 51 per cent shareholding in Flow Systems.

Brookfield Infrastructure Partners was established by Brookfield Asset Management, which has more than \$175 billion in assets under management and a strong 100+ year history of owning and operating assets. The company has a focus on real estate, power, infrastructure, district water and energy and private equity.

3.2 Acknowledgement

Flow acknowledges the research and analysis for this submission provided by Simon Orme, Director at Sapere Research Group, and Darren Nelson, Associate at Sapere Research Group.

3.3 Structure of this submission

The structure of the remainder of this submission is as follows:

Part 3 sets out the context including the nature of Flow's services and a brief summary of the IPART Discussion Paper.

Part 4 provides an analysis of the implications of IPART's approach followed by a critique relative to relevant statutory and policy considerations.

Part 5 discusses the economic underpinnings of retail-minus or Efficient Component Pricing Rule (ECPR) methodologies, its application internationally, and identifies theoretical criticisms.

4 Context and background

4.1 Flow's interest in wholesale water and sewerage pricing

In NSW, Flow is a licenced network operator and retail supplier under the WIC Act. To date, Flow has been appointed as the water utility in 10 communities, which will comprise more than 25,000 dwellings and 800,000m² of commercial space when complete.

In its capacity as a water utility, Flow purchases certain wholesale water and sewerage services from both statutory state owned corporations (Sydney Water and Hunter Water, henceforth 'vertical suppliers') for some of its community utility schemes. Depending on the specific scheme, these services may include:

- the wholesale purchase of delivered drinking water
- the discharge of domestic and trade wastewater to adjacent sewers
- the extraction of sewage from adjacent sewers

In addition to purchasing wholesale services from both Sydney Water and Hunter Water, Flow competes with them in the delivery of retail water and wastewater services to urban growth areas across both the housing supply and urban renewal markets.

For example, Flow's water subsidiaries seek to provide comprehensive water services for the communities in which they operate. This includes the development and operation of water and sewerage infrastructure within the areas where Flow is the appointed and licensed water utility providing retail customer services. Water industry infrastructure developed by and on behalf of Flow enables beneficial reuse of up to 70 per cent of water within the community.

Wastewater (and in some instances stormwater) is harvested across the community and returned to local water centres where the water is treated to the highest Australian standards for reuse. Providing recycled water substantially reduces drinking water demand and sewer main discharge volumes which has important environmental and water security benefits.

In addition to providing infrastructure, a key part of Flow's utility service offering is simplicity. Flow enables customers to deal with a single multi-utility in place of multiple utility service providers.

4.2 Services purchased from vertical suppliers

Flow's local community schemes typically interface with one or both of the vertical supplier's water and sewerage systems. As a consequence, Flow is a wholesale customer of both vertical suppliers (NB. albeit not necessarily for every local community scheme).

Flow first entered into an inter-utility services agreement (USA) with Sydney Water in 2013 for the Central Park scheme, and subsequently in 2014 for the Discovery Point scheme, with both of these agreements applying IPART determined non-residential pricing tariffs.

Flow has recently entered into its first USA with Hunter Water for the Cooranbong scheme, and are about to execute another USA for the Huntlee scheme. Despite Flow's protests including escalation to IPART and the Minister for Lands and Water, Hunter Water has pre-empted any IPART determination on wholesale pricing by imposing retail-minus tariffs for both USAs.

4.3 Substitution/competition attributable to Flow infrastructure and services

Flow's infrastructure and services by-pass or substitute the services provided by the vertical suppliers. Fully or partially by-passed services include the following.

Fully by-passed services include:

- Retail services, including meter reading, billing and customer service
- Operations and maintenance (including asset renewals) of water and sewerage reticulation infrastructure within the areas of operation where Flow is the licenced water utility
- Security of water supply services such as the Sydney desalination plant at Kurnell

Substantially but not fully by-passed services include:

- Bulk water and sewerage transportation infrastructure with which Flow's infrastructure is interconnected
- Bulk water storage services supplied by Water NSW (formerly the Sydney Catchment Authority)
- Bulk sewage treatment and environmental discharge services, such as Sydney Water's deep water ocean outfalls

For the services that are not fully by-passed, Flow continuously relies on and purchases wholesale water storage, treatment and transportation services, and intermittently relies on and purchases sewage transportation, treatment and disposal services. However, to the extent these services are by-passed (and this varies between Flow's 10 water utility schemes), Flow's utilisation of these wholesale services is substantially different from, and much lower than, customers who continue to receive the full vertically integrated services from the two state owned corporations.

In addition, Flow recognises that in some instances, its customers may benefit from activities undertaken by the vertical suppliers outside of Flow's areas of operation. An obvious example of this would be infrastructure asset repair/improvement works such as Sydney Water's SewerFix program to abate rainwater inflow/infiltration which adversely impacts on the capacity of its sewerage systems and can lead to uncontrolled overflows of sewage to the environment.

Flow's ability to by-pass existing services reflects significant change in both technology and market preferences. In particular, it reflects:

- a desire on the part of end use customers to reduce their ecological footprint and minimise their exposure to the risk of water restrictions or the additional cost of infrastructure providing for water supply security under extended drought;
- innovative integration of local reticulation services and relatively small scale treatment technology to enable wastewater recycling for the production of non-potable water; and
- innovative integration of stormwater management and water storage facilities, enabling capture of stormwater that would otherwise have no economic value and indeed during storm events can present a flooding and environmental pollution hazard.

In addition, enhancing water security using small scale decentralised treatment technology is substantially lower cost compared with large scale facilities such as the Sydney desalination plant and associated pipeline. This is because localised water recycling avoids or reduces:

- the capital and operating cost (including energy consumption) of treated water conveyance infrastructure from the desalination plant to interconnect with existing water distribution systems;
- the capital and operating cost (including energy consumption) of water conveyance infrastructure transporting saltwater into the plant and brine back out to sea; and

• the significant holding costs of the desalination plant when it is not in operation, plus the significant costs and lead times to start and stop operations.

4.4 Brief summary of IPART Discussion Paper

Under Division 1 of the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) (IPART Act), IPART has a standing reference to conduct investigations and determine prices for government services supplied by government agencies listed in a Schedule to the IPART Act. Sydney Water and Hunter Water are listed on that Schedule and their services have historically been regulated under Division 5.

The April 2016 IPART Discussion Paper forms part of its first review of the prices Sydney Water and Hunter Water can charge wholesale customers. Wholesale prices were originally intended to be reviewed as part of IPART's ongoing 2016 reviews of regulated water and sewerage services. In response to initial consultation, and in consideration of its legislative responsibilities, IPART has decided a separate and longer review of this new and complex area of water price regulation is necessary.¹¹

Both Sydney Water and Hunter Water are declared to be monopoly suppliers of wholesale water and sewerage services in their area of operations. IPART considers regulation is needed to protect wholesale customers from potential abuses of this monopoly power.

In addition, IPART states in its Discussion Paper that it does not consider that the WIC Act access regime is currently a suitable framework for this regulation.¹² This is because the WIC Act focuses on regulating access to 'infrastructure services', rather than the wholesale purchase of bundled water and sewage reticulation and treatment services.¹³ Instead, IPART proposes setting wholesale prices under Division 5 of the IPART Act.

Market participants may continue to attempt to negotiate bilaterally with the monopoly vertical suppliers. However, IPART proposes that regulated prices would apply unless an alternative agreement is in place between the parties.

The discussion paper states that IPART's main objective is to encourage efficient entry to the water and sewage services markets.¹⁴ This is defined as avoiding situations where regulated wholesale prices may:

- encourage inefficient entry if the price is too low, or
- discourage efficient entry if the price is too high.

In forming its view, IPART considers the existing legislative framework and current NSW Government policies.¹⁵ These include:

- The matters specified in section 15 of the IPART Act. These include the cost of providing the services concerned, protection of consumers, appropriate return on public sector assets and other factors.
- The service levels specified in public utilities and wholesale customer's licences, relating both to the level of service and the obligation to service.

¹¹See page 11 of the IPART Discussion Paper.

¹²See page 16 of the IPART Discussion Paper.

¹³See page 2 of the IPART Discussion Paper.

¹⁴Ibid.

¹⁵See section 2.5 from page 20 of the IPART Discussion Paper

- The government's postage stamp pricing policy, under which charges are the same in an area of operations, notwithstanding differences in cost to service.
- The current government direction that Sydney Water and Hunter Water set water and sewerage developer charges at zero. Together with postage stamp pricing, this direction means that the vertical suppliers can use revenue from their broader customer base to cross subsidise growth infrastructure.
- The potential for component pricing in the future, under which prices could potentially be unbundled for different points in the supply chain.
- The potential for future policy changes.

IPART states¹⁶ that its:

'...preliminary view is that retail-minus (plus net facilitation costs) is the right pricing approach for wholesale services at this time. We consider that, while the policy of postage stamp pricing applies to Sydney Water and Hunter Water prices, retail-minus is the only viable pricing approach that can allow the incumbent public water utilities and the new entrants to compete on equal terms, so that new entry and competition occurs where it is efficient.

On balance, our preliminary view is that the 'minus' component should reflect the costs that a reasonably efficient competitor would incur in delivering water and/or sewerage services from the wholesale connection point to the end-users. We consider this would provide greater scope for dynamic efficiency gains (and hence greater benefits to consumers over time) than the retail minus avoidable cost approach we suggested in our Issues Papers.

Facilitation costs are costs (positive) or cost savings (negative) to the wholesale service provider of servicing the wholesale customer that are:

- not reflected elsewhere in the retail-minus pricing formula, and
- additional to what the wholesale service provider would have otherwise incurred in the absence of servicing the wholesale customer.'

IPART states that:¹⁷

In the current policy and operating environment, we consider that wholesale customers should be charged on a **retail-minus** basis as it is consistent with the maintenance of postage stamp pricing. It would allow the wholesale customer to compete with the incumbent on the costs of providing the contestable service (or services). Retail-minus is based on the total end user retail charges (as determined by IPART) **minus** the costs of the contestable service (or services).

The contestable service(s) is the service the wholesale customer is providing (or seeking to provide) to retail customers 'upstream' or 'downstream' of the wholesale services it has purchased from the incumbent utility. That is, the service between the wholesale connection point and the end user (retail) customers.

¹⁶See page 26 of the IPART Discussion Paper.

¹⁷See page 27 of the IPART Discussion Paper.

We do not consider a cost of service pricing approach appropriate in the context of postage stamp pricing, as it could disadvantage either incumbent utilities or wholesale customers, depending on the situation.

In a 2015 Discussion Paper, IPART noted that it could base the 'minus' on the incumbent's avoided or avoidable costs, both of which are related to the efficient component pricing rule:

Avoided costs are the costs that Sydney Water or Hunter Water would actually avoid if it no longer directly supplied water or sewerage services from the wholesale connection point to end use customers (i.e., short run marginal costs) page 31.

Avoidable costs typically include long term costs that Sydney Water and Hunter Water may avoid in the present and future or could have avoided in the past if the entry of a wholesale customer was expected...And ... avoidable costs are costs that a vertically integrated access provider would otherwise incur in the provision of a good or service that could be avoided if it ceased provision of the relevant contestable activities completely in respect of the good or service in question.

Of the above two options, IPART suggested the minus would be based on avoided costs, drawing on the Australian Competition and Consumer Commission's (**ACCC**) access dispute between Services Sydney Pty Ltd and Sydney Water Corporation, Final Determination Statement of Reasons, 22 June 2007, page 5. However, IPART states that:

On balance, our view at this stage is to apply the reasonably efficient competitor benchmark while the competitive market is developing. Over time, competition should create an incentive for innovation that lowers costs and enhances service.

IPART identifies a number of options for calculating the minus and net facilitation costs components of retail minus plus net facilitation costs pricing:

- Option 1: a system-wide average or typical retail-minus and net facilitation cost to be used for all schemes.
- Option 2: a methodology that wholesale service providers must use to calculate retail-minus and net facilitation costs for each scheme.
- Option 3: the minus and net facilitation costs for each scheme would be determined.
- •

Options 2 and 3 may require interim or default prices for each scheme. Options for such interim or default prices include option 1 or the prevailing IPART determined non-residential prices.

4.5 Brief summary of retail-minus or ECPR

The retail-minus approach proposed by IPART is also known as the efficient component pricing rule (ECPR). It was one of the first attempts by economists, such as *Baumoland Willig*, to address the issue of efficient access pricing in order to encourage or not discourage competition downstream of the vertically-integrated infrastructure service provider.

ECPR was originally developed as an alternative solution to marginal-cost-based prices in access pricing for bottleneck facilities by potential (or actual) providers of complementary components. In particular, *Baumol* developed ECPR in relation to railways (i.e. access to rail track) in the 1960s and 1970s and then applied it in telecommunications (with co-authors *Willig* and *Sidak*) in the 1980s and 1990s.

There was considerable debate in the 1990s amongst some of the biggest names in regulatory economics including others like *Economides*, *Laffont*, *Kahn*, *Tirole*, *Tye* and *White*. These ECPR debates were exacerbated by what appeared to be the same (or a very similar) rule which kept on changing in name, e.g. *Baumol-Sidak* rule; *Baumol-Willig* rule; optimal component pricing rule; parity principle; product component pricing principle; and retail-minus. The latter was perhaps more accurately a re-branding, in circumstances where the retail price contains a monopoly rent element.

The literature sources define ECPR in similar but different ways. One definition of ECPR is as *equalling* a vertically-integrated infrastructure provider's:

- 1) direct per-unit incremental cost of the access product; *plus*
- 2) the opportunity cost of that provider's lost profit in retail markets caused by providing access.

The second component of ECPR is thus the retail-minus, intangible cost or retail margin/profit. The first component is the minus or tangible cost.

A technical formula for ECPR is as follows: PA = MCA + (PR – MCR).

In this formula, ECPR establishes the access price (PA) as the sum of the marginal cost (MCA) and the profit or contribution to the infrastructure provider's shared and common costs (i.e. price less marginal cost) contained in the provider's downstream product (PR – MCR). Incremental, avoidable and/or avoided cost is often used as a more practical proxy for marginal cost, with these proxies often considered the same in practice.

5 IPART's proposed approach wrong

This section sets out Flow's analysis of IPART's proposals and assesses whether the proposals would have the competition outcomes envisaged by IPART. It then assesses IPART's proposals relative to the statutory and other policy criteria, precedents and considerations identified by IPART.

5.1 IPART's proposed pricing approach

The Discussion Paper advances the rationale for IPART's proposals relative to legislative and other factors at some length. It also provides an extensive discussion on the reasons for proposing a retailminus avoidable (plus facilitation) costs approach to setting wholesale prices. For example, the Discussion Paper states that:¹⁸

If wholesale customers and Sydney Water and Hunter Water are to be able to compete for retail customers on equal terms, we need to take this combined effect into account. Ideally, our pricing determination should be flexible enough to create a level playing field....

In Flow's view, once the impacts of IPART's proposals are properly understood, it is clear these fail to create the desired level playing field. In the absence of robust analysis comparing the scale of avoided costs relative to the proposed price for "unavoidable" yet by-passed costs, IPART is unable to arrive at logically valid conclusions along the lines of the quotation above, as to the competitive and efficiency impacts of its proposals. In addition, IPART does not analyse the implications of its proposals for wholesale customers relative to vertical suppliers. Flow's understanding of the effect of IPART's retail-minus proposals, for the vertical supplier as compared with a wholesale customer, is depicted in Figure 2 below.



5.1.1.1 Figure 2. Depiction of retail minus avoided cost wholesale pricing¹⁹

¹⁸See page 24 of the IPART Discussion Paper.

¹⁹ The cost stacks depicted could represent average unit cost components, the components of typical retail bills or aggregate costs for a given area of operation or customer segment. The size of the cost components should be viewed as indicative only. The relative size of the by-pass cost and avoided cost elements is important and discussed below. However the relative size of the other cost components does not affect Flow's analysis of IPART's proposals.

As mentioned in the section 2.3.1 What IPART is proposing on p6, Flow anticipates setting wholesale prices relative to efficient costs would result regulated wholesale prices that are a lower than those under current IPART determined non-residential tariffs, especially for Hunter Water. This is because current tariffs paid by Flow incorporate recovery of costs that have not been subject to a pass through directions under Section 16A of the IPART Act. Notably, this includes recovery of the cost of setting developer charges below cost at zero. This unauthorised and excess cost pass through would be removed under Flow's proposed approach.

The left hand side represents the cost stack for the vertical suppliers (the two state owned corporations whose wholesale prices are the topic of the present IPART review). The right hand cost stack represents the cost stack for a wholesale customer such as Flow, that by-passes some – but not all – of the vertical supplier's services, and continues to require wholesale services provided by a vertical supplier.

As noted, Flow continues to require and purchase certain wholesale services from the vertical supplier. This is represented by the blue component.

