

EXPLANATORY STATEMENT

Water Act 2007

Water Market Rules 2009

A significant proportion of water access entitlements in the Murray-Darling Basin are held by irrigation infrastructure operators. Irrigators within an irrigation district have access to this water by virtue of arrangements with the irrigation infrastructure operator. Rights to water under such contracts, arrangements or understandings are called irrigation rights. Water access entitlements can be freely traded subject to any restrictions imposed by State law. By contrast, irrigation rights can only be traded with the operator's consent. Thus, by virtue of holding the statutory rights to water, an operator can prevent or unreasonably delay its members from fully realising the benefits of their irrigation rights, particularly with regard to trade. In practice this has proved to be a real restriction on irrigators.

Allowing water to be traded to where it is most valued has a number of advantages. It benefits irrigators by giving them greater flexibility to manage their business risk, particularly during drought, and allows them to exit the industry with dignity should they choose. It also increases production, income and employment as water moves from less to more productive enterprises.

Government action is required to ensure that the water market rules will enable irrigators to 'transform' the irrigation rights which they currently hold into separately held water access entitlements (that is, so that irrigators hold the statutory water access entitlement directly rather than operators holding the water access entitlement on their behalf). Once irrigators hold their statutory water access entitlements directly, the operator cannot restrict trade.

Subsection 97(1) of the *Water Act 2007* (the Water Act) provides that the Minister may make water market rules that:

- (a) relate to an act that an irrigation infrastructure operator does, or fails to do, in a way that prevents or unreasonably delays arrangements being made that would reduce the share component of a water access entitlement of the operator to allow—
 - (i) a person's entitlement to water under an irrigation right against the operator; or
 - (ii) a part of that entitlement—

to be permanently transformed into a water access entitlement that is held by someone other than the operator; and
- (b) contribute to achieving the Basin water market and trading objectives and principles set out in Schedule 3.

Arrangements of the kind referred to in paragraph (a) are referred to in section 97 as *transformation arrangements*.

The water market rules must contribute to achieving the Basin water market and trading objectives and principles set out in Schedule 3. Broadly these objectives and principles seek to:

- (a) facilitate the operation of efficient water markets and the opportunities for trading, within and between Basin States, where water resources are physically shared or hydrologic connections and water supply considerations will permit water trading; and
- (b) minimise transaction cost on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions; and
- (c) enable the appropriate mix of water products to develop based on water access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time; and
- (d) recognise and protect the needs of the environment; and
- (e) to provide appropriate protection of third party interests.

Section 10 of the Water Act sets out the basis for dealing with the trading and transfer of, and the market for, tradeable water rights in relation to the resources of the Murray-Darling Basin in particular with a view to promoting the more efficient use of the Basin water resources, their continued availability and health, the health of the associated environmental assets, and the economic and social wellbeing of the communities in the Murray-Darling Basin.

The water market rules will ensure that the policies or administrative requirements of irrigation infrastructure operators do not represent a barrier to trade and contribute to the first of the Basin water market and trading objectives by facilitating trade.

These Rules generally prohibit operators from restricting, or unreasonably delaying, transformation arrangements or approvals to trade transformed irrigation rights.

The Rules do not require operators to transform the irrigation rights of all their customers. Transformation is only triggered by a request from an irrigator and once requested, the operator is generally required to allow transformation and to complete the transformation process within a reasonable timeframe.

Details of the Rules are set out in [Attachment I](#).

The Regulation Impact Statement for these rules is set out in [Attachment II](#).

Section 98 of the Water Act sets out the process for making water market rules. In particular, section 98 requires the Minister to ask the Australian Competition and Consumer Commission (ACCC) for advice about water market rules the Minister proposes to make and to have regard to that advice. Section 98 also provides for regulations to set out the detailed process that the Minister must follow in making water market rules. The *Water Regulations 2008* set out this detailed process. In particular regulation 4.15 sets out the process the Minister must follow in requesting the ACCC's advice.

The Minister requested the ACCC's advice on the water market rules on 17 December 2007. At the same time the Minister requested the ACCC to provide draft rules as part of its advice. The ACCC provided its final advice to the Minister on 23 December 2008.

Under regulation 4.18 of the *Water Regulations 2008*, the Minister must undertake consultation on draft water market rules unless the Minister is satisfied that the ACCC has already undertaken the required consultation.

In respect of the water market rules, the ACCC undertook a comprehensive three stage consultation process, including holding public forums in regional centres. The first stage involved publication of an issues paper, the second stage a position paper outlining the ACCC's initial policy position, and the third stage was the release of a draft set of rules and advice. More information on the consultation process and the ACCC response to stakeholder feedback is set out in section 6 of the Regulation Impact Statement at [Attachment II](#).

Section 137 of the Water Act sets out the role for the ACCC as the sole enforcement agency for contraventions of the water market rules.

The *Water Market Rules 2009* are substantially the same as the draft rules which the ACCC provided to the Minister together with its advice. The transition period was extended to give operators sufficient time to adjust their arrangements from the time the rules were made.

Further explanatory material is available in *Water Market Rules Advice to the Minister for Climate Change and Water, December 2008* provided by the ACCC and available at <http://www.environment.gov.au/water/policy-programs/water-act/market-charge-rules.html>

The Rules are a legislative instrument for the purposes of the *Legislative Instruments Act 2003*.

The Rules commence on the day after they are registered.

DETAILS OF THE *WATER MARKET RULES 2009***Part 1 Preliminary****1. Name of Rules**

Rule 1 provides that the title of the Rules is the *Water Market Rules 2009*.

2. Commencement

Rule 2 provides that the Rules commence on the day after they are registered on the Federal Register of Legislative Instruments.

3. Definitions

Rule 3 provides for definitions of terms used in the Rules.

4. Transitional provision for application of these Rules

Rule 4 provides for a transitional period, ending on 31 December 2009, during which existing contracts, arrangements and understandings continue to have the same effect as before these Rules are made. This means that if irrigation infrastructure operators have in place contracts, arrangements or understandings that restrict transformation or trade, they can continue to apply these restrictions until 31 December 2009.

Rule 4 also provides that time limits calculated in business days are exclusive of business days before the end of the transitional period. Thus time limits in the rules only begin to run after 31 December 2009.

Part 2 Facilitation of transformation**5. Irrigation infrastructure operators to inform irrigators of the making of these Rules**

Rule 5 requires irrigation infrastructure operators to advise irrigators of the making of the Rules, how copies may be obtained and how to contact the ACCC for further information. This will help to ensure that irrigators are aware of their rights under the rules.

6. Irrigation infrastructure operator to establish procedures for transformation

Subrule 6(1) requires irrigation infrastructure operators (other than small operators) to establish clear procedures for the transformation of irrigation rights held against them and to ensure that these procedures are readily available to irrigators by the end of the transitional period (i.e. from 1 January 2010). Those procedures may also include procedures for ascertaining details of irrigation rights and water delivery rights.