In addition, Flow recognises that it and its customers should make a reasonable contribution to certain community and contingency services provided by the vertical suppliers. This is represented by the yellow component. This could include purchase of "reserve" or backup services during any major planned or unplanned outage of Flow's infrastructure or services. It could also include a contribution to the vertical supplier's infrastructure asset management programs such as improvement and renewal works.

In Flow's view, the orange and turquoise components are the main issues in contention in this review. The turquoise component is intended to represent the net of avoided costs and facilitation costs, and future avoidable costs.

The turquoise component is represented as significantly smaller than the orange component. This reflects the fact that avoided costs represent short-run costs (retail servicing and short-run infrastructure operating costs). For a capital intensive service as in this case, short-run costs are likely to be modest relative to infrastructure costs (capital and depreciation charges) of the by-passed services. In addition, the orange component incorporates a contribution to postage stamp pricing, for example to fund network extensions to new developments, since in the case of the two state owned corporations, these are not funded from developer contributions.

We have been unable to identify any considerations in the Discussion Paper that support or leads to a conclusion that the orange component would be substantially smaller than the turquoise component, in order for the sum of the two cost stacks to be at least equal. For example, in its water retail pricing decisions, the allowance for the operating cost building block (which broadly corresponds to avoided cost) is substantially lower than the combined allowances for capital (return on assets) and depreciation cost building blocks (reflecting the capital intensive nature of the services).²⁰

Flow acknowledges that, over time, the avoided costs component could be expected to grow. This reflects the fact that any incremental investment in the by-passed infrastructure would in future

²⁰See for example Figure 3.1 on page 49 of IPART's March 2016 Draft Determination for Sydney Water for 2016-2020.

take into account at least existing by-pass by wholesale customers, and hence would be both avoidable and avoided. Nevertheless, given the very long life nature of the relevant assets, this merely reduces the total cost gap and the gap could be expected to persist well beyond the period of a five year price determination.

For illustrative purposes, the retail cost component for the wholesale customer is assumed to be the same as the avoided cost component. This is a simplification that does not affect the outcome of the present analysis.

In Flow's view, the efficient wholesale cost would be largely the same if not lower than current nonresidential tariffs set by IPART. This is because, under current tariffs, there is an assumed ratio of sewerage usage relative to water usage. However, this assumption is not valid for any of Flow's water utility schemes and results in prices that exceed efficient cost.

5.2 Negative effect of IPART's proposed pricing approach

IPART's view on the effect of its approach is expressed on page 27 as:

Because this amount (the wholesale price) still includes the cross-subsidies (positive or negative for a given location) associated with postage stamp pricing, the wholesale price will allow the incumbent retailer (the wholesale service provider) and the wholesale customer to compete on equal terms in all locations.

Flow agrees the effect of IPART's proposal is that wholesale prices for wholesale customers would include a contribution to the "unavoidable" cost of the vertically integrated supplier's services (capital and depreciation charges, and certain postage stamp price-funded costs) that have been by passed by the wholesale customer, as if no by-pass had in fact taken place.²¹The wholesale service provider and wholesale customer will in fact not compete on equal terms.²²

This is because, to the extent the payment for the by-passed service substantially exceeds the value of the avoided plus facilitation cost component, the unsurprising outcome of being effectively charged twice to provide one service is that the total costs for the wholesale customer will exceed those for the vertical supplier. Since IPART's proposed approach references the regulated retail price for the vertical supplier, this also means that total supply costs for the wholesale customer will exceed the regulated retail price.

The excess cost for the wholesale customer arises even if the cost of the by-passed service exceeds the costs to by-pass the service (adjusted for any differences in customer value). In other words, the total supply costs for the wholesale customer will exceed the costs of the vertical supplier, even if the wholesale customer is significantly more efficient (adjusted for any differences in customer value).

IPART identifies two approaches to estimating the size of this component – one based on the efficient cost of the vertical supplier, and one based on the cost of a reasonably efficient entrant.

²¹As noted earlier, over time, avoided costs may increase due to subsequently avoidable and hence avoided costs.

²² As noted earlier, IPART has so far not undertaken the analysis necessary for its conclusion above to be valid logically.

Strictly speaking, there should in addition be an allowance for postage stamp pricing.²³ In fact, as indicated in Figure 2, the choice between these approaches does not change the essential difference between the sum of the two cost stacks. This is that any difference in the sizes of the left and right hand orange components (the cost of by-pass being higher or lower than the proposed price of the by-passed service) does not change the existence of a difference between the two cost stacks, in favour of the vertical supplier; it merely affects the size of this difference.

This difference arises because the IPART proposals mean the wholesale customer would be required to pay for the cost of the vertical supplier's services (and associated infrastructure) it is by-passing. This contribution would be in addition to the cost to the wholesale customer of providing the by-passed services (and associated infrastructure).

That is to say, IPART is proposing that the wholesale customer (and its retail customers) should pay for the by-passed service, as if they used the by-passed service instead of by-passing the service. In other words, IPART is proposing that wholesale customers should effectively pay twice to be able to provide the same service.

This concept is also related to IPART's reference to the obligation to supply for the vertical suppliers. It implicitly considers the obligation to supply creates a right for the vertical supplier to charge for supply, whether the supply is in fact provided (fully), or not.

Similarly, this concept is also related to IPART's reference to the fact that the vertical suppliers have putatively been directed not to apply developer charges.²⁴ IPART is therefore proposing that Flow's customers should pay not only for their own water and wastewater systems, but also for extending the vertical supplier's reticulation systems to other new developments.

To sum up:

- IPART is proposing that wholesale customers should effectively pay twice for the same service.
- While not discussed by IPART, it seems likely "unavoidable" costs would exceed avoidable costs.
- The wholesale customer faces substantially higher costs, even if it assumed it is no more or less efficient than the vertical supplier.
- Contrary to the Discussion Paper, the vertical supplier and the wholesale customer do not compete on equal terms.
- The wholesale customer would almost certainly bear costs that exceed regulated retail prices for the vertical supplier.

5.3 IPART's responsibilities to WICA proponents under the IPART Act

Section 15(1) of the IPART Act provides that:

²³For simplicity of presentation, Flow has not attempted separately to identify the postage stamp contribution in the orange cost component in Figure 2. It has explicitly included the yellow component, representing its acceptance of the concept that there may be services wholesale customers receive that have a broader community benefit and hence which should be recouped from wholesale customers to avoid "free-riding.".
²⁴Note discussion on this point in Section 4 below.

'In making determinations and recommendations under this Act, the Tribunal is to have regard to the following matters (in addition to any other matters the Tribunal considers relevant):

(a) the cost of providing the services concerned,

(b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services,

(c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales,

(d) the effect on general price inflation over the medium term,

(e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers,

(f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the Protection of the Environment Administration Act 1991) by appropriate pricing policies that take account of all the feasible options available to protect the environment,

(g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets, (h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body,

(i) the need to promote competition in the supply of the services concerned,

(j) considerations of demand management (including levels of demand) and least cost planning,

(k) the social impact of the determinations and recommendations,

(I) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).'

Neither Section 15 nor the Section 41 WIC Act pricing principles refer to the concept of setting wholesale/access prices on the basis that the wholesale customer has an obligation to pay for the cost of the vertical supplier's services that are being by-passed by the wholesale customer. IPART appears to be suggesting the introduction of a new pricing principle – a principle that has the effect of protecting the incumbent supplier in full from asset stranding or optimisation, in the event of by-pass. This squarely conflicts with the requirement in section 15(i) of the IPART Act that IPART must consider *the need to promote competition in the supply of the services concerned*.

Moreover, IPART appears to be elevating a putative obligation to protect the incumbent's existing investment ('revenue sufficiency') above other relevant considerations and pricing principles in the relevant legislation. Not only is the avoided cost principle not supported by the relevant legislation, it is inconsistent with the relevant legislation. It is difficult, if not impossible, to reconcile the proposed retail minus avoided cost approach with the relevant statutory requirements, for the reasons set out in detail in the following sections.

5.3.1 Section 15 of the IPART Act

This section discusses IPART's proposals with respect to each matter to which, under Section 15 of the IPART Act, it has a statutory duty to have regard.

It is apparent from the discussion in this section that, if IPART reflects in its determination its proposed approach, the determination would be open to judicial review in the NSW Supreme Court Common Law Division on the basis of jurisdictional error (ultra vires), or more generally on the basis that IPART took into account irrelevant considerations and failed to take into account relevant considerations.

5.3.2 Section 15(1)(a) - the cost of providing the services concerned

IPART's proposal would exceed the efficient cost of providing the relevant wholesale services. Retail- minus would incorporate recovery of all "unavoidable" costs for services that are being bypassed. This is imposing payments for services that are not used. The implied distinction between "avoidable" and "unavoidable" costs does not withstand scrutiny given sound regulatory and commercial precedent for asset optimisation.

The definition of "service" in the IPART Act refers to 'the supply of water... or other thing'; and 'the making available for use of facilities of any kind'; and the 'exercise of ... functions...for which a rate of levy is payable...' As discussed further below, conceptually and in practice under Section 15, as typically applied in utilities such as electricity, the cost of providing the services concerned does not incorporate recovery of the cost of the vertical supplier assets/services that are being by-passed by the wholesale customer.

5.3.3 Section 15(1)(b)- the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services,

IPART's proposal would constitute an abuse of market power in terms of prices, pricing policies and standard of service. This is because retail-minus would transfer asset optimisation risk from suppliers to consumers, on the basis of 'revenue sufficiency'. This would present a margin squeeze.

The present proposal for retail-minus contrasts with the first major IPART pricing decision under Section 15, *Electricity Prices*, March, 1996. IPART applied an optimised deprival value (ODV) methodology to set the Regulated Asset Bases (RAB), which influence capital and depreciation charges. IPART optimised the assets of existing suppliers, in recognition of the effect of competition for existing capacity and previous inefficient investment.

A critical feature of competitive markets is that suppliers, not customers, bear the risk of asset stranding or optimisation as a consequence of market or technology change, such as is currently occurring in some NSW water/sewage services markets. Transferring asset stranding risk to customers, as proposed by IPART, would represent the exercise of monopoly power (sanctioned by IPART). The proposal represents an abuse of monopoly power and hence is inconsistent with Section 15(1)(b).

The proposed principle that costs arising from the historical asset base of the monopoly supplier are "unavoidable"— or "inviolable" or "fixed"— is inconsistent with theory and most practice in Australia. In many other contexts, in exercising its functions under Section 15(1), IPART has acted in accordance with principles and practices established under the 1990s Hilmer reforms.

These reforms recognised that, upon opening previously closed markets to competition, some asset stranding (or a reduction in the "unavoidable" costs of the vertical supplier) could be expected and therefore needed to be incorporated into the price setting methodology. This is because, at the point after markets are opened, the vertical supplier is likely to have excess capacity and investment relative to the previous market share and demand assumptions on which it previously invested in infrastructure capacity and services.²⁵

²⁵This problem is reduced to the extent there is demand growth. It would be reduced to the extent competition was somehow limited to serving increased demand. But the clear intent of the Hilmer reforms was that competition would not be so limited.

In recognition of this problem, in regulated price setting, regulators typically applied an asset optimisation methodology (such as Optimised Depreciated Replacement Cost or ODRC) to establish the capital charge and depreciation building blocks used for setting regulated prices. The use of ODRC is consistent with outcomes in competitive markets, where asset stranding/optimisation risk sits with suppliers, not customers. The existence of optimisation risk in competitive markets is also reflected in the recoverable amounts (Impaired Assets) test under International Financial Reporting Standards (IFRS), and associated provisions for accelerated depreciation charges.²⁶

Under IFRS, indications of asset impairment (IAS 36.12) include:

External sources:

- market value declines
- negative changes in technology, markets, economy, or laws
- increases in market interest rates
- net assets of the company higher than market capitalisation

Internal sources:

- obsolescence or physical damage
- asset is idle
- part of a restructuring or held for disposal
- worse economic performance than expected for investments in subsidiaries, joint ventures or associates,
- the carrying amount is higher than the carrying amount of the investee's assets, or
- a dividend exceeds the total comprehensive income of the investee

These lists are not intended to be exhaustive. [IAS 36.13] Further, an indication that an asset may be impaired may indicate that the asset's useful life, depreciation method, or residual value may need to be reviewed and adjusted. [IAS 36.17]

Asset optimisation is a normal feature of markets and is currently being experienced in a number of sectors in Australia, including resources and associated transport infrastructure, in response to the downturn in global commodity prices. Similarly, due to falling demand for remote thermal electricity, over the last five or so years 4.7GW of serviceable generation capacity has been withdrawn (and hence optimised) from the National Electricity Market. Wholesale electricity markets are competitive and customers or new entrant generators have not been required to continue to pay the cost of the optimised generation capacity.

It is recognised that, in recent times, there has been less emphasis on optimisation in Australia, and that roll-forward approaches to setting capital charges are now more likely to be applied, as is currently the case for electricity networks. It also recognised that, in the case of the two water corporations, an initial asset optimisation was not applied. Instead a so called 'line in the sand' approach to the initial RABs was applied.

The absence of any asset optimisation for the vertical suppliers may have reflected an assumption that, even after market opening enabled under the WIC framework, widespread competition and

²⁶ See IAS 36 under IFRS available at <u>http://www.iasplus.com/en/standards/ias/ias36</u>

market entry would not lead to an effective part-stranding of existing water/sewerage assets, requiring consideration of optimisation. If this were so, the existence of Flow and other similar service providers, is evidence this assumption now needs to be revisited and optimisation considered.

5.3.4 Section 15(1)(c) - the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales.

IPART's proposal is equivalent to allowing excess returns on public sector assets (abuse of market power). The proposed risk transfer to customers appears inconsistent with Section 15(1)(c) of the IPART Act (and also section 41(2)(a) of the WIC Act). An appropriate return on public sector assets (Section 15(1)(c)) reasonably incorporates a premium 'commensurate with the regulatory and commercial risks involved'.

Flow has been unable to identify any evidence that, in setting the Weighted Average Cost of Capital (WACC) for the NSW Water SOCs, IPART has in fact applied a significant discount to reflect a transfer of asset optimisation risk from suppliers to customers. For example, in IPART's March 2016 Draft Determination for Sydney Water, no provision is made (for example by way of redefining the set of comparator companies for deriving an asset beta) to discount the capital charge building block to reflect a transfer optimisation risk from supplier to customer. It therefore appears that, by applying a capital charge that assumes the vertical suppliers bear demand risk, IPART is proposing a rate of return substantially in excess of what would be commensurate with regulatory and commercial risk.

5.3.5 Section 15(1)(e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers

IPART's proposals contravene this requirement. This is because transferring asset optimisation risk reduces efficiency in the supply of services, thereby increasing costs for consumers and taxpayers. Transferring risk to customers increases well known risks around 'gold plating', including inefficient and excessive investment and costs, and excessive operating costs.

5.3.6 Section 15(1)(f) - the need to maintain ecologically sustainable development (within the meaning of section 6 of the Protection of the Environment Administration Act 1991) by appropriate pricing policies that take account of all the feasible options available to protect the environment

IPART's proposals contravene this requirement. A key component of the value proposition for Flow's services is a reduced ecological footprint in the provision of water and sewerage services. The proposal would deter investment in innovative technologies, systems and business models that enhance ecologically sustainable development.

5.3.7 Section 15(1)(g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets,

Retail-minus is not necessary or justified in order to maintain financeability of vertical suppliers' relevant assets. Financial markets continue to invest in infrastructure and services under conditions where service providers bear asset optimisation risk. IPART's proposal gives an undue weighting to, and misapplies, this requirement, when read in the context of all of the matters set out under Section 15(1).

There could be an adverse effect from efficient wholesale pricing in terms of dividend payments, to the extent any asset optimisation reduces the base (net profit after tax), on which dividends are

normally payable. However, this issue arises only to the extent that expected dividends are based on an assumed exercise and abuse of market power, as discussed above, and hence is not valid.

In addition, the cost of any asset optimisation is a non-cash cost, and hence does not in itself reduce the cashflows available for distribution to shareholders. Flow does, however, acknowledge that over time efficient wholesale pricing could be expected to lead to lower cashflows and dividends being payable compared with proposals for prices being set well in excess of efficient prices.

5.3.8 Section 15(1)(h) - the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body

No comment.

5.3.9 Section 15(1)(i) - the need to promote competition in the supply of the services concerned

It is clear that, once IPART's proposals are fully explained and understood as representing a margin squeeze, IPART's proposals contravene this requirement. IPART does not provide any analysis or evidence to arrive at its assertion that its proposed approach would result in a 'level playing field'. To the extent the payment for the by-passed service substantially exceeds the value of the avoided plus facilitation cost component, total costs for the wholesale customer substantially exceed those for the vertical supplier. This is because the customer has to pay for by-pass *and* for the by-passed service. Since IPART's proposed approach references the regulated retail price for the vertical supplier, this also means that total supply costs for the wholesale customer will exceed the regulated retail price. The effect is to optimise the by-pass assets of wholesale customers. This creates substantial new barriers to future investment necessary to sustain and extend competition.

5.3.10 Section 15(1)(j) - considerations of demand management (including levels of demand) and least cost planning

Once IPART's proposals are fully explained and understood (see Figure 1 and surrounding discussion), IPART's proposals contravene this requirement. The proposed approach is equivalent to penalising demand management by continuing to set prices irrespective of any demand reduction. The proposed retail minus avoided cost pricing methodology will deter efficient demand management and future least cost investment in infrastructure that by-passes the vertical supplier, partly or fully. IPART's proposals do not conform to efficient demand management and least cost planning.

Section 15(1)(k) - the social impact of the determinations and recommendations

IPART's proposals would, if implemented in a determination, have adverse impacts for economic welfare and hence have adverse social impacts. These include the overwhelming likelihood that, due to the margin squeeze, the financial viability of WIC Act utilities will be compromised, resulting in the declaration by the Minister of supply failures and the appointment of last resort providers. The economic losers will be the customers of WIC Act utilities, who will be liable to pick up the additional costs charged by the last resort providers.

Section 15(1)(I) - standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

By deterring further entry of suppliers that recycle a substantial portion of water, sewage and wet weather flows, IPART's proposals would be detrimental in terms of long term reliability of supply (water security).

flow systems

5.4 Other policy considerations including postage stamp pricing "directions" and the WIC Act

Other policy considerations do not provide any basis for contravening Section 15 matters.

5.4.1 Infrastructure competition and overall industry efficiency

A possible rationale for IPART's proposed approach is that infrastructure competition raises overall supply costs and hence is not efficient (or legitimate). Under the analysis in preceding sections, such a rationale should be set aside for the following reasons.

- NSW Parliament via the WIC Act accepts the principle of water industry competition, and significant privately funded investments have already been made on the basis of the water industry competition regime established under the WIC Act.
- IPART's proposals appear contrary to the object (Part 21) of the WIC Act 2006.
- The water sector is in the early stages of substantial evolution and change, driven by technology and market factors, which improve efficiency and effectiveness (value) of services. Infrastructure competition is necessary for dynamic efficiency.
- There is significant international evidence that vertically integrated supply chains increase rather than decrease total supply costs.

5.4.2 Operating Licence Review

IPART states that an Operating Licence Review should follow rather than precede the present review.²⁷ Flow disagrees with this conclusion.

Any shortcomings in the current operating licences should be addressed via review and recommendations for change. The existence of these shortcomings should not be used as a reason for proposing a pricing methodology that contravenes IPART's obligations under Section 15 of the IPART Act and, with respect to entrants such as Flow, also Section 41 of the WIC Act.

The IPART paper refers to the requirements of operating licences for Sydney Water and Hunter Water.²⁸IPART notes that

Neither the operating licences nor the customer contracts currently distinguish between wholesale and retail services and customers. Where Sydney Water or Hunter Water provides services to any "customer" as defined in the operating licences they must meet the obligations of the customer contract regardless of whether the customer is a wholesale or retail customer, unless both parties enter into a separate agreement.

Flow accepts this is so. IPART's role in water includes making recommendations to Government about public utility and private sector licences and monitoring compliance.

This suggests that IPART should advise Government that the operating licences in their present form are inconsistent with the requirements of the IPART Act and recommend revision of the operating licences accordingly.

Regarding the obligation to provide services, the IPART Discussion paper notes:²⁹

²⁷See page 23 of the IPART Discussion Paper.

²⁸See discussion on page 21 of the IPART Discussion Paper.

Sydney Water and Hunter Water must ensure that drinking water and sewerage services are available on request to any property situated in their area of operation.

In Flow's view IPART should advise Government that the obligation to provide services is inconsistent with the requirements of the IPART Act and recommend revision of the respective Operating Licences accordingly. Flow notes that this requirement is flawed in that the Operating Licences do not properly define 'Area of Operations' to take into account areas of operation where an alternative scheme under the WIC Act is in place – hence this is inconsistent with the postage stamp principle in the WIC Act.

5.4.3 There appears to be only two valid and current directions for cost pass - through IPART states in its discussion paper³⁰ that:

We consider that, while the policy of postage stamp pricing applies to Sydney Water and Hunter Water prices, retail-minus is the only viable pricing approach...

Regarding developer charges being set at zero, the IPART Discussion Paper states³¹ that:

...in 2008 the then NSW government directed Sydney Water and Hunter Water to set developer charges for water, sewerage and storm water asset to zero.

This implies that a direction was issued under Section 20P of the State Owned Corporations Act 1989 (NSW) (**SOC Act**). If this were the case, then section 20P(4) applies under which:

The SOC may be reimbursed, from money advanced by the Treasurer or appropriated by Parliament for the purpose, amounts not exceeding the estimated net cost of complying with such a direction, or the estimated net amount of revenue forgone through complying with such a direction, as determined by the Treasurer having regard to such factors as the Treasurer considers relevant in the circumstances.

In other words, in the event section20P is enlivened, the cost may be recovered from an appropriation rather than from postage stamp contributions, including from wholesale customers as envisaged under IPART's proposals.

In addition, sections 20P(5) and (6) apply. Under these:

The portfolio Minister is required to cause a notice to be published in the Gazette setting out the reasons why a direction was given under this section and why it is in the public interest that the direction be given.

A notice referred to in subsection (5) is to be published within 1 month after the direction is given.

The existence of directions under section 20P of the SOC Act does not, in itself, appear to trigger a requirement for cost pass-through under section 16A. Under sections 16A (1) and 16A(2) of the IPART Act, the portfolio Minister may direct IPART to make a determination of the maximum price

²⁹See page 22 of the IPART Discussion Paper.

³⁰ See page 26 of the IPART Discussion Paper.

³¹See page 24 of the IPART Discussion Paper.

for a government monopoly service to include an amount representing the efficient cost of complying, or to include in the methodology a factor representing the efficient cost of complying.

The only cost pass through directions under section 16A of the IPART Act we can locate relate to water security and are:

- a direction to IPART to include the efficient operating costs of the desalination plant in Sydney Water's prices in its determination of regulated prices for Sydney Water, dated 4 March 2008
- a direction to IPART to include the cost of the construction of the Tillegra Dam and certain other recycling costs, dated 15 July 2008.

See comments on water security in section 5.4.1.7 below.

On request, IPART referred Flow to a letter attached to a 2009 pricing decision for Hunter Water Corporation³²In this letter, dated 18 December 2008 the then acting Treasurer wrote to the water corporations stating:

I am writing in regard to the Government's decision to abolish immediately Hunter Water and Sydney Water's developer charges for water, sewerage and stormwater services.

This decision results in developer charges lower than would be charged under the current methodology determined by the Independent Regulatory and Pricing Tribunal. Such outcome requires the Treasurer's approval under section 18(2) of the Independent Regulatory and Pricing Tribunal Act 1992.

Consistent with the Government's developer policy change, I approve zero developer charges for water, wastewater and storm water services under Section 18 (2) of the Independent Regulatory and Pricing Tribunal Act 1992.

I note that developer charges will continue to be used to recover the cost of recycled water services to new developments. In addition, Sydney Water will retain the ability to recover from developers the cost of servicing development that is not consistent with planning policies or NSW development program'

Section 18(2) of the IPART Act provides:

(2) The approval of the Treasurer must be obtained if another Minister, an official or an agency fixes (or takes action to fix) the price below the maximum price determined by the Tribunal or calculated in accordance with the determination of the Tribunal.

The December 2008 policy 'direction' was not expressed to be and does not appear to constitute a pass-through direction under section 16A of the IPART Act. The Treasurer's letter instead merely approved the nominated price to be fixed below the price that would otherwise have been determined by IPART. The existence of that approval does not appear to impose on IPART any obligation to, in making its pricing determinations, pass-these costs through as if there has been a direction under section 16A of the IPART Act (i.e. to apply postage stamp pricing). Indeed, it suggests IPART need not (and should not) make any consequential changes to its pricing decision.

³² Review of prices for water, sewerage, stormwater and other services for Hunter Water Corporation From date of Gazettal Water — Determinations and Final Report July 2009

IPART's statement in its Discussion Paper there was a direction to the corporations with respect to the pass through of the cost of developer charges being set at zero has so far not been substantiated and does not appear accurate.

The Treasurer's letter does not *in itself* constitute direction to the corporations, or provide any evidence of the existence of a direction to the corporations to abolish developer charges. The Treasurer's letter does not in itself appear to confer on the corporations a right or obligation to pass on the cost associated with the approval to customers (and hence a requirement for additional postage stamp recoveries).

The fact the approval is issued by the Treasurer, not the portfolio Minister (under section 20 (P) of the SOC Act) or the Premier (under section 24FB of the IPART Act), suggests the principle is the cost being approved by the Treasurer would be borne by the shareholders of the corporation (Treasurer and Portfolio Minister) in the form of a reduction in the performance of the corporation (lower returns and lower dividends).

In light of these points, it appears IPART has so far not provided evidence to support its preliminary conclusion that, in considering possible pricing methodologies, it is obliged to take into account government 'postage stamp policies', other than with respect to the two directions under section 16A of the IPART Act. In other words, even setting aside all the other arguments as to why retailminus should be applied (as set out in Sections 4.3 and 4.4), the basis for IPART adopting retailminus is far weaker than is suggested in the Discussion Paper.

5.4.4 Competition impact of zero developer charges

*The IPART paper also states that*³³*:*

If wholesale customers and Sydney Water and Hunter Water are to be able to compete for retail customers on equal terms, we need to take this combined effect into account. Ideally, our pricing determination should be flexible enough to create a level playing field with or without developer charges.

Once the competitive impact of IPART's proposals are properly understood, as set out in the discussion around Figure 1 above, it is clear that IPART's proposal fails to create the desired level playing field, whether or not developer charges are applied. This is because IPART's proposal is that Flow should contribute to the cost of extending reticulation to new developments served by the vertical suppliers. At the same time, in terms of local reticulation, IPART's proposal is that Flow's local reticulation services are competing with a vertical supplier offering the same services at zero cost to end use customers.

In Flow's view, setting developer charges at zero, including for areas of operation where Flow is the designated supplier, is equivalent to predatory pricing. If Section 46 (1)(aa) of the *Competition and Consumer Act 2010* applied to these services, it would in Flow's view not be permitted.

5.4.5 What postage stamp pricing in the WIC means

Section 41(3) of the WIC Act states:

³³See page 24 of IPART's Discussion Paper.

(3) These principles must be implemented in a manner that is consistent with any relevant pricing determinations for the supply of water and the provision of sewerage services, including (where applicable) the maintenance of "postage stamp pricing" (that is, a system of pricing in which the same kinds of customers within the same area of operations are charged the same price for the same service).

Flow notes that postage stamp pricing, as defined in Section 41, does not mean a uniform price for every customer within the territories serviced by the two NSW water corporations. In Flow's view the suggestion that wholesale customers contribute fully to postage stamp pricing (for service such as local reticulation which are by-passed) would be inconsistent with postage stamp pricing, as defined in Section 41 of the WIC Act, properly construed.

This is because Flow's customers are not receiving the same service as other customers and are in a different area of operations. Wholesale customers (and their end use customers) are:

- In an area of operations where local reticulation and wet weather flows are managed by someone other than the vertical supplier (the supplier licenced under the WIC Act);
- Receiving a different service; and/or
- Receiving a substantially reduced service (in terms of volumes) compared with other customers.

Actual differences in service levels vary substantially between Flow and other areas of operations, to the extent a Flow scheme completely or partially by-passes the infrastructure and services provided by the two NSW water corporations.³⁴ As explained earlier, Flow customers are not receiving services from the NSW Water Corporations with respect to:

- water or sewage reticulation
- water security
- management of wet weather flows (within Flow's area of operations)

Flow and its end use customers are receiving substantially reduced services with respect to:

- Bulk water and sewage transportation infrastructure with which Flow's infrastructure is interconnected;
- Bulk water storage services supplied by Water NSW and catchment management services provided by Hunter Water;
- Bulk sewage treatment and discharge services, such as Sydney Water's inland sewage treatment plants and coastal deep water ocean outfalls; and
- Wet weather flows downstream from Flow's areas of operations.

These considerations highlight that in fact there are different areas of operations within the territories of the two NSW water corporations. Flow does not agree with IPART's unstated assumption that 'area of operations' is equivalent to the entire territory over which the two NSW corporations operate. In terms of the WIC Act pricing principles, the areas of operations where Flow

³⁴ While there is some variation between Flow Schemes in this regard, all Schemes involve substantial by-pass of the relevant vertical supplier's infrastructure and services.

(and similar service providers) operates are different from other areas of operations within these territories.³⁵

5.4.6 WIC Act on price discrimination

Section 41(2)(c) of the WIC Act states that:

the price of access should not allow a vertically integrated service provider to set terms and conditions that discriminate in favour of its downstream operations, except to the extent to which the cost of providing access to other operators is higher.

In Flow's view, IPART's proposals clearly contravene this requirement. As explained in Figure 1 and the surrounding discussion, a key feature of the proposed retail minus avoided cost pricing methodology is to allow the vertically integrated service provider to set terms and conditions that discriminate in favour of its operations that are by-passed by the wholesale customer.

5.4.7 Water security

The cost pass through direction under Section 16A of the IPART Act to Hunter Water ceased to have The cost pass through direction under Section 16A of the IPART Act to Hunter Water ceased to have any practical effect from the end of June 2015, after Hunter Water made a final write-off of costs relating to the Tillegra dam. The cost pass through direction to Sydney Water relating to the Sydney desalination plant may continue to apply but in Flow's view should be reviewed.

Flow notes that experience since the Sydney desalination plant was completed suggests large-scale remote desalination is not a cost efficient means of providing water security, and that lower cost options such as those provided by Flow are significantly more efficient. Accordingly, Flow queries whether standing costs of the Sydney desalination plant to Sydney Water could be a candidate for optimisation. For example, while IPART allowed the full cost of offsetting carbon emissions in its 2008 Sydney Water Final Determination, there was no pass through direction under S16A to do so.

Flow's services contribute efficiently to water security by reducing demand for bulk water. Flow considers IPART's Discussion Paper has not made out a case for Flow and similar wholesale customers to contribute to the cost of water security provided by the vertical suppliers.

5.4.8 The ACCC 2007 access pricing decision

In its discussion of the definition of avoidable and avoided costs, the IPART Discussion paper refers to a 2007 access pricing arbitration decision under Part IIIA of the then Trade Practices Act (now the *Competition and Consumer Act 2010*).³⁶ The pricing principles in this Act under which the 2007 decision was made are very similar to those in Section 41, including section 41(2)(c). However, in Part IIIA, there is no equivalent to Section 41(3), regarding postage stamp pricing.

In Flow's view, the ACCC pricing decision is of limited usefulness and relevance in the present context and certainly does not provide a justification for the application of IPART's proposed retail minus avoided costs pricing methodology. This is because:

³⁵It seems likely there may be different areas of operations even where Flow and other providers are not active. For example, sewage treatment services for inland customers are substantially different from (and more expensive than) sewage disposal services for customers connected Sydney Water's deep water ocean outfall sewerage systems.

³⁶For example, see footnote 41 of the IPART Discussion Paper.

- 1. The ACCC decision was not made under and was not required to make reference to the considerations under Section 15 of the IPART Act. Similarly, while the WIC Act was in place, its enabling regulations had not been activated, and the WIC Act at the time was not in effect.
- 2. Under an ECPR approach, the integrity and validity of the retail price, on which the wholesale price is determined, is critical. The ACCC decision was based on the proposition that the then prevailing retail price (from IPART's 2005 determination) was, after deducting avoided costs, sufficient to provide for efficient entry to address concerns at the time over water security. It appears, however, that the ACCC was not informed, prior to releasing its decision on 19 July 2007, that the NSW Premier had on 13 June 2007already written to IPART requiring it to bring forward its scheduled review of water price by one year, in order to increase the retail price substantially, to accommodate the additional cost of the Sydney Desalination Plant. The fact that the ACCC's proposed access price had already been overturned by the then NSW Premier, on the basis it was insufficient for new entry to provide for water security, substantially weakens the authority of the ACCC decision, and its relevance in the present context.
- 3. With respect to its discussion of avoided cost, it appears the 2007 ACCC decision did not fully draw out or contemplate the competition and efficiency implications of a retail-minus avoided cost pricing methodology, along the lines of the discussion around Figure 1 above. As a result, it did not identify the inconsistency between an ECPR-based approach and well established principles in economic regulation in Australia following market opening, notably that economic regulation should include consideration of asset optimisation. The ACCC decision referred to the concept of optimisation only at the initial RAB valuation stage. Thereafter, it assumes (but only implicitly) there is no optimisation in other words that customers should bear the risk of reduced utilisation of the asset due to by-pass.
- 4. The extent of by-pass by Flow and similar providers substantially exceeds the extent of by-pass that would have occurred if Services Sydney's investment had proceeded. The arbitration focused on the avoided cost relating to the proposed by-pass of sewage treatment and disposal infrastructure at the three major Sydney Water Deep Ocean Outflows or DOOFs. The extent of by-pass then proposed is substantially less than the actual by-pass provided by Flow and similar wholesale customers. As a result of this, it is possible that, in its considerations of postage stamp pricing, the ACCC decision did not reflect a full understanding that present wholesale customers are operating in a different area of operations, are different types of customer and are receiving a different level of service.
- 5. The ACCC decision does not refer to the 2006 CAT Albion/*Dŵr Cymru* decision.
- 6. The ACCC decision explicitly assumes that access prices that include a contribution to maintaining postage stamp pricing will have minimal impact on the efficient use of and investment in the infrastructure by which services are provided, because final demand for sewage services is inelastic (See ACCC page 55). However, the existence of Flow's services demonstrates that demand for sewage services delivered by the NSW corporations is in fact substitutable and hence (cross) elastic.