Subrule 6(2) provides that small operators must have procedures for the transformation of irrigation rights and applications for transformation readily available to irrigators who give notice, after the end of the transitional period, of their intention to apply, or apply, for transformation. That is, small operators are only

required to establish procedures for transformation at the time that the first irrigator within their irrigation district applies for transformation.

Subrule 6(3) defines a small operator as an operator whose total entitlements, for irrigation purposes only, are less than 10,000ML.

The ACCC will prepare template forms for applications for transformation. Operators will be free to use those forms or to develop their own.

A civil penalty applies to an operator in breach of subrules 6(1) or 6(2). The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

Part 3 Irrigation right

7. Irrigation infrastructure operator to provide details of irrigation right

Before an irrigator transforms an irrigation right, that irrigator needs to know the details of the right, that is the quantity of water to which the irrigator is entitled under the right.

Subrule 7(1) requires irrigation infrastructure operators to provide to irrigators who intend to apply, or apply, for transformation and request details of their contractual or other arrangements relating to the irrigation right, those details within 20 business days.

A civil penalty applies to an operator in breach of subrule 7(1). The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

Some operators do not hold a separate conveyance entitlement for water losses that occur during distribution of water in their networks. In these circumstances, subrule 7(2) permits an operator, when providing details of an irrigation right for the purposes of transformation, to reduce, in accordance with a formula set out in the rule or by written agreement between the operator and the holder, the volume of water to which the holder of an access right will be entitled, under the water access entitlement obtained as a result of transformation of the irrigation right, by a proportion of the fixed network loss of water during distribution.

Subrule 7(3) provides that an irrigation infrastructure operator who holds a water access entitlement relating to water loss during distribution is not entitled to reduce a the water access entitlement, obtained as a result of transformation of the irrigation right, under subrule 7(2).

Subrule 7(4) requires the operator to give full details of any reduction calculated under subrule 7(2) to the irrigator.

Subrules 7(5) and 7(6) set out a process for the resolving of any dispute about the accuracy of the details of the irrigation right, and proportion of the right available for transformation, provided by the operator to the irrigator. The dispute resolution process includes an ability for the irrigator to request a formal negotiation, which may involve the appointment of an independent third party to resolve the dispute. Subrule 7(7) provides for a civil penalty if the operator fails to make a genuine

attempt to resolve the dispute (which, as defined in subrule 7(10), includes the taking of such steps as would reasonably be expected to result in the appointment of an independent third party). The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

Subrules 7(8) and (9) provide that the reduced portion of an irrigation right (the part that has not been transformed to cover fixed conveyance losses) continues to be regarded as part of that right, and to be held by the irrigator, so long as the irrigator continues to hold a water delivery right from the operator.

The effect of these provisions mean that if there are efficiency gains in the operator's irrigation network in the future, these will accrue to the remainder of the irrigator's irrigation right. However, if the irrigator terminates his or her water delivery right, the remaining untransformed part of the irrigation right is also terminated.

Part 4 Water delivery right

8. Contractual terms and conditions of water delivery rights

Failure to provide the continuation of delivery arrangements if requested by irrigators wishing to transform may discourage transformation and trade, particularly if irrigators choose to sell their permanent entitlements with the objective of buying annual water allocations.

Subrule 8(1) requires irrigation infrastructure operators, within specified timelines, to provide details of the terms and conditions on which water will continue to be delivered subsequent to transformation to irrigators who intend to apply, or apply, for transformation of their irrigation rights and require the continuation of water delivery (whether or not they hold a water access entitlement obtained as a result of transformation).

Subrule 8(2) provides that no variations may be made to the details of the terms and conditions of a post-transformation water delivery right, the details of which are provided under subrule 8(1), from those applicable to the pre-transformation water delivery right unless such variations are necessary as a consequence of transformation or agreed between the parties. This prevents an operator from setting less favourable water delivery terms and conditions to irrigators who choose to transform which may have the effect of preventing or unreasonably delaying transformation arrangements as compared to irrigators who maintain their irrigation rights.

Subrules 8(3) and 8(4) set out a process for the resolving of any dispute about the terms and conditions of the continuing water delivery right provided by the operator. The dispute resolution process includes the ability for the irrigator to request a formal negotiation, which may involve the appointment of an independent third party to resolve the dispute.

Subrule 8(5) provides for a civil penalty if the operator fails to make a genuine attempt to resolve the dispute (which, as defined in subrule 8(6), includes the taking of such steps as would reasonably be expected to result in the appointment of a third party). The maximum penalty is 200 penalty units (currently \$22,000) for individuals

and 1000 penalty units (currently \$110,000) for corporations.

9. Continuation of water delivery services

Rule 9 provides for a civil penalty for a breach of subrule 8(1) (the requirement to provide details of the terms and conditions of a post-transformation water delivery right if requested by the irrigator) and a breach of subrule 8(2) (varying such a post-transformation water delivery right as compared to the pre-transformation water delivery right in any manner other than what is necessary as a consequence of the transformation, or agreed between the operator and the irrigator).

Rule 9 also provides for a civil penalty if the operator refuses to provide water delivery services post-transformation in accordance with the terms and conditions settled under rule 8.

The maximum civil penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

10. Security may be required for payment of charges for delivery of water

This rule allows operators to require security against payment of future access fees in particular circumstances when an irrigator applies for transformation. This provides the operator with surety about future payment.

Rule 10 enables irrigation infrastructure operators to require security for payment of charges for the delivery of water if the holder of an irrigation right who applies for transformation, will continue to hold a water delivery right post-transformation and will either:

- cease to hold any part of their irrigation right (or in other words transforms the whole of their irrigation right); or
- have a delivery right that entitles the person to have delivered more than 5 times the volume of water the person is entitled to receive under the part of the irrigation right retained by that person.

Subrule 10(2) provides that the amount of the security must not exceed the amount payable under the *Water Charge (Termination Fees) Rules 2009* for the termination of the delivery right, or where no termination fee is payable, the amount of the total network access charge payable in respect of the year in which the security is given.

Subrule 10(3) prohibits the operator from refusing to accept an offer of security from an irrigator on the basis of the form in which it is given, if it is in the form of one of the following: a charge over the part of the irrigation right retained, a charge over an unencumbered water access entitlement (or part thereof), a bank guarantee, a deposit or any other form of security agreed between the parties.

Part 5 Applications relating to transformation of irrigation rights

11. Application for transformation where water access entitlement is to be held by applicant

Subrule 11(1) permits an operator to require an application for transformation of an irrigation right (where the transformed water access entitlement is to be held by the applicant) to be in writing and to include particular information that is reasonably necessary for transformation arrangements. Information that is reasonably necessary includes the name and address of the applicant and other details identifying the irrigation right to be transformed, confirmation that any third party holding a legal or equitable interest in the irrigation right consents to transformation and whether a post-transformation water delivery right is requested.

Subrule 11(2) prohibits an irrigation infrastructure operator from requiring an irrigator to provide any information that is not reasonably necessary for the transformation arrangements.