5.4.9 National Water Initiative (NWI) pricing principles

Flow notes the NWI pricing principles include a principle to ensure sufficient revenue streams to allow efficient delivery of the required services. In Flow's view this principle is addressed adequately under Section 15 of the IPART Act and specifically Section 15(1)(c) (appropriate rate of return) and Section 15(1)(g) ("financeability").

As noted in section 4.3.4 above, revenue sufficiency does not imply immunity from optimisation risk. In IPART's March 2016 Draft Determination for Sydney Water, no provision is made (for example by way of redefining the set of comparator companies for deriving an asset beta) to discount the capital charge building block to reflect a transfer optimisation risk from supplier to customer.

As noted in section 4.3.7 above, immunity from asset stranding is not necessary or justified in order to maintain financeability of vertical suppliers' relevant assets. Financial markets continue to invest in infrastructure and services under conditions where service providers bear asset optimisation risk.

On the other hand, for the reasons set out earlier in this section, IPART's proposal does not promote the promote economically efficient and sustainable use of:

- 1. water resources
- 2. water infrastructure assets, and
- 3. government resources devoted to the management of water.

Moreover, IPART's proposals are contrary to the principle of user-pays and achieve pricing transparency in respect of water storage and delivery in irrigation systems and cost recovery for water planning and management. Further, IPART's proposal would not avoid perverse or unintended pricing outcomes.

Box NWI water pricing principles

Under the NWI, governments have made commitments to best practice water pricing including to:

- 1. promote economically efficient and sustainable use of:
 - 1.1. water resources
 - 1.2. water infrastructure assets, and
 - 1.3. government resources devoted to the management of water.
- 2. ensure sufficient revenue streams to allow efficient delivery of the required services
- 3. facilitate the efficient functioning of water markets, including inter-jurisdictional water markets, and in both rural and urban settings
- 4. give effect to the principle of user-pays and achieve pricing transparency in respect of water storage and delivery in irrigation systems and cost recovery for water planning and management, and
- 5. avoid perverse or unintended pricing outcomes.

5.4.10 Last resort

To the extent IPART considers that the vertical suppliers are entitled to be compensated, via wholesale pricing, for potential future costs of acting as a last resort provider or operator, we consider any such argument to be flawed.

The WIC Act reforms contain a robust supply failure and last resort arrangement, which involves early nomination of POLRs and WIC Act participants contributing progressively to the costs of the relevant POLR. In addition, WIC Schemes will be extremely unlikely to experience technical failure, and WICA participants typically have back-up private operators and retailers.

6 National and international lessons learnt: retail-minus

This chapter of the report mainly reviews the discussions and criticisms, within a sample of the publicly available literature, regarding the concept and application of the retail-minus approach also known as the efficient component pricing rule (ECPR). This literature review covers ECPR as a whole, as well as the ECPR components of retail and minus and the ECPR sub-components underneath these such as retail margin and efficient costs. This literature is from the viewpoints of some of the leading economists, regulators, tribunals and governments from the English-speaking world, particularly in Australia, New Zealand (NZ), the United Kingdom (UK) and the United States of America (USA). However, the literature review that follows in this chapter is based on a relatively small sample (although still quite sizeable), given the constraints on time and resources at this early stage of the *IPART* review process.

In summary, a majority of the academic economics literature reviewed were highly critical of ECPR, and even that literature that favoured ECPR doubted that it had anything but relatively narrow application. In terms of ECPR's regulatory application, it has so far been rejected by regulators, tribunals, courts and legislators in Australia, NZ, the UK and USA. The strongest rejections are in NZ where ECPR was effectively banned in the telecommunications industry under 2001 legislation and in the UK where ECPR was effectively banned in the water and sewerage industry under judicial decisions of 2006 and 2008. However, in the UK, Ofwat currently appears to be proposing to bring back ECPR under a new name of the "retailer/wholesaler rebate model". The key highlights from this ECPR-related literature review include:

- According to Albon (2007), there was considerable debate about ECPR in the 1990s. These debates were exacerbated by what appeared to be the same (or a very similar) rule which kept on changing in name eg: *Baumol-Sidak* rule; *Baumol-Willig* rule; optimal component pricing rule; parity principle; product component pricing principle; and retail-minus. The latter was perhaps more accurately a re-branding, in circumstances where the retail price contains a monopoly rent element. While the results of these debates appeared to have put the ECPR to rest *circa* 1995, it never really went away.
- Crew et al (2006) also provides a technical formula for ECPR as follows: $P_A = MC_A + (P_R MC_R)$. In this formula, ECPR establishes the access price (P_A) as the sum of the marginal cost (MC_A) and the profit or contribution to the infrastructure provider's shared and common costs (ie price less marginal cost) contained in the provider's downstream product ($P_R MC_R$). Note that incremental and/or avoidable cost is often used as a more practical proxy for marginal cost, with these two proxies often considered the same in practice. Crew et al (2006) provide a worked example of this formula. If the infrastructure provider's price for its retail product were \$5m and the marginal cost for supplying that product were \$2m, then the retail margin between price and cost would be \$3m (ie \$3m = \$5m \$2m). The ECPR specifies that this margin be added to the marginal cost of supplying access to competitors. Therefore, if the marginal cost of access were \$1m, the ECPR would produce an access price of \$4m (ie \$4m = \$1m + \$3m).
- White (2002) puts the rationale for ECPR simply and succinctly by saying it is to ensure that the entrant gains sales at the expense of the incumbent only when the entrant is more productively efficient (ie has lower costs) than the incumbent in the production of the complementary component. However, according to *Competition Appeal Tribunal* (2006), the principal general arguments relied on by *Ofwat* to justify its rejected ECPR approach were that: 1) ECPR enables incumbents to continue to recover their sunk and common costs, and to fund their investment requirements; 2) ECPR protects customers ineligible to benefit from competition from increased costs, particularly the costs of stranded assets; and 3) ECPR maintains the cross-subsidies implicit in regional average pricing.
- ECPR has never been successfully used for any length of time in any English-speaking jurisdiction. In fact, as noted in the *Competition Appeal Tribunal* (2006), *Dr Marshall* commented that, contrary to the impression given by *Ofwat*, ECPR has in practice been little used internationally and considers that the *NERA* report is

misleading in this respect. Such isolated examples as there are do not resemble the circumstances of the water industry. The OECD reports, to which Ofwat itself referred, demonstrate how little ECPR is used in practice. Competition Appeal Tribunal(2006) furthermore said that the evidence before the Tribunal waswas that ECPR is a controversial methodology which has been criticised in other contexts for having adverse effects on competition, and has been expressly banned under New Zealand telecommunications legislation.

- The NZ legislation referred to above is the *Telecommunications Act 2001*(NZ) which says amongst other things in *Schedule 1* that: *2(1) To avoid doubt, the Baumol-Willig rule [ie ECPR] does not apply in respect of any applicable initial pricing principle or any applicable final pricing principle that provides for a forward-looking cost-based pricing method as a possible pricing principle; and 2(2) For the purposes of subclause (1), the Baumol-Willig rule [ie ECPR] means the pricing rule known as the Baumol-Willig rule as referred to in Telecom Corporation of New Zealand Ltd v Clear Communications Ltd (1994) 6 TCLR 138, PC.*
- Crew et al (2006) highlights that even the supporters of ECPR like Laffont and Tirole (2000) and Armstrong (2002) explain that ECPR only provides economically efficient prices in special circumstances ie when: 1) entrants have no market power in providing the downstream service; 2) the cost of providing access to the incumbent and its competitors is the same; 3) the incumbent and entrants have the same costs in the downstream market; and 4) the incumbent and competitors face symmetrical demand conditions in the downstream market. When these four conditions are not met, the determination of the efficient access price becomes more complex.
- In Competition Appeal Tribunal (2006), it was even accepted in evidence by Ofwat that the ECPR approach:

 insulated the incumbent in perpetuity from competition; 2) required the new entrant to indemnify the incumbent indefinitely for any loss of revenues (except for avoidable costs); 3) effectively required the new entrant to support the incumbent's overheads as well as its own; and 4) required the new entrant to be super-efficient as compared with the incumbent. While, in view of the Tribunal's other findings, it was unnecessary for them to decide whether ECPR is in all circumstances intrinsically contrary to UK law, such an approach to pricing at the very least requires close scrutiny under such law.
- More colourfully in *Albon* (2007), *Baumol* is said to have quipped that: ""ECPR was never intended as a cure for baldness". However, owing to *Baumol's* association with incumbency and the lack of clarity surrounding key aspects, ECPR was widely interpreted as a defence of monopoly retail pricing by incumbents through allowing inclusion of compensation for monopoly profits lost as a consequence of an access seeker's competition in downstream markets, and the seeking of a justification for this on efficiency grounds.
- Important in *Ofcom*'s (2010) consideration of the appropriate form of price regulation was the issue of efficiency and how efficiency would be impacted by the presence of or lack of effective price regulation. In considering efficiency, *Ofcom* was aware of the three broad types of efficiency: 1) allocative efficiency; 2) productive efficiency; and 3) dynamic efficiency. If *Ofcom* were to set prices using ECPR, this would ensure that downstream entry would be productively efficient given that the entrant's incremental cost could not profitably be higher than the incumbent's incremental cost of providing the downstream service. However, as this pricing approach would lead to prices that do not reflect costs and which do not seek to minimise distortions arising from the recovery of common costs, it would not support allocative efficiency. Moreover, dynamic efficiency is likely to be reduced as the resultant higher prices would deter at least some entry, thereby reducing competitive pressures.
- White (2002) says that, even if the entrant is more efficient than the incumbent and does succeed in gaining access and providing the integrated service, the going-forward price will continue to include a monopoly margin with the consequent allocative inefficiency. This could be seen as a protective and anti-competitive entry-tax that required entrants to reimburse incumbents for their forgone revenues. Likewise, *Albon* (2007) cites *Tye* (1994) who suggested ECPR had by means of semantic devices translated monopoly profits into incremental costs and opportunity costs. *Albon* (2007) also cites *Baumol, Ordover and Willig* (1996) who conceded in this regard that: "... applying ECPR ... would result in component prices that lock in ... monopoly profits and inefficiencies ... "; and that "ECPR was never intended to (and cannot) substitute for competition."

- Albon (2007) says that under ECPR there is ambiguity or lack of definition about what some very
 fundamental associated economic concepts mean particularly incremental cost, opportunity cost and
 efficiency. In a similar vein, the *Productivity Commission*(1998) says that full cost is not a precise term. A
 number of cost allocation methods could potentially meet the full cost attribution criteria, including:
 marginal cost; incremental and avoidable cost; and fully distributed cost. Underneath these methods, fit
 the various different categories of costs. Avoidable cost and incremental cost are practical measures of
 marginal cost. In practice, there is generally little difference between avoidable cost and incremental cost.
 It is very important to note that measuring incremental or avoidable cost raises the following three key
 issues: 1) the time period over which costs should be assessed to be avoidable; 2) how to treat capital costs
 (that is, how to incorporate a rate of return in the cost base); and 3) whether costs should be measured at
 the product level, or for the total commercial activity level.
- In terms of avoided cost, the *Competition Appeal Tribunal* (2006) says any entrant would have to be not just reasonably efficient but super efficient to trade profitably within the confines of an incumbent's avoided costs, which according to *Dr Marshall* isis a "very tough test". In addition, there are the problems of determining avoided costs. These difficulties were illustrated by the fact that *Ofwat*'s position seemed to have swung during the proceedings from arguing that no retail costs are avoided to submitting that all retail costs are avoidable. *Dr Marshall* also said that incumbents' profits are protected at whatever level avoided costs are set, because all costs not deemed to be avoided are passed through in access charges.
- In the real-world, according to *Crew et al* (2006), downstream offerings are becoming considerably more complex. For example, there are telco packages of services that combine local, long-distance, advanced features, and even wireless. In these circumstances, determining prices, costs, and forgone profit (as defined by ECPR) becomes increasingly difficult. *White* (2002) expands on these boundary issues by saying that the incumbent's and entrant's complementary components tend to be imperfect substitutes. *Competition Appeal Tribunal*(2006) also raised the boundary matter and potential for double counting by the infrastructure provider in its ECPR-based access price. In this case, the First Access Price charged to *Albion Water* impliedly contains all the costs incurred by *Dŵr Cymru* other than the cost of the water, including the costs of its retail or customer-facing activities. This approach did not allow Albion Water any margin for its own retail activities. *Dr Marshall* further considers that because the calculation of avoidable cost directly affects the access charge, under ECPR the risk of cost manipulation by the incumbent is significant.
- Even *Willig* (1979) acknowledged that ECPR (although not yet called this in 1979) would be likely to hold only if the production processes of the divisions were physically separable and that the boundary between divisions be drawn in a manner that minimises the capital that straddles it. In this case, splitting total network costs between the divisions would require economic and engineering analyses in addition to mechanisable accounting procedures. This effort would be more important, and more difficult, the more significant were the economies of scope and the jointly utilised factors of production.

6.1 Failed history of ECPR

The literature sources that provided some historical background to ECPR, told a similar but not identical story. *Crew et al* (2006) says that ECPR was one of the first attempts by economists, such as *Baumol and Willig*, to address the issue of efficient access pricing in order to encourage or not discourage competition downstream of the vertically-integrated infrastructure-service provider. *White* (2002) is a bit more specific when he says that ECPR was originally developed by *Willig* (1979) and popularised by *Baumol* (1983) as well as *Baumol* and *Sidak* (1994), as an alternative solution to marginal-cost-based prices in access pricing for bottleneck facilities by potential (or actual) providers of complementary components (such as in rail, telephone, and electricity).

It is worth noting that *Willig* (1979) is considered a seminal paper entitled *The Theory of Network Access Pricing* which appeared in a book entitled *Issues in PublicPublic Utility Regulation* edited by *Trebing*, where he first fully developed what later became known as ECPR. At that time, his

motivation for the study was the bevy of then pending policy issues concerning the telephone network. He thought that his analysis would also clarify the principles of pricing the services of other networks as well, such as (with few appropriate modifications) applications to the postal system and to computer networks.

Albon (2007), who was and still is a senior economist at the ACCC, provides a more colourful history of ECPR. He says that *Baumol* developed ECPR in relation to railways (ie access to rail track) in the 1960s and 1970s and then applied it in telecommunications (with co-authors *Willig* and *Sidak*) in the 1980s and 1990s. He adds that there was considerable debate in the 1990s amongst some of the biggest names in regulatory economics including others like *Economides*, *Laffont*, *Kahn*, *Tirole*, *Tye* and *White*. These ECPR debates were exacerbated by what appeared to be the same (or a very similar) rule which kept on changing in name - eg: *Baumol-Sidak* rule; *Baumol-Willig* rule; optimal component pricing rule; parity principle; product component pricing principle; and retail-minus. The latter was perhaps more accurately a re-branding, in circumstances where the retail price contains a monopoly rent element. While the results of these debates appeared to have put the ECPR to rest *circa* 1995, it never really went away. Even more colourfully, *Albon* (2007) states that: "If you want some idea or approach in regulatory economics to become famous, give it a catchy title including the word rule – and, if you want that rule to sound inviolable; use the word efficient as well."

6.2 Definitions of ECPR

The literature sources define ECPR in similar but different ways. In an international survey of regulatory economics, *Crew et al* (2006) defines ECPR as *equalling* a vertically-integrated infrastructure provider's: 1) direct per-unit incremental cost of the access product; *plus* 2) the opportunity cost of that provider's lost profit in retail markets caused by providing access. The second component of ECPR is thus the retail-minus, intangible cost or retail margin/profit. The first component is the minus or tangible cost. ECPR was defined similarly but slightly differently in *Australian Competition Tribunal* (2013) which cited *Dr Williams*' following definition of ECPR *equalling*: the retail price for the final product *minus* the avoided costs of those components of the supply chain that the access provider does not supply. *Ofcom* (2010) importantly clarifies that ECPR determines prices not on the basis of the underlying costs of providing the product, but sets a price based on the opportunity cost to the access provider of providing access to third parties.

Regarding the first component of ECPR, *Willig* (1979) said that such incremental costs would be those that were efficiently incurred if no downstream product were produced by the infrastructure provider but that if the provider were actually producing such product then this cost would be a hypothetical one. *Albon* (2007) adds that this incremental cost was defined by *Baumol* (1995) more broadly on a long-run basis (not a short-run basis) to explicitly include the required profit on any required incremental investment, that is, the cost of the required capital. Regarding the second component of ECPR, *White* (2002) added that any lost net revenues that the infrastructure provider experiences would be those that are as a consequence of an entrant's gaining sales at the expense of the incumbent. *Ofcom* (2010) clarifies that this foregone profit is from selling access to a competing downstream operator rather than it selling the final product itself. *Tye* (2002) narrowly defines this opportunity cost to be that to the input supplier of the sale of a unit of input. *Albon* (2007) points out however that *Baumol* (1995) defines these opportunity costs somewhat differently as the loss of contribution toward fixed and common costs.

Crew et al (2006) also provides a technical formula for ECPR as follows: $P_A = MC_A + (P_R - MC_R)$. In this formula, ECPR establishes the access price (P_A) as the sum of the marginal cost (MC_A) and the profit

or contribution to the infrastructure provider's shared and common costs (i.e. price less marginal cost) contained in the provider's downstream product ($P_R - MC_R$). Note that incremental and/or avoidable cost is often used as a more practical proxy for marginal cost, with these two proxies often considered the same in practice. *Crew et al* (2006) provide a worked example of this formula. If the infrastructure provider's price for its retail product were \$5m and the marginal cost for supplying that product were \$2m, then the retail margin between price and cost would be \$3m (ie \$3m = \$5m - \$2m). The ECPR specifies that this margin be added to the marginal cost of supplying access to competitors. Therefore, if the marginal cost of access were \$1m, the ECPR would produce an access price of \$4m (ie \$4m = \$1m + \$3m).

6.3 Rationales for ECPR

According to *Willig* (1979), third party access bests serve the public interest if it renders profitable entry that lowers industry costs and, simultaneously, renders unprofitable any entry that is cost increasing. He believed that the access prices that fulfilled these *desiderata* must exceed the costs caused by the purchased product and that (when also viewed as internal transfer prices between downstream and upstream divisions of the infrastructure network) it becomes clear that these prices afford equal opportunities to the infrastructure provider and to its potential.*Crew et al* (2006) says that the rationale for ECPR being an efficient price is that if the downstream market is competitive and only the incumbent produces the upstream input, that is, it is an essential facility, then: the incumbent wholesale firm should be indifferent between producing the downstream product and providing access to a competitor who in turn supplies that product instead of the incumbent; and the retail firm with the lowest combination of access and downstream costs will serve the market, thus achieving efficiency in that market.

White (2002) puts the rationale for ECPR more simply and succinctly by saying it is to ensure that the entrant gains sales at the expense of the incumbent only when the entrant is more productively efficient (ie has lower costs) than the incumbent in the production of the complementary component. It is worth noting the following (and somewhat revealing in the context of *IPART*) rationale of *Ofwat* for its previous failed attempt to implement ECPR. According to *Competition Appeal Tribunal*(2006), the principal general arguments relied on by *Ofwat* to justify its ECPR approach were that: 1) ECPR enables incumbents to continue to recover their sunk and common costs, and to fund their investment requirements; 2) ECPR protects customers ineligible to benefit from competition from increased costs, particularly the costs of stranded assets; and 3) ECPR maintains the cross-subsidies implicit in regional average pricing.

Tye (2002) interestingly (but reasonably) refers to third party access and the related pricing of such access as *competitive neutrality* (CN). Of course, in Australia under *National Competition Policy* (NCP), CN is a separate area of pro-competition reform along with *third party access* (3PA), *monopoly prices oversight* (MPO) and some other areas. *Tye* (2002) says that the basic notion of CN is to define the terms of interconnection to purge the emerging competitive regime of the legacy of the historical monopoly regime. An efficient transition regime would then achieve effective competition through efficient entry and provision of services. He breaks CN down into weak and strong, with the former focussed on short-run static efficiency and incremental costs and the latter on long-run dynamic efficiency and total costs. He concludes that ECPR, which is based on the parity principle, does not uniquely achieve even weak CN. The term parity arises from the fact that the bottleneck carrier is made indifferent to the route chosen.

6.4 Failing of ECPR in Australia & around the world

ECPR has never been successfully used for any length of time in any English-speaking jurisdiction. In fact, as noted in the *Competition Appeal Tribunal* (2006), *Dr Marshall* commented that, contrary to the impression given by *Ofwat*, ECPR has in practice been little used internationally and considers that the *NERA* report is misleading in this respect. Such isolated examples as there are do not resemble the circumstances of the water industry. The *OECD* reports, to which *Ofwat* itself referred, demonstrate how little ECPR is used in practice.

In Australia, the *Competition and Consumer Act 2010* may arguably allow for ECPR under *Part IIIA* (ie Access to services), specifically *s 44ZZCA* (ie Pricing principles for access disputes and access undertakings or codes) which says amongst other things: "(b) that the access price structures should ... (i) allow multi-part pricing and price discrimination when it aids efficiency". Although, interpreting ECPR as being a form of such types of pricing is perhaps a stretch. This is backed by *Australian Competition Tribunal* (2013), which noted that ECPR is by no means an accepted or settled approach to pricing in the context of that matter. Furthermore, it was noted that ECPR is not a pricing option which has been shown to have been adopted except in the case of regulated monopolies, and even in such cases, it is not uniformly approved.

In New Zealand (NZ), ECPR had a short-lived win in the case of Telecom Corporation of New Zealand Ltd v Clear Communications Ltd [1995] 1 NZLR 385, in which ECPR was approved by the Privy Council in an appeal from the New Zealand Court of Appeal. However, as Tye (2002) points out, the NZ Government in response introduced legislation essentially banning the use of ECPR because according to them: "[ECPR] was solely designed to achieve the goal of productive efficiency. In the simplest, static and no-uncertainty contexts the rule achieves this goal. However, if other factors are introduced, such as uncertainty and sunk costs, or if the dynamic benefits of competition are considered, the rule may, in fact, deter efficient entry. ... Together [this and other] considerations raise concerns about the appropriateness of the rule for pricing interconnection in the [NZ] regulatory environment." Australian Competition Tribunal (2013) adds that the NZ context at the time of that case (ie prior to the overriding legislation) was that (and in contrast to the position in Australia, the UK and USA) there was: no statutory right for competitors to be connected; no guidance had been given as to the terms of interconnection; and there was no independent body established to resolve disputes. Australian Competition Tribunal (2013) furthermore noted that this case focused only on the conduct of the supplier in question, not at the price at which the would-be competitor could obtain the service from other suppliers. The NZ legislation¹ referred to above is the Telecommunications Act 2001 (NZ) which says amongst other things in Schedule 1 that:

2 Application of Baumol-Willig rule[ie ECPR]

(1) To avoid doubt, the Baumol-Willig rule does not apply in respect of any applicable initial pricing principle or any applicable final pricing principle that provides for a forward-looking cost-based pricing method as a possible pricing principle.

(2) For the purposes of subclause (1), the Baumol-Willig rule means the pricingrule known as the Baumol-Willig rule as referred to in Telecom Corporation of New Zealand Ltd v Clear Communications Ltd (1994) 6 TCLR 138, PC.

In the US, *Tye* (2002) highlights that the *US Supreme Court* quoted with approval in the *Verizon Communications v FCC case* the FCC's rejection of ECPR precisely because the resulting high prices for the most critical bottlenecks would stifle competition. In this case, the *Court* instead upheld the FCC's use of a forward-looking costing methodology to calculate the prices new entrants must pay for interconnection services.

In the UK there was *the landmark case* rejecting ECPR of *Albion Water et al v Ofwat et al.* In this case, *Competition Appeal Tribunal* (2006) said that the evidence before the *Tribunal* was that ECPR is a controversial methodology which has been criticised in other contexts for having adverse effects on competition, and has been expressly banned under New Zealand telecommunications legislation. In this case, the ECPR derived access price was considered both excessive and to have given rise to margin squeeze, contrary to the *Competition Act 1998* (UK). Since then, *Ofcom* (2010) rejected ECPR as not being appropriate in markets where the dominant provider is vertically integrated and is likely to increase the costs of competing providers. In such markets, the appropriate approach is costbased pricing, such as setting prices based on long-run incremental costs or some other measure of cost.

More recently in the UK however, Ofwat (2015) appears to be trying to re-introduce ECPR in its suggested Water 2020: Approach to access pricing. It proposes that the published access prices for the water distribution network should be based on two elements: 1) average cost for network plus service (raw water transport, treatment and distribution); and 2) compensation for cost avoided by incumbent appointee based on the difference between the average incremental cost (AIC) of new water resource and the average cost of water resources. According to Ofwat (2015), the offsetting compensation payment should be set in relation to the incumbent's average cost and LRIC, rather than the third party provider's LRIC as this provides for efficient entry signals – that is, entry where the third party provider has lower cost resource than the appointee. There are a number of options, in this regard. One option is a contract-for-difference (CFD) approach, which is illustrated in the diagram below. This is also called the retailer rebate model. Here, both new third party providers and incumbents initially sell in at the higher LRIC for resource (as illustrated below). A CFD (assumed to be paid through a market operator) then offsets the difference between the LRIC and the average costs. Retailers ultimately receive a rebate in relation to existing resource. Another option is called the wholesaler rebate model, where wholesalers of water resources initially sell in at the (lower) average cost of resource. Thus, it would be the wholesalers that receive the rebate. Ofwat (2015) provides two examples that purport to show that the same outcome can be achieved with the side payment (in this case a CFD) being made to, or from, the wholesaler. The key point is that the price faced by customers following the CFD remains the same - consistent with the average cost of resource, yet the third party provider in each case recovers its incremental cost.

6.5 ECPR failings in water & sewerage and other public utility industries

Crew et al (2006) highlights that even the supporters of ECPR like *Laffont and Tirole* (2000) and *Armstrong* (2002) explain that ECPR only provides economically efficient prices in special circumstances – i.e. when: 1) entrants have no market power in providing the downstream service; 2) the cost of providing access to the incumbent and its competitors is the same; 3) the incumbent and entrants have the same costs in the downstream market; and 4) the incumbent and competitors face symmetrical demand conditions in the downstream market. When these four conditions are not met, the determination of the efficient access price becomes more complex. Therefore, *White*(2002) concludes, although there are some circumstances where ECPR yields efficient outcomes, it generally will not yield globally efficient outcomes. Accordingly, ECPR is not a generally sensible policy prescription. He also importantly notes that the market-determined efficient-component pricing rule (M-ECPR), which is a modest modification of the ECPR that has been advocated by *Sidak* and *Spulber* (1996), has the same flaws as ECPR and that these flaws of ECPR are many. *Tye* (2002)

adds that the ECPR requirement that the monopolist be indemnified from the loss of profit resulting from the introduction of competition is a strange constraint to impose on a transition to competition. More colourfully in *Albon* (2007), *Baumol* is said to have quipped that:"ECPR was never intended as a cure for baldness". However, owing to *Baumol*'s association with incumbency and the lack of clarity surrounding key aspects, ECPR was widely interpreted as a defence of monopoly retail pricing by incumbents through allowing inclusion of compensation for monopoly profits lost as a consequence of an access seeker's competition in downstream markets, and the seeking of a justification for this on efficiency grounds.

Similarly, *Dr Williams* in *Australian Competition Tribunal* (2013) observed that ECPR has restricted application, typically in the context of regulated monopolies, and said that: "... the use of ECPR will also protect the incumbent and preserve its market power against the competitive erosion of prices and margins that even less efficient rivals could bring". As *Dr Smith* noted in *Australian Competition Tribunal* (2013), ECPR has been widely criticised, in large part, because it essentially locks in any profits that are based on the incumbent's market power.*Dr Smith* added that ECPR is normally only used for access pricing in natural monopoly situations; and, as no natural monopoly components are relevant in the present case, it would not be appropriate to use ECPR.

In Competition Appeal Tribunal (2006), Dr Marshall stressed that ECPR has given rise to a great deal of controversy in the academic literature. In Dr Marshall's view, the static equilibrium literature gives some support for ECPR, but only if market imperfections "can be regulated away by omniscient regulators". The original exposition of ECPR by Baumol and Willig was based on the theory of what would happen in a contestable market. In such a market, both the incumbent and its competitors will need to reduce their prices to the lowest level - incremental (avoided) cost - and a competitor will take custom from an incumbent only if its incremental cost is lower than the incumbent's. It is in these conditions that productive efficiency is achieved. However, according to Dr Marshall these theoretical conditions are rarely present in the real world where an incumbent monopolist has not previously faced competition. It was even accepted in evidence by Ofwat that the ECPR approach:1) insulated the incumbent in perpetuity from competition;2) required the new entrant to indemnify the incumbent indefinitely for any loss of revenues (except for avoidable costs);3) effectively required the new entrant to support the incumbent's overheads as well as its own; and 4) required the new entrant to be super-efficient as compared with the incumbent. While, in view of the Tribunal's other findings, it was unnecessary for them to decide whether ECPR is in all circumstances intrinsically contrary to UK law, such an approach to pricing at the very least requires close scrutiny under such law.

It is also worth noting that the key economic context for *Willig* (1979) was network externalities. Network externalities cause private decisions, about whether or not to purchase network access, to have ramifications for others who are not parties to those decisions. As such, it may be in the public interest for prices of network access to be lower than they would otherwise be, with the difference reflecting the value to others of individuals' purchases of access. In *Willig*'s first formulation of network access pricing (later to be widely known as ECPR), the revenues from the sale of technical network services exactly compensate for the relatively low level of revenues obtained from network access prices that reflect network externalities.

6.6 ECPR negative impact on competition & efficiency

At a higher level, *Albon* (2007) points out that under ECPR there is ambiguity or lack of definition about what some very fundamental associated economic concepts mean particularly incremental

cost, opportunity cost and efficiency. He believes that ECPR is about productive efficiency (ie minimising cost of production) rather than allocative efficiency (ie deviation of price from cost). So if the rival could supply the competitive component at a lower cost than the incumbent, and if it were to charge the same retail price for the final product, it could enter profitably. However, this would preserve in place any existing monopoly pricing. That is, ECPR does not serve the cause of allocative efficiency at all. In this context, it is important to recall that *Competition and Consumer Act* (2010) says that the *s* 44AA objects of *Part IIIA* (ie Access to services) include "(a) ... promoting effective competition in upstream and downstream markets" and that the s 44X matters to be taken into account by the ACCC include "...the public interest in having competition in markets ... ". In addition, the *s* 152AB object of *Part XIC* (ie *Telecommunications access regime*) includes "...promoting competition in markets ..." and "...encouraging the economically efficient use of, and the economically efficient investment in [infrastructure]".

Important in Ofcom's (2010) consideration of the appropriate form of price regulation was the issue of efficiency and how efficiency would be impacted by the presence of or lack of effective price regulation. In considering efficiency, *Ofcom* was aware of the three broad types of efficiency: 1) allocative efficiency; 2) productive efficiency; and 3) dynamic efficiency. Allocative efficiency refers to the manner in which resources are allocated and leads to the principle that prices should reflect costs, and that any common costs should be recovered in a way that minimises distortions in the pattern of consumption. Productive efficiency refers to minimising the cost of production. Dynamic efficiency refers to the promotion of sustainable market entry, investment and innovation. Setting charges based on cost (in particular when based on LRIC) with appropriate treatment of common costs would support an efficient outcome in terms of allocative efficiency. In addition such an approach would support dynamic efficiency as charges set on this basis would encourage efficient entry at the network level because they reflect replacement costs, which are the costs that would be faced by new entrants. Moreover, depending on the precise details of implementation, such an approach could also support productive efficiency. If Ofcom were to set prices using ECPR, this would ensure that downstream entry would be productively efficient given that the entrant's incremental cost could not profitably be higher than the incumbent's incremental cost of providing the downstream service. However, as this pricing approach would lead to prices that do not reflect costs and which do not seek to minimise distortions arising from the recovery of common costs, it would not support allocative efficiency. Moreover, dynamic efficiency is likely to be reduced as the resultant higher prices would deter at least some entry, thereby reducing competitive pressures.

One matter contributing to efficiency is economies of scale and scope. As *White* (2002) noted, if the entrant's technology involves economies of scale then the artificial mark-up or margin that is inherent in ECPR will inhibit the entrant's scale of production and thus will inhibit even relatively efficient entrants. And, if the incumbent has been unconstrained in its pricing of the integrated service, the ECPR charge will be greater than a *Ramsey* price since the incumbent would be maximising profits, while the *Ramsey* price would just try to cover the bottleneck costs including capital costs.

6.7 Profit margins under ECPR

The key challenge with ECPR, according to *Crew et al* (2006), arises from determining the opportunity cost to the product supplied or foregone retail margin. If this could be determined on the basis of a readily observable price in a competitive market, then ECPR could be an efficient rule at least for a homogeneous product. However, it is precisely because of the bottleneck facility that such a competitive price cannot be determined.