12. Application for transformation where water access entitlement is to be held by person other than the operator or the applicant

Subrule 12(1) permits an operator to require an application for transformation of an irrigation right (where the transformed water access entitlement is to be held by a third party, i.e. where the applicant is transforming and trading at the same time) to be in writing and to include particular information that is reasonably necessary for transformation arrangements. The information that is reasonably necessary is broadly similar to that necessary under rule 11(1), but also includes details about the person who is to hold the water access entitlement, and if the water is to be transferred to an existing water access entitlement, details of that entitlement.

Subrule 12(2) prohibits an irrigation infrastructure operator from requiring an irrigator to provide any information not reasonably necessary for the transformation arrangements.

13. Fees

Rule 13(1) permits operators to require applications for transformation to be accompanied by administrative fees for the costs incurred in processing a transformation application or relating to a post-transformation water delivery right.

However, rule 13(2) provides for a civil penalty if the operator charges a fee that exceeds an amount based on the recovery of reasonable and efficient costs for processing the application. The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

Rule 20 recognises fees imposed in accordance with this rule as authorised fees.

14. Irrigation infrastructure operator to process applications efficiently

Rule 14 requires operators to process applications for transformation efficiently and within set time limits (called the 'relevant period'). Under rule 14:

- operators who receive an application for transformation are required to make a decision on the application within 20 business days from receipt of application,

and notify the irrigator of the approval or the reason that it cannot be approved within 5 business days after this period;

- where the operator seeks further information from the irrigator, or the payment of fees or outstanding charges, for the purposes of processing an application to transform and/or trade, the processing period begins after that information is provided, and the fees or charges paid or an agreement in relation to payment reached (note that subrule 14(1) requires the irrigation infrastructure operator to advise the applicant if the application is incomplete or is not accompanied by the relevant fees or if there are unpaid charges or fees);
- the processing period also excludes any days elapsing after steps have been taken to obtain any necessary third party approval or fulfil any State law requirement and before a response has been received;
- the processing period is only triggered once the applicant irrigator has agreed with the operator on the details of his or her irrigation right, and if applicable on the details of his or her continuing delivery right.

Under subrule 14(2), an operator may refuse to approve an application if a person who holds an interest in the irrigation right has not given approval, a requirement of a State law has not been satisfied or the applicant has not provided all the required information or has not paid outstanding charges or fees.

Trades of water access entitlements are subject to state approval processes which are separate from the processes of an irrigation infrastructure operator.

Part 6 General

15. Operator to notify ACCC if unable to meet timelines

Subrule 15(1) requires an irrigation infrastructure operator who is unable to reach agreement within 30 business days on the details of irrigation rights under rule 7, or water delivery rights under rule 8, to advise the ACCC, within that period, of the reasons for the delay.

Subrule 15(2) requires an irrigation infrastructure operator who is unable to approve a transformation application under rule 14 within the relevant period, to advise the ACCC no later than 5 days after the end of the relevant period of the reasons why the operator is not able to approve the application.

16. Irrigation infrastructure operators to facilitate transformation arrangements

Subrule 16(1) generally prohibits an operator from doing something, or failing to do something, that prevents or unreasonably delays transformation and creates a civil penalty for a breach of this prohibition. The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

Subrule 16(2) provides that anything done or omitted to be done under or in accordance with these Rules will not constitute a prevention or unreasonable delay under subrule 16(1). The types of actions that subrule 16(2) covers are:

- requiring (in a manner permitted by the rules) the following things to occur before processing an application for transformation:
 - the payment of certain fees and charges (e.g. unpaid access charges and reasonable administration fees) (rule 14);
 - the provision of security against ongoing water delivery fees (rule 10); and
 - the approval of third parties who have a legal or equitable interest in the irrigation right that is to be transformed (rules 14 and 20).
- imposing requirements that are expressly permitted under a State law or a related instrument (rules 14 and 20);
- excluding a portion of an irrigator's irrigation right from being eligible for transformation to take into account conveyance losses in a manner permitted by the rules (rule 7); and
- requiring the holder of an irrigation right or transformed water access entitlement, who intends to continue to hold a delivery right against the operator after transformation, to install a water meter (rule 20).

17. Irrigation infrastructure operator not to prevent or delay trading of water access entitlement

Similarly to rule 16, rule 17 generally prohibits an operator from doing something, or failing to do something, that prevents or unreasonably delays trade of a transformed water access entitlement and creates a civil penalty for a breach of this prohibition. The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

Subrule 17(2) provides that anything done or omitted to be done under or in accordance with these Rules will not constitute a prevention or unreasonable delay under subrule 17(1). Subrule 17(2) covers the same types of actions as those listed in respect of subrule 16(2).

18. Irrigation infrastructure operators not to take security except in accordance with these Rules

Rule 18 provides for a civil penalty if an irrigation infrastructure operator requires or accepts security in relation to transformation arrangements except as provided for in rule 10. The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

19. Water delivery right not to be terminated by reason only of application for transformation

Rule 19 provides for a civil penalty if an irrigation infrastructure operator imposes a condition requiring an applicant for transformation to terminate a water delivery right. Rule 19 ties in with rules 8 and 9, which require the operator to negotiate, and comply with, a varied delivery right post-transformation if requested by the irrigator. The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000

penalty units (currently \$110,000) for corporations.

20. Contractual arrangements between irrigation infrastructure operators and holders of irrigation rights or water access entitlements

Subrule 20(1) provides for a civil penalty if an irrigation infrastructure operator includes in a contract, arrangement or understanding with an irrigator any provisions requiring the payment of unauthorised fees or charges, provisions seeking to restrict the trade of a water entitlement obtained as a result of transformation or any other provisions that may prevent or unreasonably delay transformation. The maximum penalty is 200 penalty units (currently \$22,000) for individuals and 1000 penalty units (currently \$110,000) for corporations.

Subrule 20(2) provides that subrule 20(1) does not apply to a provision that is required or expressly authorised by or under a law of the relevant State or authorised by a licence granted under such a law, requires a person to install a water meter or requires the approval of a person who has an interest in the irrigation right. Such provisions give effect to legitimate requirements and are not mechanisms used to prevent or unreasonably delay transformation.

21. Irrigation infrastructure operators to notify irrigators of relevant changes to constitution, contracts etc.

Rule 21 requires irrigation infrastructure operators to advise irrigators within 10 business days about significant changes to their constitutions, management or contractual arrangements that may affect rights and obligations in relation to transformation arrangements.

Part 7 Proceedings for damages

22. Proceedings to recover loss or damage

Rule 22 provides a right, in accordance with subsection 97(9) of the Water Act, for a person who suffers loss or damage through a contravention by a person of these Rules to take private action to recover the loss or damage.