In addition, *White* (2002) says that the incumbent's price represents the exercise of market power. Even if the entrant is more efficient than the incumbent and does succeed in gaining access and providing the integrated service, the going-forward price will continue to include a monopoly margin with the consequent allocative inefficiency. This could be seen as a protective and anti-competitive entry-tax that required entrants to reimburse incumbents for their forgone revenues. Likewise, *Albon* (2007) cites *Tye* (1994) who suggested ECPR had by means of semantic devices translated monopoly profits into incremental costs and opportunity costs. *Albon* (2007) also cites *Baumol, Ordover and Willig* (1996) who conceded in this regard that: "... applying ECPR ... would result in component prices that lock in ... monopoly profits and inefficiencies ... "; and that "ECPR was never intended to (and cannot) substitute for competition ... or limit to fully competitive levels the prices paid by end users for services that use those network elements."

According to *Tye* (2002), ECPR starts with an implicit assumption that incumbents should be protected from profit erosion due to price competition, implying that asymmetric treatment of incumbents and entrants is appropriate. Regardless, ECPR only makes the incumbent monopolist neutral with respect to profits under monopoly and competition – it does not achieve parity between the incumbent monopolist and the entrant in terms of recovering total costs.

6.8 Costs of ECPR

As White (2002) points out most economic analyses of the problem of pricing access to bottleneck facilities by potential (or actual) providers of complementary components (such as in rail, telephone, and electricity) have concluded that marginal-cost-based prices are the correct solution (with additional complications that may be necessary to deal with the special problems of economies of scale of of the bottleneck facility). In concluding this, White (2002) draws heavily on Economides and White (1995, 1998) and Economides (1997) as well as to a lesser degree Laffont and Tirole (1994), Armstrong et al (1996), Armstrong and Vickers (1998), and Laffont et al (1998). Not dissimilarly, the Productivity Commission(1998) reminds that the Competition Principles Agreement (CPA) specifies that prices for goods and services supplied by significant government businesses should reflect full cost attribution. Likewise, the Competition and Consumer Act 2010 requires the ACCC to take into account under s 44X of Part IIIA (ie Access to services) such matters as "(1)(d) the direct costs of providing access" as well as under s 44ZZCA pricing principles that include: "(a) that regulated access prices should (i) be set so as to generate expected revenue for a regulated service or services that is at least sufficient to meet the efficient costs of providing access to the regulated service or services; and (b) that the access price structures should (ii) not allow a vertically integrated access provider to set terms and conditions that discriminate in favour of its downstream operations, except to the extent that the cost of providing access to other operators is higher; and (c) that access pricing regimes should provide incentives to reduce costs or otherwise improve productivity." Part XIC (ie Telecommunications access regime) of the Competition and Consumer Act 2010 talks of "whether the costs that would be involved in supplying, and charging for, the services are reasonable or likely to become reasonable" under s 152AB and "the direct costs of providing access" under s 152BCA.

As noted above, *Albon* (2007) says that under ECPR there is ambiguity or lack of definition about what some very fundamental associated economic concepts mean particularly incremental cost, opportunity cost and efficiency. In a similar vein, the *Productivity Commission* (1998) says that full cost is not a precise term. In these circumstances, the way a Government Trading Enterprise (GTE) allocates costs to its monopoly versus competitive markets can have a significant impact on the GTE's cost base and on price levels. A number of cost allocation methods could potentially meet the full cost attribution criteria, including: marginal cost; incremental and avoidable cost; and fully

distributed cost. Underneath these methods, fit the various different categories of costs. **Table 2.1** further below summarises the treatment of these categories of costs under each cost allocation method. Incremental cost is a practical measure of marginal cost, as is avoidable cost. In practice, there is generally little difference between avoidable cost and incremental cost. This is because the cost saved by not producing the product is usually the same as the additional cost of making the product available, in the longer term at least. Incremental cost has gained currency as one method of estimating the cost of providing third party access to infrastructure. It is very important to note that measuring incremental or avoidable cost raises the following three key issues: 1) the time period over which costs should be assessed to be avoidable; 2) how to treat capital costs (that is, how to incorporate a rate of return in the cost base); and 3) whether costs should be measured at the product level, or for the total commercial activity level.

Cost Category	Is the cost included in the cost base?				
	FDC	SRMC	LRMC	Avoidable/Incremental cost	
Direct costs (eg. direct labour, materials costs, sales tax)	yes	yes	yes	yes	
Executive costs	yes	no	no	no	
Rent	yes	no	often, but not always	often, but not always	
Other overhead costs	yes	no	yes	to the extent that they are avoided if the activity is not undertaken	
Capital costs exclusive to the activity	yes	no	yes	yes	
Joint capital costs	yes	no	no, in most cases	to the extent that costs can be avoided if the activity is not undertaken (see section 3.2)	

Table 2.1: Treatment of costs under different allocation methods

In terms of avoided cost, the Competition Appeal Tribunal (2006) says any entrant would have to be not just reasonably efficient but super-efficient to trade profitably within the confines of an incumbent's avoided costs, which according to Dr Marshall is a "very tough test". An avoided cost approach in the Tribunal's view would not be a satisfactory basis for a margin squeeze test, because it takes no account of the incumbent's fixed costs, takes no account of the entrant's total costs, and requires the entrant to be more efficient than the incumbent. In addition, there are the problems of determining avoided costs. These difficulties were illustrated by the fact that Ofwat's position seemed to have swung during the proceedings from arguing that no retail costs are avoided to submitting that all retail costs are avoidable. Dr Marshall was also sceptical of Ofwat's ability to identify such costs. Incumbents have never had to identify such costs in the potentially competitive sectors outside the pipeline business, and the exercise of doing so is subject to significant uncertainties. Furthermore, incumbents' profits are protected at whatever level avoided costs are set, because all costs not deemed to be avoided are passed through in access charges. Moreover, in Dr Marshall's view, ECPR is inherently likely to lead to a price squeeze. The incumbent could not, in the longer run, trade profitably in its downstream operations if it were operating at the level of avoided costs. The Tribunal thus concluded re avoided costs that when the first or second customer switches from the incumbent to the new entrant, the incumbent may save very little cost. On the other hand, if the new entrant were supplying a significant proportion of the incumbent's former customers, the avoided costs of the incumbent would presumably be greater, leaving a greater

'minus' to be subtracted from 'retail'. But at this point a kind of chicken-and-egg problem presents itself, because if there is no margin with which to supply the first one or two customers, it is difficult for the new entrant to enter the market with a small initial customer base, and then build up from there.

6.9 Impact on service boundaries, assets & costs under ECPR

In the real-world, according to Crew et al (2006), downstream offerings are becoming considerably more complex. For example, there are telco packages of services that combine local, long-distance, advanced features, and even wireless. In these circumstances, determining prices, costs, and forgone profit (as defined by ECPR) becomes increasingly difficult. White (2002) expands on these boundary issues by saying that the incumbent's and entrant's complementary components tend to be imperfect substitutes. This firstly means that where two products are differentiated because of differences in service quality (eg speed, reliability, frequency, company reputation, etc), comparisons of efficiency that are based solely on unit costs make little economic sense. ECPR would again ensure allocative inefficiency by shutting out any potential customers of the entrant who would be willing-to-pay a price that is in-between the entrant's relevant marginal costs and the mark-up inclusive price. This secondly means that, where the incumbent is constrained by rate regulation to earn zero excess profits in the bottleneck market, the incumbent would like to use creative accounting to transfer some of its true costs of producing the complementary component to the bottleneck service, thereby understating the former costs and similarly overstating the latter costs, so as to justify larger revenues (and higher implicit profits) for the bottleneck service. The lower apparent costs for producing the complementary component will also mean a higher ECPR charge and thus a distortion of productive and allocative efficiency.

Competition Appeal Tribunal(2006) also raised the boundary matter and potential for double counting by the infrastructure provider in its ECPR-based access price. In this case, the *First Access Price* charged to *Albion Water* impliedly contains all the costs incurred by *Dŵr Cymru* other than the cost of the water, including the costs of its retail or customer-facing activities. In particular, the distribution element in the *First Access Price* reflects all the costs, other than treatment costs, attributable to large potable customers including customer-related retail costs, bad debts and the like. The result is that the *First Access Price* includes retail costs, even though under the proposed common carriage arrangement *Dŵr Cymru* would no longer be a retailer in the sense of a supplier to an end-user, but a supplier of water transport and treatment services to *Albion Water*. This approach did not allow *Albion Water* any margin for its own retail activities. *Dr Marshall* further considers that because the calculation of avoidable cost directly affects the access charge, under ECPR the risk of cost manipulation by the incumbent is significant.

Even *Willig* (1979) acknowledged that ECPR (although not yet called this in 1979) would be likely to hold only if the production processes of the divisions were physically separable and that the boundary between divisions be drawn in a manner that minimises the capital that straddles it. In this case, splitting total network costs between the divisions would require economic and engineering analyses in addition to mechanisable accounting procedures. This effort would be more important, and more difficult, the more significant were the economies of scope and the jointly utilised factors of production.

6.10 UK Albion Water case

The UK Albion Water case was a relatively recent and strong rejection of ECPR in wholesale water and wastewater in the sub-UK jurisdictions of England and Wales. This case ran for a number of

years, involved multiple parties and regulators (eg. *Ofwat* and the *Office of Fair Trading*) and appeals (ie. the *Competition Appeal Tribunal* and the *Court of Appeal*) with hundreds of pages of publicly documented arguments, evidence, analyses and judgement.

The key highlights from the *Competition Appeal Tribunal* (2006)ⁱⁱ include the following selected extracts from its final judgment (paragraph numbering from the judgment).

1. Albion Water Limited ("Albion") appeals to the Tribunal against the Decision dated 26 May 2004 ("the Decision") of the Director General of Water Services ("the Director"), now the Water Services Regulatory Authority ("the Authority" or "Ofwat")") adopted under the Competition Act 1998 ("The 1998 Act"). The Decision is to the effect that the price of 23.2p/m³ ("the First Access Price") offered by Dŵr Cymru to Albion on 2 March 2001 for the "common carriage" of non-potable water across what is known as the Ashgrove system, did not constitute an abuse of a dominant position contrary to the Chapter II prohibition imposed by section 18 of the 1998 Act.

2. This case raises some important issues regarding the application of the Chapter II prohibition in the water industry in England and Wales, which is characterised by vertically integrated companies with de facto monopolies within their designated areas. A further aspect is the interaction between the 1998 Act and the regulatory system established by the Water Industry Act 1991 ("the WIA91"), as notably amended by the Water Act 2003 ("the WA03"). The 1998 Act applies notwithstanding the provisions of the WIA91:

10. In the Decision adopted on 26 May 2004 the Director rejected Albion's complaint. ...The Director further applied an approach known as the Efficient Component Pricing Rule ("ECPR"), which essentially involves taking the prevailing retail price and deducting the cost which the incumbent avoids by not making the supply in question (here, according to the Director, the water resource cost which Dŵr Cymru would no longer incur). Applying that ECPR approach, the Director found that an access price of 22.5p/m³ would have been justified. According to the Director, a similar result would be arrived at by the application of the Costs Principle set out in section 66E of the WIA91 which, although not in force at the time, now applies when calculating charges to certain new suppliers licensed under that Act. As to the allegation of margin squeeze, the Director rejected Albion's complaint essentially on the basis that, in supplying Albion by way of common carriage, Dŵr Cymru would not be saving any costs.

11. The effect of the Decision is to render uneconomic Albion's proposal to supply Shotton Paper via common carriage, and largely to remove the viability of Albion's existing inset appointment. The consequent removal of choice for the customer, Shotton Paper, and the potential elimination of the only new undertaker to enter the water industry since 1989, are matters which the Tribunal views with serious concern, particularly against the background of recent policy to encourage competition in the water industry as regards supplies to large industrial users, as set out in MD Guidance Letters issued by the Director, in a Consultation Paper published by the Government in 2002, and in the WA03 enacted by Parliament.

13. As regards the average accounting cost approach used in the Decision to determine the First Access Price, there is evidence that the cost of treating non-potable water was overestimated in the Decision. ... 14. The principal issue on this aspect of the case is the justification for the "distribution" cost element of the First Access Price, However, no accounting information or other documentation was produced to the Tribunal to show what costs the remaining ... 94 per cent of alleged distribution costs ... was intended to cover.

15. The figure ... for distribution costs used in the Decision has remained almost wholly unparticularised throughout the proceedings, and it has proved impossible for the Tribunal to identify, let alone verify, the constituent elements of that figure. In the Decision there was little, if any, attempt to disaggregate costs relating to specific activities such as retail activities.

23. Instead, both Dŵr Cymru and [Ofwat] sought to justify the First Access Price on the basis of what it would cost a new entrant to build the Ashgrove system from scratch on a greenfield basis. The resulting allegedly "stand alone" calculations showed that an access price in the region of the First Access Price could be justified only by assuming a rate of return on the assumed capital values in question of some 15 times Dŵr Cymru's normal rate of return on capital. That, in itself, was strong evidence that the First Access Price was not cost based and/or was excessive.

26. [Ofwat] placed weight on a "regional average" approach to pricing which, said [Ofwat], precluded any examination of the costs specifically attributable to Ashgrove. ...

27. [Ofwat's] submission that, even with special agreements, "location-related" charging was not permissible, was seriously weakened by the existence of an exception in the Authority's document RD 09/03 which applies "when infrastructure is exclusive to the customer(s) being charged". That is the case here. ...

28. In those circumstances the Tribunal did not consider that the practice of "regional average pricing" precluded an examination of the costs specifically attributable to Ashgrove as a cross-check on the First Access Price. In the Tribunal's view the attempted application of "regional average pricing" across the discrete, physically different and geographically separate non-potable systems in Wales, without examining the underlying costs in more detail, runs the risk of causing market distortions and/or discrimination.

30. ... In the Tribunal's view, the evidence taken as a whole strongly suggests that the First Access Price was excessive in relation to the economic value of the services to be supplied, by reason of the absence of any convincing justification for the "distribution" costs included in the average accounting cost calculation.

31. As to the ECPR approach to access pricing also used in the Decision to support the First Access Price, the evidence before the Tribunal is that ECPR is a controversial methodology which has been criticised in other contexts for having adverse effects on competition, and has been expressly banned under New Zealand telecommunications legislation.

32. It was accepted in evidence by the Authority that the ECPR approach in the Decision insulated the incumbent in perpetuity from competition, required the new entrant to indemnify the incumbent indefinitely for any loss of revenues (except for "avoidable costs"), effectively required the new entrant to support the incumbent's overheads as well as its own, and required the new entrant to be "super-efficient" as compared with the incumbent. While, in view of the Tribunal's other findings, it is unnecessary to decide whether ECPR is in all circumstances intrinsically contrary to the Chapter II prohibition, such an approach to pricing at the very least requires close scrutiny under that prohibition.

33. In the Tribunal's view the particular ECPR approach used in the Decision cannot be safely relied on in this case since (i) the "retail" price used in the calculation is not shown to have been reasonably related to costs; and (ii) the evidence strongly suggests that that price was excessive.

34. In addition, the particular method of application of ECPR in this case will in the Tribunal's view eliminate competition, and prevent virtually any entry into the market, because the margins produced by the ECPR approach used in the Decision tend to be non-existent or too small to make entry viable. For that reason too the ECPR approach used in the Decision cannot be safely relied on in this case.

35. The evidence of the Authority's expert Professor Armstrong and the submissions of [Ofwat] and Dŵr Cymru before the Tribunal on the issue of "avoidable costs" appeared to adopt a different approach to that adopted in the Decision. The Decision is based on the cost allegedly avoided in the short run by serving one less customer, an approach described by Professor Armstrong as giving rise to a "horrible practical aspect" and not supported by him without qualification. The evidence and submissions of the Authority and Dŵr Cymru variously suggested that it would be appropriate to take a medium to longer term time frame; that all retail costs were avoidable and would fall to be deducted from the access price; and that, in Professor Armstrong's view at least, it would be appropriate to make some forecast of the likely scale of entry and deduct avoidable costs on an averaged basis of some kind. Those various considerations do not figure in, or appear to be consistent with, the Decision. For that further reason, it is unsafe to rely on the ECPR approach adopted in the Decision.

36. The principal general arguments relied on by the Authority to justify its ECPR approach were that (i) ECPR enables incumbents to continue to recover their sunk and common costs, and to fund their investment requirements; (ii) ECPR protects customers ineligible to benefit from competition from increased costs, particularly the costs of stranded assets; and (iii) ECPR maintains the cross-subsidies implicit in regional average pricing.

37. Irrespective of the justification in principle for a policy designed to enable incumbents to recover their sunk and common costs and fund investment, which may well be reasonable in itself, the particular application of ECPR in this specific case eliminates existing competition and any reasonable prospect of new market entry, and maintains a retail price which is not shown to be cost-based and which the evidence strongly suggests to be excessive.