Australian Government

Department of the Environment, Water, Heritage and the Arts

Regulation Impact Statement



Water Market Rules 2009 and Water Charge (Termination Fees) Rules 2009

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Final

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Abbreviations

ABA	Australian Banker's Association
ABARE	Australian Bureau of Agricultural and Resource Economics
ACCC	Australian Competition and Consumer Commission
ACT	Australian Capital Territory
CGE	Computable General Equilibrium
CICL	Coleambally Irrigation Co-operative Limited
CIT	Central Irrigation Trust
DEWHA	Department of the Environment, Water, Heritage and the Arts
GL	gigalitre
GMW	Goulburn-Murray Water
JIL	Jemalong Irrigation Limited
JWSS	joint water supply scheme
IWA	interim water allocation
MDB	Murray-Darling Basin
MI	Murrumbidgee Irrigation Limited
MIL	Murray Irrigation Limited
ML	megalitre
MRFF	Macquarie River Food & Fibre
NPV	net present value
NSW	New South Wales
NSWFA	NSW Farmers' Association
NWI	National Water Initiative
PID	private irrigation district
RIT	Renmark Irrigation Trust
SA	South Australia
TBG	the Bondi Group
WMA	<i>Water Management Act 2000</i> (NSW)
WMI	Western Murray Irrigation Limited
WPM	water planning and management

1.0 Introduction

1.1 Background

1.1.1 The Murray-Darling Basin

The Murray-Darling Basin (the Basin) is the catchment for the Murray and Darling rivers and their many tributaries. It covers 1,061,469 square kilometres or 14 per cent of the total area of Australia; it extends from Queensland (north of Roma) and runs through three-quarters of New South Wales (NSW), all of the Australian Capital Territory (ACT), half of Victoria and through to Goolwa in South Australia (SA).

The Basin is Australia's most important agricultural region containing over 40 per cent of all Australian farms, which produce wool, cotton, wheat, sheep, cattle, dairy produce, rice, oil-seed, wine, fruit and vegetables for both domestic and overseas markets. It is responsible for about 40 per cent of Australia's agricultural production, worth about \$15 billion in gross terms in 2005-06. Irrigated agriculture accounts for about a third of this value with the Basin containing 65 per cent of Australia's irrigated land.

Figure 1: The Murray-Darling Basin



Source: Murray-Darling Basin Commission

Diversions (water extracted) by irrigation districts represent the vast majority of total diversions from the water bodies of the southern Basin (see *Table 1*).

Table 1: Operator diversions as a percentage of southern Basin diversions (2004–05)

State	Total diversions (GL)	Diversions by irrigation districts (GL)	Percentage of total diversions by irrigation districts
NSW	3,666	2,570	70
Victoria	3,137	2,693	86
South Australia	623	165	27
Total	7,426	5,429	73

Source: ACCC (2006)

1.1.2 Irrigation infrastructure operators in the Basin

Section 7 of the *Water Act 2007* (The Act) defines an irrigation infrastructure operator as a person who owns or operates infrastructure for either the purpose of storage, delivery, or drainage of water for the purpose of providing a service to another person. The definition also requires the person to operate the infrastructure to deliver water for the primary purpose of irrigation.

Considerable diversity exists in the number, size and ownership arrangements of operators across the Basin. The corporate governance arrangements in Victoria and Queensland vary substantially from NSW and SA. The types of arrangements with customers also vary within jurisdictions.

New South Wales

In NSW, water entitlements are termed 'Water Access Licences'. Each licence specifies a share component (unit share of the relevant security pool or a volumetric water entitlement) and an extraction component which entitles the holder to take water at specified times, rates, locations and circumstances.

Private diverters and operators can own commercial water access licences, categories of which include regulated river (high or general security) access licences, regulated river (conveyance) access licences, and unregulated river access licences.

Irrigators within operator districts typically hold a share of the operator's water access entitlement (i.e. an irrigation right) under contractual or other arrangements. The rules relating to trade in such shares are governed by the individual operators.

NSW operators include five large irrigation corporations¹, a number of private irrigation districts², private water trusts and joint water supply schemes (JWSS) that can have as few as three members.

MIL, MI, JIL and WMI are all privately owned, non-listed, not-for-profit companies that were privatised during the period 1995 to 1999 when the NSW Government issued shares in these companies to irrigators within their areas of operation. CACL changed from state ownership to ownership by the local irrigators in June 2000, and the shareholders subsequently adopted a dual co-operative structure. CACL is a trading co-operative that holds the irrigation licence and has the responsibility of providing irrigation water and associated services.

¹ Murray Irrigation Limited (MIL), Murrumbidgee Irrigation Limited (MI), Coleambally Irrigation Co-operative Limited (CACL), Jemalong Irrigation Limited (JIL) and Western Murray Irrigation Limited (WMI).

² For example Moira Private Irrigation District.

Many of the smaller privately owned operators also have a cooperative structure in that the member/irrigators are also shareholders in the entity that owns the delivery infrastructure.

South Australia

In SA, entitlements are licences that are issued to private diverters and operators. Individual irrigators within an operator's district are granted their water entitlements from the relevant operator's water licence, under terms of the *Irrigation Act 1994* or other trust specific Acts.

Almost all operators in SA have been established under the *Irrigation Act 1994 (SA)* by conversion from government irrigation districts to private irrigation districts or by the establishment of irrigation trusts. 45 irrigation infrastructure trusts were formed under the *Irrigation Act 1994 (SA)* while Renmark Irrigation Trust (RIT) was formed under the *Renmark Irrigation Trust Act 1936 (SA)*.

These operators vary in size from RIT which manages an irrigation allocation licence of 54,480 ML, to trusts such as Mypolonga Private Irrigation Trust Inc. that manages an allocation licence of 25 ML.

Victoria

The *Water Act 1989* and the *Water (Resource Management) Act 2005*, provide the legislative framework for water entitlements and water entitlement transfer in Victoria. On 1 July 2007 northern Victorian licensees had their water rights 'unbundled' under the provisions of the *Water (Resource Management) Act 2005*. This split the existing water licence into high and low reliability water shares, delivery shares and water use licences

Five government-owned statutory authorities provide irrigation infrastructure services within the Victorian region of the Basin. Goulburn-Murray Water (GMW) and Lower-Murray Water (LMW) are the largest of these providing both bulk water and irrigation infrastructure services.

There are physical and legal restrictions on the volume of water that can be bought and sold. As irrigators hold their own water shares (or entitlements) irrigators, they are otherwise able to freely buy and sell entitlements and allocations at their own discretion.

Although the larger operators in Victoria do not hold 'group' water access entitlements on behalf of their customers, it is understood these arrangements include some 'syndicates' in Victoria.

Queensland

Water entitlements within Queensland are generally held by the individual irrigators and can exist in a number of forms including licences, interim water allocations (IWA) and water allocations. IWAs and water licences are typically converted to water allocations when the relevant Resource Operation Plan for the area is completed.

SunWater provides irrigation infrastructure services to almost all Queensland irrigators in the Basin. SunWater organises its delivery services and charges on the basis of local schemes. The delivery of water is facilitated by contracts with the water storage operator and the infrastructure operator. The delivery contract with the infrastructure operator (generally SunWater) defines the service standards and delivery conditions as well as the rights and payment obligations of the holder.

1.2 Water market and water charge rules

Water Act 2007

The Act, which came into effect on 3 March 2008, creates new institutional and governance arrangements to address the sustainability and management of water resources in the Basin. The Act builds on earlier reform initiatives, including the National Water Initiative (NWI) and the Murray-Darling Basin Agreement (MDB Agreement).

A key element of this reform is the removal of barriers to water trade to facilitate the operation of efficient water markets and provide opportunities for water trading. Water trading will allow water to move to its highest value use.

The Act provides for the Minister for Climate Change and Water to make water market and water charge rules to apply in the Basin. The Act requires the Minister to obtain and have regard to advice from the Australian Competition and Consumer Commission (ACCC) in making the water market and water charge rules. The Act further provides for the ACCC to monitor compliance with, and to enforce, the water market rules and water charge rules.

The Water Act was amended by the *Water Amendment Act 2008*, which commenced operation on 15 December 2008. It revoked and remade Part 4 in similar terms to the original Act, but with broader application, supported by a referral of constitutional powers from the Basin States.

Joint regulation impact statement

The regulatory proposals for the water market and water charge rules for termination fees³ are considered jointly as they are closely related. Fees or charges for terminating access to an irrigation network may influence an irrigator's decision to trade water. Therefore water charge rules for termination fees complement water market rules in facilitating the efficient functioning of water markets. The economic impacts of these two sets of rules will also be difficult to identify separately; this matter is addressed through a joint impact assessment.

The ACCC provided its advice and recommended rules to the Minister on the water market and water charge rules for termination fees on 23 December 2008.

This document is the regulation impact statement for the proposed water market and water charge rules for termination fees.

2.0 Assessing the problem

2.1 Water market rules

As discussed above, many operators, particularly in SA and NSW (and some operators in Victoria and Queensland)⁴, have a 'group' water access entitlement⁵ under which the

³ The ACCC's advice on water charge rules for other fees and charges payable to operators, bulk water charges, and charges for the recovery of water planning and management costs will be dealt with under a separate regulatory proposal.

⁴ Although the larger operators in these states do not own 'group' water access entitlements on behalf of their customers, it is understood these arrangements include some 'syndicates' in Victoria and potentially some water boards/operators in Queensland.

member irrigators have a right to a share of water under an irrigation right against the operator. That is, operators hold water entitlements collectively on behalf of their members. Generally, the irrigator has a contractual relationship with the operator giving them the right to access a certain volume of water under the operator's group licence. Some irrigators may not have a formal contract with the operator. In some cases, the irrigator's irrigation rights are not well defined.

These irrigation rights are less freely tradable than the individual statutory water entitlements held by many other irrigators and typically irrigators in Victoria and Queensland. The terms of the contract generally require the operator's co-operation if an irrigator wishes to trade their share of a group water right out of the operator's irrigation area.

By virtue of holding the statutory rights to water, an operator has the ability to prevent or unreasonably delay their member irrigators from trading their water asset out of the operator's irrigation area.

The problem with operators delaying or preventing trade

Water markets and trade can reveal the true market value of water to existing and potential users and create incentives for users to pursue improved technical productivity, innovate and improve water use efficiency. This leads to more productive and efficient use of water resources over time.

Allowing temporary and permanent water to be traded to where it is most valued has a number of advantages:

- it gives irrigators greater flexibility in managing their business risk, particularly during drought and allows them to exit the industry on their own terms should they choose, and
- it increases income, production and employment as water moves from less to more productive enterprises.

The benefits of water trading are supported by number of studies, including a 2006 study by the Productivity Commission⁶ and a more recent analysis by the Australian Bureau of Agricultural and Resource Economics (ABARE) on the role of water trading in adapting to water shortages in the Southern Murray-Darling Basin.⁷ Peterson *et. al.* (2004) also found that the free trade of water reduced the impact of a 10 per cent reduction in irrigation water when compared with a no trade scenario.

The ability of operators to prevent or unreasonably delay any member from trading their water entitlement means that the water market is unable to operate efficiently. The ACCC has received a number of complaints about operator-imposed restrictions on water trade; some submissions from irrigators also point to examples of non-cooperation from operators.

For example, a number of operators do not allow any permanent water trade out of their irrigation area.⁸ Other operators only allow trade out with the approval of the operator's

⁵ For example, a 'water share' in Victoria, a 'water access licence' in New South Wales, a 'water taking/holding allocation' in South Australia and a 'water allocation' in Queensland.

⁶ Productivity Commission (2006).

⁷ Mallawaarachchi and Foster (2008)

⁸ For example, no trade is allowed out of Sunlands, Golden Heights and Renmark irrigation trusts in SA.

board. A number of major operators in NSW and SA require compulsory termination of water delivery rights when irrigators sell their water entitlement out of the area, denying them the choice to retain their connection to the irrigation network and pay an annual access fee (see [Appendix 2](#) for more detail).

The impact of such operator restrictions on individual irrigators can have significant financial and other impacts on irrigators and others.

Trade restrictions impact on irrigators' production decisions and have flow-on effects for the agricultural sector and the broader economy. Irrigators may have to let crops die or shelve decisions to expand irrigated production if they cannot trade water in. Incomes, agricultural production volume and value, and possibly employment, will be lower as a result.

If an irrigator is prevented from trading water when the aim is to use the proceeds to reduce debt, then the irrigator will be forced to carry more debt than that he or she chooses; it could deny the irrigator the funds he needs to carry on his business. An irrigator who planned to use the trade proceeds to invest in on-farm irrigation efficiency improvements would also have to delay or forego this investment. Alternatively an irrigator might choose to sell more water than originally planned to account for an exit fee, thereby reducing the gains from trade.

A submission from an irrigator⁹ to the ACCC water market rules position paper, available on the ACCC website (www.accc.gov.au), provides a good example of the financial impact of operator restrictions. The irrigator submitted that his financial institution recently decided that it no longer regards his irrigation right against MIL as a secure asset. Given the difficulties this created in borrowing, he sought to sell some of his water entitlement to raise working capital. The irrigator submitted that MIL's introduction of a new policy on 8 April 2008 requiring delivery entitlements to be sold with water entitlements has forced him to sell 37 more megalitres (worth about \$38,480) than he would have liked, in order to raise the cash to pay the termination fee.

2.2 Termination fees

Characteristics of irrigation infrastructure assets

Operators own infrastructure that is used for the delivery and/or drainage of water to end users, typically irrigators, although some operators may service commercial or industrial customers. Many irrigators are reliant on operators delivering water through an irrigation network. Irrigators typically make on-farm investments such as pumps, overhead sprinklers or drip irrigation systems.

Irrigation infrastructure is characterised by features common to natural monopoly infrastructure networks. The assets themselves require substantial investment, are long lived, exhibit significant economies of scale and have few alternative uses so that costs are largely fixed and sunk. Given the level of demand relative to the supply capacity in an irrigation district, productive efficiency is usually best achieved by having a single operator managing the irrigation network. The asset value of operators varies a great deal across the Basin. For example, one of the largest NSW operators MIL has an approximate asset value of \$771 million and provides services to about 2,400 irrigators. In contrast, WMI has an asset value of around \$41 million and about 328 members.