38. The argument as to stranded assets was central to [Ofwat's] submissions, but in the Tribunal's view had no application in the present case, since there was no asset that would be stranded if Albion's common carriage proposal took effect. [Ofwat's] expert evidence was that ECPR is not appropriate if there is a potential risk of bypass. To the extent that the Director suggested in the Decision that bypassing the Ashgrove pipeline could be feasible, on [Ofwat's] own expert evidence an ECPR-type calculation was not appropriate in the Decision.

45. For the above reasons, the Tribunal has reached the view that the Director's conclusion, that the First Access Price did not infringe the Chapter II prohibition as excessive, cannot be

supported, either on an average accounting cost basis, or on the ECPR approach used in the Decision.

47. As to Albion's complaint of a margin squeeze, it was not disputed that there was a margin squeeze within the meaning of the guidance given by the [Office of Fair Trading or OFT] and the European Commission, in that the margin between Dŵr Cymru's downstream retail price ... and its upstream First Access Price for common carriage ... would leave Albion with no effective margin

48. In the Tribunal's view, there are four reasons why the analysis in the Decision is incorrect, or at least inadequate, on the issue of margin squeeze. (1) Since the First Access Price has not been shown to be related to the costs, and the evidence strongly suggests that price to have been excessive, it cannot be assumed that Dŵr Cymru's upstream price is a reasonable price. (2) The margin squeeze in question cannot be justified on the basis of an ECPR approach which is itself unsound, for the reasons already given. (3) The Decision does not deal adequately with the fact that Albion wishes to continue to combine the supply of water with its offer of water efficiency services. ...

140. In a series of guidance letters to statutory undertakers issued under other statutory powers, the Director also referred to the development of common carriage within the framework of the 1998 Act

142. MD 163 ... appears to be one of the guidance letters of most relevance in the present case. MD 163, published in June 2000, was apparently prepared after the Director had received advice on the draft from a group of eminent persons who formed part of an Ofwat working group known as the "CCCWG". The CCCWG included, among others, Professor Stephen Littlechild of Birmingham University, formerly Director General of the Office of Electricity Regulation, and Professor David Newberry of the University of Cambridge.

143. MD163 stated, among other things, that there were three main approaches to access pricing: (a) average accounting costs (i.e. "the book value of the assets to which access is sought"); (b) the long run marginal cost ("LRMC") of that part of the incumbent's system to which access is sought; or (c) the approach known as the Efficient Component Pricing Rule ("ECPR"),

144. According to MD 163: "The key differences between the three approaches concern the degree to which they are likely to encourage entry and the effect that will have on the total costs of meeting customers' demands in the long term. The ECPR would result in prices that encourage access only when to do so would reduce the total costs of supply in the short run. In contrast to the other two approaches, the ECPR takes account of the costs of wholly or partially stranded assets. It forces new entrants to compensate incumbents for the costs associated with these assets, ensuring that entry only occurs if a new entrant can compensate the incumbent and still provide the service at lower cost to customers. The ECPR requires reliable information on avoidable costs, which can be open to subjective interpretation. In general, the accounting cost and LRMC approaches are likely to produce lower access prices than ECPR, making entry more likely. In some cases, such entry might result in a temporary increase in total costs over time. Moreover, the threat of new entry

creates an additional and continuing incentive for incumbent companies to reduce their costs."

650. [T]here appeared to the Tribunal to be some five features of an ECPR-based approach which gave rise to concern as to whether an ECPR approach is compatible with the introduction of effective competition: (i) the risk of entrenching monopoly rents or inefficiencies in the retail price; (ii) the possible lack of the dynamic effect of competition, resulting from the fact that, as the Director recognises, the dominant incumbent is indifferent as to who supplies the customer; (iii) the raising of barriers to entry; (iv) the risk of a price squeeze; and (v) difficulties in properly identifying the "minus" element in the retail-minus calculation.

658. In general, it seems to be accepted that a main purpose of the competition policy underlying ... the 1998 Act is to foster lower costs and prices, better service, wider choice of goods and services, and more innovation than might normally be expected to occur under monopoly conditions, to the ultimate benefit of the consumer. The benefits are often judged to be achieved by a process of rivalry between suppliers, and may not be achieved if there is market dominance and no threat of potential competition through substitutes or new entry. Competition, in its broadest sense, leads not only to pricing and marketing initiatives, but also to innovation in products and processes.

661. Even if few markets resemble the model of perfect competition, the general effect of competition can be said to bring about a closer relationship between prices and costs, and thus to ensure that resources are not mis-allocated – in particular that consumers do not pay more than the reasonable cost (including a reasonable profit) of producing the product or service in question, and suppliers do not supply goods or services at a higher cost than would be the case in a competitive market. ...

662. ... "Allocative efficiency is obtained when you have prices close to cost – the actual cost of supply". "Productive efficiency is achieved when the particular pattern of supply is produced in the most efficient manner"

663. To these concepts there is also to be added the idea of competition leading to "dynamic efficiency". This concept sees competition as taking the form of, and leading to, innovation in products and processes as part of the continual pursuit of customers' business – what Professor Armstrong called "the long run benefits of competition" (ibid). A closely related idea is that competition itself contains its own dynamic, the results of which cannot always be foreseen. According to this approach, the dynamism of the competitive process itself tends over time towards lower costs, lower prices and more innovation.

664. This latter dynamic approach may be contrasted with "static equilibrium analysis" which in economic theory assumes a given state of affairs in a market, but does not necessarily analyse the process by which a market may move from one "state of affairs" to another "state of affairs". In our view, there was perhaps in this respect an important difference of emphasis between Professor Armstrong and Dr Marshall. Professor Armstrong advanced the theoretical justification for ECPR based on a "static" model, whereas Dr Marshall placed more weight on the practical adverse effects on the competitive process to which, in her view, ECPR gives rise.

665. As one particular example of their respective approaches, as we understood it, Professor Armstrong saw "efficient entry" in terms of the assumption that lay behind his model, and indeed [Ofwat's] whole approach, which was that under ECPR market entry was only "efficient" if it could take place without increasing the water industry's total costs in the short run. In other words ECPR aimed for "productive efficiency" in the short run, but neither "allocative" nor "dynamic efficiency", even if entry might reduce costs over the longer run. Dr Marshall, on the other hand, saw ECPR as likely in practice to preclude entry by firms who would, by any normal standards, be regarded as "efficient". In her view, ECPR was unlikely to achieve even the theoretical "productive efficiency" relied on by [Ofwat]. More importantly, according to Dr Marshall, ECPR was unlikely in practice to foster the competitive process, or lead to gains in terms of lower costs, lower prices, better service or more innovation. In other words, in technical terms, as Dr Marshall saw it, ECPR would not achieve "allocative" or "dynamic" efficiency either. Professor Armstrong, for his part, emphasised that ECPR was solely concerned to achieve "productive efficiency", emphasising the role of the regulatory process in controlling prices and thus achieving "allocative efficiency" by that route.

689. According to Dr Marshall, if the objective is to require competitors to contribute to the costs of stranded assets (although in her view it is debatable whether such costs would arise in practice) or to the costs of a cross-subsidy (such as a subsidy from business customers to household customers, although it is not clear what subsidies exist) such objectives can be achieved by other means. For example, the relevant costs could be separately identified and then added in to the access charge in a transparent way. This, according to Dr Marshall, is the approach in the gas and electricity industries. ...

810. In the case of common carriage, the distribution system in question is not "stranded": on the contrary, it is being used to best advantage. We find it hard to see how a pricing system which is structured so as to recover the supposed costs of stranded assets is appropriate to a case where no assets are stranded. ...

811. ... It seems to us ... that ECPR is not helpful to either of the two scenarios possibly relevant to this case: if there is common carriage through the Ashgrove system, there is no risk of stranding, and if an alternative pipeline were constructed, ECPR would not assist Dŵr Cymru either.

812. ... Professor Armstrong's view quite clearly was that, if bypass is a potential possibility or danger, following ECPR does not produce an appropriate access price, and a price based directly on the cost of providing access, with a mechanism for recovering universal service costs, would be preferable We accept the logic of this view. If an ECPR calculation sets an access price so high that bypass (alternative pipes or development of boreholes) may be encouraged, one simply brings about the duplication of fixed costs and stranded assets that ECPR is designed to avoid, which is self-defeating.

696. ... [Dr Eileen Marshall CBE] comments that, contrary to the impression given by [Ofwat], ECPR has in practice been little used internationally. Dr Marshall considers that the NERA report is misleading in this respect. Such isolated examples as there are do not resemble the circumstances of the water industry. The OECD reports to which [Ofwat] itself refers, demonstrate how little ECPR is used in practice. 981. ... we have reached the following conclusions: (4) The cross-check as to the validity of the First Access Price by reference to ECPR ... cannot be safely relied on because (i) the 'retail' price used in the calculation is not shown to be cost-related, as regards the distribution element; (ii) the evidence strongly suggests that that price was itself excessive; (iii) the particular method of ECPR used in this case would eliminate existing competition and, in effect, preclude virtually any competitive entry, because the margins are insufficient None of the justifications for an ECPR approach advanced by [Ofwat] persuaded us that we could safely rely on the approach set out in the Decision in the circumstances of the present case. (5) As regards the allegation of margin squeeze, the existence of a margin squeeze was not seriously disputed. The Director's finding ... of the Decision that nonetheless there was no breach of the Chapter II prohibition was erroneous in law and incorrect, or at least insufficient, from the point of view of the reasons given, the facts and analysis relied on and the investigation undertaken.

The *Court of Appeal* (2008)ⁱⁱⁱ did not impact on the comments above regarding ECPR from the *Competition Appeal Tribunal* (2006). The *Court of Appeal* (2008) focussed on matters of law, not merits. However, the following comments of the *Court of Appeal* (2008) are nevertheless worth noting:

104. ... The need to identify distinct markets is not in doubt, but in our view the Tribunal was plainly entitled to find in this case an upstream market for the transportation of water and a downstream market for retail supply. Albion is active on the downstream market, even though it has only the one large customer. It needs an upstream input in the form of common carriage in much the same way as the telecommunications operators in Deutsche Telekom and Telefônica needed access to the network of the dominant undertaking in order to operate on the downstream market.

107. ... The Tribunal referred to the need for objective justification and reiterated that the avoided costs argument was open to the same objections of principle as the **ECPR** approach which it had previously rejected. ... the arguments as to avoided costs were too inconsistent and imprecise to assist Dŵr Cymru or [Ofwat]. ... [there is a] need for objective justification of a dominant undertaking's pricing policy which hasthe effect of foreclosing the market to competition the Tribunal also rejected Dŵr Cymru's argument that to accede to Albion's case would be tantamount to requiring Dŵr Cymru to subsidise Albion.

108. ... the Tribunal said that the margin squeeze in this case would have th efurther effect of preventing Albion from offering water efficiency services on an economic basis the Tribunal in rejecting, on the facts, the contention that Albion was merely duplicating Dŵr Cymru's activities. ... The point about water efficiency services ties in with Mr Thompson's submission for Albion, which we accept, that displacement can be potential as well as actual: it is a relevant factor, in our view, that the supply by Albion at the retail level involves an activity which Dŵr Cymru has carried out in the past and could carry out in the future, even if it does not carry it out at present.

103. The conclusion we reach in the light of the guidance and the case-law is that transformative activity, displacement and avoided costs are not necessary features of the margin squeeze test.

106. Whilst the Tribunal rightly rejected the arguments that displacement and avoided costs are a necessary feature of the test of margin squeeze, it did look carefully at the substance of those arguments as part of its overall assessment of Dŵr Cymru's conduct, specifically in considering whether there was an objective justification for a zero or negative margin. In our view that was the appropriate context within which to consider such matters. They are plainly relevant and potentially important considerations, but account can properly be taken of them in the context of objective justification without having to build them into the margin squeeze test itself.

105. ... The Tribunal applied both the "equally efficient competitor" and the "reasonably efficient competitor" tests in determining the existence of a margin squeeze, whereas, the Court in Deutsche Telekom has now endorsed the former in preference to the latter. If the Tribunal was wrong to apply the "reasonably efficient competitor" test, nothing, turns on it, since it reached the same decision by reference to the alternative "equally efficient competitor" test.

109. It is therefore clear that a wide range of relevant matters, covering the various points raised by Dŵr Cymru and [Ofwat], was taken into account by the Tribunal in reaching the conclusion that the margin squeeze was not objectively justified and amounted to an abuse.

110. ... We accept that, since the Tribunal had made no finding on whether the price was excessive, it could not properly rely on the point in support of its findings on margin squeeze even if, as was stated, the evidence strongly suggested that the price was excessive. In itself, however, this has no bearing on the central issue concerning the correct test for a margin squeeze. Nor did it play any material part in the reasoning that led the Tribunal to its conclusion, in the further judgment, that the margin squeeze amounted to an abuse.

111. For those reasons we reject Dŵr Cymru's appeal on the issue of margin squeeze.

The *Competition Appeal Tribunal*(2008)^{iv}, post *Court of Appeal* (2008), did not impact on the comments regarding ECPR above from the *Competition Appeal Tribunal*(2006). The *Competition Appeal Tribunal*(2008) focussed on unfair pricing in general, not ECPR in particular. However, the following comments of the *Competition Appeal Tribunal*(2008) are worth noting:

37. On 22 May 2008 the Court of Appeal dismissed Dŵr Cymru's appeal: [2008] EWCA Civ 536, [2008] UKCLR 457. The Court held that the Tribunal was correct to direct itself by reference to the test of margin squeeze as formulated in the relevant guidance and the caselaw. In addition, the Court held that the Tribunal had jurisdiction to make the decision it did ... namely that Dŵr Cymru had a dominant position in the relevant market at the material time.

7. This judgment sets out the Tribunal's reasoning and conclusions on whether Dŵr Cymru has infringed the Chapter II prohibition by unfair pricing in the form of an excessive common carriage charge. In this judgment, we distinguish between a price that is "excessive" in terms of the distinction between the price and the cost of supply(including the cost of capital); and a price that is "unfair" and thus an abuse in that it bears no reasonable relation to the "economic value" of the services to be supplied. In certain cases "economic value" may exceed the cost of supply where there are additional benefits not reflected in the costs of supply. An excessive price is therefore a necessary, but not sufficient, condition for an unfairly high price. 8. This Tribunal's conclusions may be summarised as follows:

(a) The First Access Price specified by Dŵr Cymru in March 2001 materially exceeded the costs reasonably attributable to the service of the transportation and partial treatment of water by Dŵr Cymru, generally and through the Ashgrove system in particular.

(b) The economic value of the services to be supplied was not more, or not significantly more, than the costs reasonably attributable to the service of the transportation and partial treatment of water by Dŵr Cymru, generally and through the Ashgrove system in particular.

(c) The First Access Price bore no reasonable relation to the economic value of the services to be supplied, and had both an exclusionary an dexploitative effect.

(d) The First Access Price was unfair in itself and therefore an abuse of Dŵr Cymru's dominant position within the meaning of section 18, and in particular subsection 18(2)(a), of the Act.

275. Section 18(2)(a) of the Act provides that conduct may constitute an abuse of a dominant position if it consists in directly or indirectly imposing unfair selling prices. As such, itis designed to protect parties to contracts with undertakings in dominant positions and consumers against exploitation of their dependence on the dominant undertaking. The Tribunal finds that Albion has established that in March 2001 Dŵr Cymru abused its dominant position by quoting a First Access Price which was both excessive and unfair in itself. Our finding of unfair pricing does not derive solely from an examination of the credibility of the claimed costs; it rests too on a number of other points, particularly the source of Dŵr Cymru's pricing power and the effect of the First Access Price on the competitive process and end-consumer.

More recently in the UK however (and as noted earlier in this chapter above), Ofwat (2015) appears to be trying to re-introduce ECPR in its suggested Water 2020: Approach to access pricing. It proposes that the published access prices for the water distribution network should be based on two elements: 1) average cost for network plus service (raw water transport, treatment and distribution); and 2) compensation for cost avoided by incumbent appointee based on the difference between the average incremental cost (AIC) of new water resource and the average cost of water resources. According to Ofwat (2015), the offsetting compensation payment should be set in relation to the incumbent's average cost and LRIC, rather than the third party provider's LRIC as this provides for efficient entry signals – that is, entry where the third party provider has lower cost resource than the appointee. There are a number of options, in this regard. One option is a contractfor-difference (CFD) approach, which is illustrated in the diagram below. This is also called the retailer rebate model. Here, both new third party providers and incumbents initially sell in at the higher LRIC for resource (as illustrated below). A CFD (assumed to be paid through a market operator) then offsets the difference between the LRIC and the average costs. Retailers ultimately receive a rebate in relation to existing resource. Another option is called the wholesaler rebate model, where wholesalers of water resources initially sell in at the (lower) average cost of resource. Thus, it would be the wholesalers that receive the rebate. Ofwat (2015) provides two examples that purport to show that the same outcome can be achieved with the side payment (in this case a CFD) being made to, or from, the wholesaler. The key point is that the price faced by customers following the CFD remains the same – consistent with the average cost of resource, yet the third party provider in each case recovers its incremental cost.