⁹ D. Crowhurst, submission to ACCC position paper on water charge rules for termination fees.

Irrigation operators face ongoing costs for maintaining irrigation infrastructure. Many of these costs are fixed, in that they are incurred whether an irrigator chooses to terminate or remains connected to the operator's irrigation network.

What is a termination fee?

A termination fee is a fee levied by an operator when a water delivery right is surrendered to the operator by an irrigator. This terminates any rights or obligations associated with that delivery entitlement, including any requirement to pay an infrastructure access fee for water delivery services.

Termination fees are a mechanism to manage investment uncertainty by providing for the unavoidable ongoing costs of maintaining irrigation infrastructure. As such, termination fees are a means to deal with third party impacts of irrigators terminating access to an operator's irrigation network, and provide investment certainty.

Termination fees are one of several mechanisms to provide certainty over efficient investments. Other mechanisms include full cost recovery¹⁰, efficient price discrimination, altering the depreciation profile, negotiating fixed-term supply contracts, and up-front customer contributions.

Termination fees are commonly set as a multiple of the relevant annual infrastructure access fee.

The problem that has prompted consideration of government action with respect to termination fees is twofold:

- should termination fees be levied, and if so under what circumstances?
- what is the quantum or level at which termination fees should be applied?

2.2.1 Should termination fees be levied?

When there is a permanent decrease in the demand for water delivery services, the assets of operators can become under-utilised. The issue of potential under-utilised assets has arisen because the rights to access and use water and the right to have that water delivered have traditionally been bundled together. These bundled rights were tied to land. This has resulted in:

- investment in irrigation water delivery networks being undertaken with minimal thought of the potential for water to be permanently traded out of the region, such that complete ex ante long-term contracts in relation to water delivery services are rare
- infrastructure operators recovering the fixed costs of operating the irrigation network through charges levied on water entitlements, rather than directly for water delivery services
- tariff structures of operators not generally reflecting the cost structure of their operations - revenue collected through fixed access charges is less than the cost of providing the capacity to deliver water, while revenue collected through variable delivery charges is greater than incremental costs associated with delivering that water.

Prior to the commencement of water trading, such arrangements did not pose a significant problem. However, the introduction of water trading as part of broader water market

¹⁰ Including return on capital reflecting the weighted average cost of capital.

reforms that recognise the role of markets in facilitating the efficient use of water, has exposed the shortcomings of such arrangements.

Exit fees

Some operators have responded to concerns about under-utilised assets due to external trade by introducing compulsory termination or exit fees on the sale of water entitlements out of their districts. An exit fee is a charge or fee levied by an operator on the transfer of a water entitlement out of the operator's network or irrigation district (excluding any fee associated with the costs of processing that transfer). Other operators require compulsory termination of delivery entitlements, with payment of the appropriate termination fee, on the transfer of water entitlements out of the district. This amounts to an exit fee.

These exit fees are often calculated to collect the net present value¹¹ (NPV) of future revenue¹² that the operator would have received to cover fixed costs, had that water continued to be delivered within its network.

Such arrangements, which fully insulate the operator from the financial effects of water trade, will generally be supported by a majority of its customers because it is likely that only a minority of irrigators in each district will substantially reduce their holding of water entitlements and have to pay an exit fee.

The problem with compulsory termination or exit fees

The inefficiency of ex-post exit fees (or compulsory termination fees) in the context of water trade has been analysed by ABARE, the Productivity Commission and the ACCC (see [Appendix 1](#) for more details). In essence, exit fees (or compulsory termination fees) applied to the trade of water entitlements tends to:

- increase entitlement prices in importing (buying) regions, reduce the net proceeds from entitlement sales in exporting (selling) regions, reduce the quantity of water traded and decrease economic welfare compared to a free trade scenario, and
- dampen the signal to operators that network rationalisation¹³ is required, since some irrigators will sub-optimally remain in the network, and muffles the signal to remaining irrigators about the real cost of continuing to provide them with delivery services.

2.2.2 Level of the termination fee multiple

Termination fees are generally expressed as a lump-sum multiple of the relevant annual infrastructure access fee.

High multiple

If the multiple is too high, the termination fee is a barrier to rationalisation and water trade. The existing configuration of an irrigation network may not be the most efficient and high termination fees may mean the operator does not have an incentive to improve efficiency. At the extreme level, termination fees equivalent to access fees in perpetuity effectively insulates the operator from all demand uncertainty, so that access fees need not include any systematic risk element that other businesses would typically be unable to avoid.

¹¹ The value of a whole stream of future payments discounted by an appropriate discount rate.

¹² The time period over which the revenue stream is discounted is often perpetuity or equivalent to the engineering life of irrigation infrastructure assets.

¹³ Reorganisation to increase efficiency which may result in an expansion or reduction of network size or an alteration of strategy pertaining to particular irrigation districts within an irrigation network.

The higher the termination fee the lower the net returns, and the lower the incentive for an irrigator to trade for a given water price. Where the termination fee is set too high, irrigators may remain connected to the irrigation system even if it is more efficient for them to trade water and terminate access.

Low multiple

Alternatively, if the multiple is too low, operators may not be able to recover their committed fixed costs. Over time, this may compromise the viability of operators, service standards and investment, while uncertainty about the stability of input costs may reduce irrigators' investments in on-farm infrastructure.

2.3 Scale of the problem

Table 1 provides a list of the major irrigation businesses in the Basin and provides an estimate of their relative size (by volume of water entitlements). Operators owning a 'group' water access entitlement and therefore able to restrict their members' water trading activities are estimated to cover a substantial proportion (approximately one third) of the Basin. A similar proportion of irrigators in the Basin are estimated to be subject to compulsory termination fees (see [Appendix 2](#) for more detail).

It is not possible to quantify precisely the number of irrigators that currently wish to trade their water entitlements but are being prevented from doing so by operator restrictions. As mentioned above, the ACCC has received a number of complaints about operator-imposed restrictions on water trade and a number of submissions from irrigators also point to examples of non-cooperation from operators (available on the ACCC website www.accc.gov.au).¹⁴ A number of participants at the ACCC regional public forums in Deniliquin and Griffith (see Section 6) also raised concerns about operator restrictions.

For example, a member of MIL¹⁵ attempted to sell their water to the Australian Government; however, MIL introduced a new policy where delivery entitlements must be sold with water entitlements. The irrigator submitted that this change was made with no notice period, effectively costing them \$256,610 to surrender their delivery entitlements. The irrigator submitted that as the absolute owner of their delivery entitlements they do not wish to terminate them and question why MIL can force termination of delivery entitlements although they are not attached to water.

Another MIL irrigator¹⁶ submitted that the operator's rules and the way they continually change them is having a detrimental impact on his business. This irrigator submitted that actions by MIL such as requiring shareholders to terminate their delivery entitlements if they sell or transform their access entitlements (which he suggests is an exit fee) have eroded his property right. This irrigator also submits that it appears that water outside the irrigation corporations is now more valuable than water inside and believes that MIL actions as described above have contributed to this.

¹⁴ Mr D Crowhurst, position paper submission 39, p. 1; Mr AW Ramsay, position paper submission 40, pp. 1–2; Mr M Cameron, position paper submission 20, p. 4; Messrs P Leslie and D Ferguson, position paper submission 41, pp. 1–4; Mr J Morton, position paper submission 43, p. 1; Mr T McCallum, issues paper submission 4, pp. 1–3; Mr I Shippen, issues paper submission 36, p. 1; PJ and PB Goudie, issues paper submission 8, pp. 2–4; Mr M Cameron, draft advice submission 3, pp. 1–2; Mr D Star, draft advice submission 10, p. 1; N and M Boucher, draft advice submission 15, pp. 1–2.

¹⁵ N and M Boucher, draft advice submission to the water market rules 15, pp. 1–2.

¹⁶ Mr I Shippen, issues paper submission to the water market rules 36, p. 1.

Table 2: Major rural irrigation businesses

Major Murray-Darling Basin Rural Irrigation Businesses (>10,000 ML water entitlements)	State	Group water access entitlement	Compulsory termination fee	Estimated total irrigation customers	Estimated total water entitlements in Basin (ML)	Estimated percentage of MDB entitlements
Goulburn-Murray Water	VIC	No	No	32,886	1,917,800	15.0%
Murrumbidgee Irrigation Limited	NSW	Yes	Yes	3,320	1,426,305	11.1%
Central Irrigation Trust	SA	Yes	Yes	3,219	135,338	1.1%
Lower Murray Water (plus First Mildura Irrigation Trust)	VIC	No	No	2,556	188,361	1.5%
Murray Irrigation Limited	NSW	Yes	Yes	2,400	1,615,661	12.6%
Renmark Irrigation Trust	SA	Yes	No trade	1,190	55,346	0.4%
SunWater	Qld	No	No	400	138,600	1.1%
Coleambally Irrigation Cooperative Limited	NSW	Yes	Yes	364	647,434	5.1%
Western Murray Irrigation Limited	NSW	Yes	Yes	328	61,302	0.5%
West Corugan PID	NSW	Yes	Yes	230	85,888	0.7%
Moira Private Irrigation District	NSW	Yes	Yes	146	39,761	0.3%
Jemalong Irrigation Limited	NSW	Yes	Yes	119	100,040	0.8%
Narromine Irrigation Board of Management	NSW	Yes	Yes	90	64,697	0.5%
Trangie-Nevertire Irrigation Scheme	NSW	Yes	Yes	67	63,408	0.5%
Sunlands Irrigation Trust Inc	SA	Yes	No trade	65	10,552	0.1%
Golden Heights Irrigation Trust Inc	SA	Yes	No trade	60	10,438	0.1%
Tenandra Board of Management	NSW	Yes	Yes	25	35,568	0.3%
Buddah Lake Irrigators Association	NSW	Yes	Yes	18	34,996	0.3%
Eagle Creek Pumping Syndicate	NSW	Yes	Yes		17,167	0.1%
Hay Private Irrigation District	NSW	Yes	Yes	80	13,412	0.1%

Source: Various operator websites, ACCC submissions and DEWHA information

A member of the Bringan Irrigation Trust¹⁷, a private water trust in NSW, submitted that his successful lodgement of a tender with the Australian Government's Water Through Efficiency request for tenders fell through as the trustees refused to sign the relevant documentation and would not negotiate an access termination fee. This irrigator submitted that these actions resulted in the loss of \$450,000 for irrigation infrastructure upgrades to keep his business viable.

With regard to the termination fee level, the majority of Basin operators currently charge termination fees at 15 times the annual access (or shadow access)¹⁸ fee, the maximum allowed under the Schedule E Protocol to the Murray-Darling Basin Agreement on access, exit and termination fees.

3.0 Objectives of the regulatory proposal

3.1 Water market rules

Section 97(1) of the Act provides for the Minister to make water market rules. The Water Bill 2007 Explanatory Memorandum states that the purpose of the water market rules is to:

“free up the trade of water access rights within the Murray-Darling Basin by ensuring that the policies or administrative requirements of [irrigation] infrastructure operators do not represent a barrier to trade”.

Water market and trading objectives and principles

The water market rules must contribute to achieving the Basin water market and trading objectives and principles specified in Schedule 3 of the Act (see [Appendix 3](#)). Of the various objectives and principles listed, the objective set out in paragraph 3(a) of Schedule 3 is the most relevant for the water market rules:

(a) to facilitate the operation of efficient water markets and the opportunities for trading, within and between Basin States, where water resources are physically shared or hydrologic connections and water supply considerations will permit water trading.

Specifically, the objective of the water market rules is to ensure that the policies or administrative requirements of operators holding a “group” water access entitlement on behalf of their member irrigators do not prevent or unreasonably delay transformation arrangements

Transformation arrangements are arrangements that allow a member irrigator to permanently transform their entitlement to water under an irrigation right against an operator into a water access entitlement held by someone other than the operator, thereby reducing the share component of the operator's water access entitlement. Transformation allows an irrigator to freely trade their water access entitlement.

3.2 Termination fees

Section 92(1) of the Act provides for the Minister to make water charge rules. The water charge rules aim to ensure full, but not excessive, cost recovery and may apply to “regulated water charges”, that is:

- fees or charges payable to operators for access, changing access, or terminating access to their irrigation network, including for surrendering a delivery right (e.g. an operator such as MIL charges a member irrigator an annual fee for ongoing access to water delivery from its irrigation network)

¹⁷ PJ and PB Goudie, issues paper submission to the water market rules 8, pp. 2–4.

¹⁸ A shadow access fee is the fixed access fee that would be charged to recover all fixed costs and no variable costs (i.e. if variable access fees are set at a level to recover all variable costs and no fixed costs).

- bulk water charges (e.g. a bulk water supplier such as State Water charges operators a fee for the delivery of bulk water), and
- water planning and management (WPM) charges (e.g. a state water agency charges water licence holders an annual water management fee).

Water charging objectives and principles

The Act requires that the water charge rules (including those for termination fees) contribute to achieving the Basin water charging objectives and principles contained in Schedule 2 of the Act.¹⁹

In short, the water charging objectives and principles aim to promote the economically efficient and sustainable use of water infrastructure assets, and facilitate the efficient functioning of water markets. Water charge rules for termination fees are necessary to contribute to these objectives.

The objectives of the regulatory proposal with respect to termination fees are therefore to:

- promote the efficient use of and investment in water infrastructure (irrigation network and on-farm infrastructure), and
- facilitate the efficient functioning of water markets.

4.0 The regulatory proposal and alternatives

The Act provides for the Minister to make water market and water charge rules. The regulatory proposal and alternatives set out in this section are constrained by the provisions of the Act. The detailed regulatory proposal is set out in the ACCC's advice to the Minister on water market rules and water charge rules for termination fees.