6.11 Vertically integrated infrastructure monopoly efficiency

The key highlights from the economics of vertically integrated monopoly include:

- NCP economic reforms are aimed at removing or minimising the monopoly power of the numerous amount of Commonwealth, State and local government businesses in the economy by injecting competition (in an actual, potential or proxy sense), particularly into infrastructure. One of the main instruments of NCP is third party access (3PA) to significant infrastructure services. 3PA is aimed at natural monopolies delivering infrastructure services to business customers in order to promote competition in upstream and/or downstream markets. Note that the term of 'infrastructure' has no universally accepted meaning in economics, but its typical key characteristics tend to be: relatively large amounts of capital, which is long-lived and/or sunk; as well as significant government ownership and/or regulation.
- NCP is largely based on a foundation of text book economics, especially that of IOE and particularly the structure-conduct-performance (SCP) paradigm of IOE. SCP states that the performance of industries ultimately depends on conduct, which, in turn, mainly depends on structure which, in turn, depends on the underlying basic conditions of demand and supply. Market structure is the type of organisation characterising an input or output. It is mainly driven by the degree of competition or alternatively the degree of market power. The key determinants of market structure, in turn, are: market concentration; substitutability; and barriers to entry/exit. Other determinants of market structure include: vertical boundaries/integration; and horizontal boundaries/integration. The vertical boundaries of a firm define the activities that the firm performs itself as opposed to purchases from independent firms in the market. The main determinant of vertical boundaries/integration - ie make or buy - is transaction costs. A firm's horizontal boundaries identify the quantities and varieties of products and services that it produces. The optimal horizontal boundaries of firms depend critically on economies of scale and scope. Whereas economies of scale are usually defined in terms of declining average cost functions, economies of scope are usually defined in terms of the relative total cost of producing a variety of goods and services together in one firm versus separately in two or more firms. The criterion of uneconomical duplication of an infrastructure facility service is the defining criterion of 3PA. In economics, uneconomical duplication refers to the situation where the total industry cost of providing a service by two or more entities is higher than one - ie sub-additivity or natural monopoly. Sub-additivity is often determined by sufficiently large fixed costs, and economies of scale and scope. If these fixed costs can be spread over output by one entity at a lower total cost than two or more entities, given the level of demand, then the former entity may be a natural monopoly. In this circumstance, ceteris paribus, such a 'natural' deterrent to entry may be in the interests of economic efficiency.
- Text book economics on the market failure of natural monopoly versus perfect competition provide most of the rationale for 'heavy handed' (price, service, entry, etc) regulation of market structure, conduct and performance. In real world economics and practice, markets are just a convenient and aggregated description of the constant flux of exchange opportunities created and discovered by suppliers and consumers with 'skin in the game'. And, of course, "[d]efining a market narrowly enough will always yield [monopoly]; defining a market broadly enough may always yield ... competition" but "[a market] cannot be independently established as such apartfrom consumer preference on the market". As to perfectcompetition, perhaps economics Nobel Laureate Friedrich von Hayek said it best: "... competition is by its nature a dynamic process whose essential characteristics are assumed away by the assumptions underlying static analysis" thus "... perfect competition means indeed the absence of all competitive activities." More importantly, the little known historyof natural monopoly (in the US, at least) teaches that there was plenty of effective competition (and its attendant decreasing costs and prices, and increasing quantity, quality, service and innovation) prior to the less effective competitors lobbying for market protection regulation in exchange for utility oversight regulation. In fact, the regulation of natural monopolies started well before the theory of natural monopoly. Plus, if a utility monopoly were natural (ie could produce at a lower total cost than all others, actual and potential) it would not be in need of all of the other types of regulations (intentionally and unintentionally) preventing market entry.

Given all of the above, the market intervention of public 'natural monopoly' utilities regulation (including MPO and 3PA, and especially that based on ECPR) is akin to a tax. These pseudo-taxes are almost always on the rise like real taxes, and also like the latter include all of the predictable inefficiencies associated with government central planning (ie the government regulators) and government protected cronyism (ie the public utilities themselves). There have been few comprehensive empirical studies, but these (such as in the USA) show a poor performance for MPO and 3PA style regulation in terms of high prices (as well as low quantity & quality, poor customer service & innovation, etc). This is not surprising, given the lack of economic and political incentives to do so. This regulatory system (especially that based on ECPR) does not control but creates monopoly prices ... through such mechanisms as entry barriers, competition restrictions and substitution impediments as well as through regulatory capture and other Public Choice Theory effects. Even more fundamentally, these prices aren't even real prices as such, due to the impossibility of economic calculation by government central planning (ie the government regulators). Thus, as Hayek once lectured other economists: "... the effectson policy... have not been very fortunate ... [due] to a pretenseof exact knowledge that is likely to be false." In light of all this, it seems that is about time that some significant reform paths to genuine free-and-competitive markets (or at least more so ones) were more seriously reviewed again by IPART and/or the NSW Government.

6.11.1 National Competition Policy and infrastructure context

NCP economic reforms are aimed at removing or minimising the monopoly power of the numerous amount of Commonwealth, State and local government businesses in the economy by injecting competition (in an actual, potential or proxy sense), particularly into infrastructure. In other words, NCP attempts to move the mainly government business activities away from monopoly structures and conduct, towards more competitive ones – ie from left to right in the market structure continuum (in the **diagram below**).

Monopoly			⇔	Oligopoly		⇔	Competition		
Natural	Perfect			Cooperate	Rivalry	•	Monopolistic	Pure	Perfect

The main instruments of NCP (besides structural reform of government monopolies, regulatory reform and extending the scope of anti-competitive conduct laws) include: 1) competitive neutrality (CN) for significant government business activities; 2) monopoly prices oversight (MPO) of monopolies; and third party access (3PA) to significant infrastructure services. MPO is aimed at government monopolies, regardless of whether they are natural ones or not, who's source of market power is usually due to government. MPO is often only a transitional mechanism until regulatory and structural reforms are undertaken. The customers of MPO exposed government businesses are often households. 3PA is aimed at natural monopolies delivering infrastructure services to business customers - in order to promote competition in upstream and/or downstream markets. The focus of 3PA is on voluntary agreements and arbitration, thus usually making for a more 'light handed' approach than MPO. In essence, CN can be characterised as ensuring that all government business activities do not price below a minimum level of actual economic costs. MPO and 3PA, on the other hand, can be characterised as ensuring that monopoly government business activities do not price above a maximum level of efficient economic costs. This is because MPO and 3PA are instruments for monopoly situations whereas CN is an instrument for (at least potentially) competitive situations. Therefore, CN tends to focus on the scope of costs whilst MPO and 3PA tends to focus on the scale of costs.

Note that the term of 'infrastructure' has no universally accepted meaning in economics, but its typical key characteristics tend to be: relatively large amounts of capital, which is long-lived and/or

sunk; as well as significant government ownership and/or regulation. Infrastructure services make both a direct contribution to economic growth in their own right and a more important indirect contribution to the inputs of most businesses, especially those competing at home and abroad with foreign services. The provision of infrastructure also has a number of other indirect impacts on the economy. One is the large call on labour and capital, which can under certain circumstances raise the cost of these factors for other businesses. Another impact can be on the level of taxes and government charges as well as the level of public sector debt through this sector's heavy involvement in infrastructure provision. The provision of infrastructure assets in Australia has historically been dominated by the public sector. State Governments have been responsible for providing the greatest range of infrastructure services such as electricity, water, sewerage, ports, railways and roads. The Commonwealth Government has been the key provider of telecommunications and postal services. Local governments have been mainly responsible for waste collection and disposal, maintenance of local roads and the management of regional airports. The direct responsibility for the provision and management of the majority of State and Commonwealth infrastructure assets has mainly rested with government business entities. The two most common rationales (usually *ex post*) for the traditionally heavy government involvement are the natural monopoly characteristics of infrastructure provision and existence of externalities. A natural monopoly exists where one entity can provide a service in the long run at a lower (average) cost than two or more entities. Infrastructure provision is often cited as having positive externalities that the private sector cannot capture or that public provision can better account for the negative externalities of infrastructure provision. However, more often than not, governments have become involved in infrastructure provision for political reasons. Regardless, most Australians still regard infrastructure services such as water, electricity, telecommunications and transport systems as basic necessities.

6.11.2 'Text book' economics arguments re vertically integrated infrastructure monopoly efficiency NCP is largely based on a foundation of text book economics, especially that of IOE and particularly the structure-conduct-performance (SCP) paradigm of IOE (see the **diagram below**). SCP states that the performance of industries ultimately depends on conduct, which, in turn, mainly depends on structure which, in turn, depends on the underlying basic conditions of demand and supply. All of these elements are influenced to varying degrees in different circumstances by government intervention (like borrowing, money printing, regulating, spending and taxing). Although the chain of causation mainly flows from the basics up to performance, there are strong feedback effects –

causation mainly flows from the basics up to performance, there are strong feedback effects – particularly from conduct to structure and *vice versa* as well as from government to basics, structure and conduct. Market structure is the type of organisation characterising an input or output (see the market continuum **diagram above**). It is mainly driven by the degree of competition or alternatively the degree of market power (with the latter mainly driven by monopoly power and/or competitive product differentiation and innovation). It is a major determinant of market conduct, particularly pricing – which thus effects revenues, costs and profits. There are essentially three major market structure models in IOE of monopoly, oligopoly and competition – the latter of which has two major sub-structures of monopolistic competition and perfect/pure competition. These models represent a spectrum from (perfect) competition at one extreme to (natural) monopoly at the other. The key determinants of market structure, in turn, are: 1) market concentration – ie the nature, number and size of sellers in a market; 2) substitutability – ie the nature and number of substitutes in supply and demand; and 3) barriers to entry – ie the nature and size of barriers to entering/exiting a market. In general, the greater the first and third and the lesser the second, then the greater the degree of market/monopoly power and thus the divergence between market price and cost and the greater

economic/monopoly profits are likely to be. Other determinants of market structure include: cost structures, particularly economies of scale and scope; vertical boundaries/integration; horizontal boundaries/integration; product differentiation; and product diversity. Note that vertical boundaries/integration is not only a market structure matter but also a market conduct matter, an example of the latter being vertical resale price maintenance.



The production of any good or service usually requires many activities. The process that begins with the acquisition of raw materials and ends with the distribution and sale of finished goods and services is known as the vertical supply chain. A central issue in business strategy is how to organise this chain. The vertical boundaries of a firm define the activities that the firm performs itself as opposed to purchases from independent firms in the market. The main determinant of vertical boundaries/integration – ie make or buy – is transaction costs. The main focus of TCE is on the economic rationale for, and behaviour of, business organisations. In so doing, TCE has emphasised the importance of economising over other factors such as the acquisition and exercise of market power. Text book IOE, on the other hand, has tended to emphasise market power over economising. A firm's horizontal boundaries identify the quantities and varieties of products and services that it produces. Horizontal boundaries differ markedly across industries, and across the firms within them. The optimal horizontal boundaries of firms depend critically on economies of scale and scope. Economies of scale and scope are present whenever large-scale production, distribution, or retail process have a cost advantage over smaller processes. Informally, when there are economies of scale and scope, 'bigger is better'. Economies of scale and scope are not always available, however. By offering cost advantages to large-scale producers, economies of scale and scope not only affect the sizes of firms and the structure of markets, but they also shape critical business strategy decisions, such as whether independent firms should merge, and whether a firm can achieve a long

term cost advantage in its market through expansion. Thus, an understanding of the sources of economies of scale and scope is critical for formulating competitive strategy. Economies of scale are present for a business entity when the long run average cost (LRAC) of production decreases over the relevant range of output expansion. The existence of decreasing LRAC is usually accompanied by large up-front fixed costs. Economies arise because larger output levels may allow a business entity to utilise more efficient capital-intensive methods or labour may specialise in areas of greater expertise. After some point, however, increasing inefficiencies in other areas, such as increasing bureaucracy of larger establishments, may be expected to offset these increased efficiencies. The main types of scale economies relate to: the nature of the product – ie product economies; plant size and number of plants – ie plant economies; and finance and promotion – ie pecuniary economies. Economies of scale are related to economies of scope, and the two terms are sometimes used interchangeably. Economies of scale exist if the firm achieves unit-cost savings as it increases the production of a given good or service. Economies of scope exist if the firm achieves savings as it increases the variety of goods and services it produces. Whereas economies of scale are usually defined in terms of declining average cost functions, economies of scope are usually defined in terms of the relative total cost of producing a variety of goods and services together in one firm versus separately in two or more firms.

The criterion of uneconomical duplication of an infrastructure facility service is the defining criterion of 3PA. In economics, uneconomical duplication refers to the situation where the total industry cost of providing a service by two or more entities is higher than one – ie sub-additivity or natural monopoly. Sub-additivity is often determined by sufficiently large fixed costs, and economies of scale and scope. If these fixed costs can be spread over output by one entity at a lower total cost than two or more entities, given the level of demand, then the former entity may be a natural monopoly. In this circumstance, ceteris paribus, such a 'natural' deterrent to entry may be in the interests of economic efficiency. Whether an industry structure is a natural monopoly one very much depends on the nature and level of demand, technology and input prices at the time – ie yesterday's natural monopoly, may not be today's or tomorrow's. Thus, as with public goods, natural monopolies should not be considered so forever more. Just because, in theory, a natural monopoly is the least cost provider does not mean it will, in practice, price at this level. Whether or not a natural monopoly prices at an efficient cost level will depend upon the degree of contestability or potential competition, which in turn mainly relies on the degree of freedom of entry and exit to the market. If contestability is low, a natural monopolist (like any monopoly) will extract monopoly profits from its customers and/or possibly 'cost pad' or 'gold plate' actual costs above efficient levels. This 'natural' monopoly pricing and cost-padding, along with reduced output, is the main rationale for 3PA.

6.12 Endnotes for this chapter

The ECPR-related literature sample (in terms of academic economics, Australian application and UK application) follows below in the endnotes to this chapter and includes:

- re economics: 1) Crew et al (2006)^v; 2) Willig (1979)^{vi}; 3) White (2002)^{vii}; 4) Tye (2002)^{viii}; and 5) Albon (2007)^{ix}; and
- re Australia: 6) Competition and Consumer Act 2010^x; 7) Australian Competition Tribunal (2013)^{xi}; and 8) Productivity Commission (1998)^{xii}; and
- re the UK: 9) *Competition Appeal Tribunal* (2006)^{xiii}; 10) *Ofwat* (2015)^{xiv}; and 11) *Ofcom* (2010)^{xv}.

Flow submission to IPART April 2016 Discussion Paper Prices for wholesale water and sewerage services



Exhibit 2. Trends in the Consumer Price Index for utilities (1978-2014, detailed). The index is set to 100 for 1982-1984 except for telephone, wireless, and internet services, where the index is set to 100 for 1997. Year (*) indicates start of series.



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http://www.legislation.govt.nz/act/public/2001/0103/latest/DLM124961.html ⁱⁱCompetition Appeal Tribunal, *Albion Water et al v Ofwat et al*[2006] CAT 23, http://www.catribunal.org.uk/files/Judge1046Albion061006.pdf

http://www.judgments.fedcourt.gov.au/judgments/Judgments/tribunals/acompt/2013/2013acompt 0003

^{xii} Productivity Commission, *Cost Allocation and Pricing*(1998),

http://www.pc.gov.au/research/supporting/cost-allocation-pricing

^{xiii}Competition Appeal Tribunal, *Albion Water et al v Ofwat et al*[2006] CAT 23,

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ⁱ Parliament of NZ, *Telecommunications Act*(2001),

^{III} Court to Appeal, Albion Water et al v Ofwat et al[2008] 1 EWCA Civ 536

^{iv}Competition Appeal Tribunal, *Albion Water et al v Ofwat et al*[2008] CAT 31

^vCrew, Michael et al, International Handbook on Economic Regulation (2006),

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^{vi}Willig, Robert, *The Theory of Network Access Pricing* (1979)

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^{vii} White, Lawrence, *The Efficient Component Pricing Rule (ECPR): A Generally Inefficient Solution to the Access Problem* (2002), http://archive.nyu.edu/bitstream/2451/26152/3/3-2.pdf.txt

viiiTye, William, Competitive Neutrality: Regulating Interconnection Disputes in the Transition to Competition(2002), <u>https://www.accc.gov.au/system/files/Dr%20Bill%20Tye%20(paper)%20-</u> %20Competitive%20Neutrality%20-

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^{ix}Albon, Robert, *The Use and Abuse of the Efficient Component Pricing Rule* (2007),

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^x Parliament of Australia, *Competition and Consumer Act*(2010),

https://www.legislation.gov.au/Details/C2016C00267/Download

^{xi} Australian Competition Tribunal, *Application by Co-operative Bulk Handling Limited (No 3)* [2013] ACompT 3,