4.1 Water market rules

4.1.1 The regulatory proposal

The regulatory proposal is to adopt the ACCC advice with regard to the recommended water market rules provided to the Minister on 23 December 2008. The water market rules will regulate certain actions and inactions of operators.

In summary, the regulatory proposal provides that:

- operators are prohibited from preventing or unreasonably delaying transformation.
- operators are required to set up administrative procedures that facilitate the transformation and trade of a transformed irrigation right.
- transformation is voluntary and can only be initiated by the irrigator.
- at the irrigator's request, operators must continue to provide the irrigator with ongoing water delivery services on the same terms and conditions as those prior to termination, subject to variations necessary to facilitate transformation, unless otherwise negotiated. The operator cannot require that the irrigator pay a termination fee upon transformation.
- an operator can require an irrigator to provide security against the payment of their applicable termination fee if the volume of water the irrigator is entitled to have delivered under their delivery right is more than 5 times greater than the volume of water that they are entitled to under their irrigation right after transformation.
- if an operator does not have a separate conveyance licence, the operator can limit the volume of water that an irrigator may transform, to account for the operator's fixed conveyance losses.

¹⁹ See [Appendix 4](#).

The rules also provide a framework for resolving disputes between irrigators and operators with regards to irrigation rights or the terms and conditions of delivery post-transformation.

In order to be subject to the water market rules, an operator must meet the definition of an irrigation infrastructure operator for the purposes of section 7 of the Act. Under section 7, an irrigation infrastructure operator is:

- a legal person,
- that owns or operates infrastructure for the purpose of storing, delivering or draining water, for the purpose of providing a service to someone other than themselves,
- that operates the infrastructure for the purposes of delivering water for the primary purpose of being used for irrigation.

Furthermore, the operator must then meet all of the elements of transformation as set out in section 97(1)(a) of the Act. That is:

- the operator must hold a water access entitlement
- the operator must have exclusive access to a share of the water resource
- a person must hold an irrigation right against the operator's water access entitlement
- transformation would result in a reduction of the water access entitlement held by the operator.

A number of structures are likely to meet the requirements of transformation arrangements as set out by the Act. These include corporations, co-operatives, private irrigation districts and private water trusts. The situation is less clear for managed investment schemes, syndicates and joint water supply schemes (JWSS). This would need to be assessed on a case-by-case basis.

4.1.2 Alternatives to the proposal

Status quo

The Act provides that the Minister may make water market rules. One alternative is for the Minister not to make rules and continue with the status quo. The status quo can therefore serve as a baseline against which the regulatory options can be considered.

The status quo situation (described in Section 2.1) is characterised by the ability of operators who hold "group" licences under which members have an irrigation right, prevalent in NSW and SA, to unilaterally prevent or delay members from trading their water entitlements. This creates distortions across the Basin and means that the water market is unable to operate efficiently.

Limited coverage

Another alternative would be for the market rules to have a limited coverage and not apply to all operators. Limited coverage could potentially be based on number of customers, volume of water, or governance structure.

Several submissions, primarily from larger operators, supported an approach that the water market rules should apply to all operators, subject to the provisions of the Act.²⁰ In particular, the NSW Irrigators' Council highlighted that:

²⁰ Ricegrowers' Association of Australia, issues paper submission 26, p. 7; New South Wales Irrigators' Council, issues paper submission 31, pp. 2 and 12; Minerals Council of Australia, issues paper submission 39, p. 10; Murray Irrigation Limited, issues paper submission 40, p. 42; National Farmers' Federation, issues paper submission 41, p. 4; Murrumbidgee Irrigation, issues paper submission 44, p. 2; Water exchange, issues paper submission 46, p. 11; Murray-Darling Basin Commission, issues paper submission 59, p. 2; New South Wales Irrigators' Council, issues paper submission 31, p. 2; Victorian Farmers' Federation, position paper submission 1, p. 8; Australian Bankers' Association, position paper submission 18, p. 9; National Farmers' Federation, position paper submission 27, p. 16; South Australian Government, position paper submission 31, p. 3; New South Wales Irrigators' Council, draft advice submission 5, pp. 4–5; Mr M Cameron, draft advice submission 3, p. 2; Mr D Star, draft advice submission 10, p. 1; Murrumbidgee Irrigation Limited, draft advice submission 12, p. 4; South Australian Government, draft advice submission 13, p. 2.

“... certain entities—based on size, volume or any other consideration—should not be altogether excused from the rules. ... Consideration of the Act aside, the water market rules will not be effective unless applied to all.”²¹

From an irrigator perspective, Mr. David Star noted that all water users should be treated equally and be able to trade their water.²²

Several stakeholders noted that smaller operators have been excluded from the NWI and larger operators have been consistently discriminated against, hence the need for all operators to be treated the same under the water market rules.

However, some submissions suggested that the ACCC should exclude or differentially treat some specific classes of operators²³, particularly smaller operators, from the application of the water market rules. Some also argued that smaller operators with few (or no) staff and limited resources would struggle to meet the obligations created by the water market rules.

Section 93(3) of the Act requires the ACCC to consider certain characteristics of operators in advising the Minister about proposed water charge rules. However, the Act does not contain an equivalent provision for the water market rules.

In consideration of this issue, the ACCC concluded that on balance there is little merit in limiting the scope of application of the water market rules any further than already provided for in the Act.²⁴ The objectives and principles of the Act would best be achieved with universal application of the water market rules. This would ensure certainty for all market participants about their rights and obligations and consistency in transformation arrangements, which would thereby increase the efficiency associated with such processes.

All regulation is accompanied by some form of compliance burden. However, it is the responsibility of policy-makers to ensure that in achieving policy objectives, this burden is minimised. The Australian Government’s *Best Practice Regulation Handbook* notes a number of criteria that policy makers should consider when assessing compliance costs associated with various policy options.

In developing the recommended water market rules, the ACCC has considered these criteria in conjunction with submissions and stakeholder consultation. Regarding the ongoing compliance burden, the ACCC has undertaken to provide pro-forma and template documents for ease of implementation and the requirements that may be triggered by requests for transformation or trade have been limited.

Similarly, the proposed rules recommend that small operators²⁵ should not be required to update their internal processes to comply with the rules by 31 December 2009. Instead the recommended rules require small operators to update their processes when a transformation request is received.

²¹ New South Wales Irrigators’ Council, draft advice submission 5, pp. 4–5.

²² Mr D Star, draft advice submission 10, p. 1.

²³ Western Murray Irrigation, position paper submission 22, pp. 4–5; Moira Private Irrigation District—Board of Management, position paper submission 21, p. 3; New South Wales Department of Premier and Cabinet, position paper submission 37, p. 3; Central Irrigation Trust, position paper submission 6, p. 1; Horticulture Australia Limited, position paper submission 14, p. 2. See also Mourquong Co-operative, issues paper submission 14, p. 6; Sunraysia Citrus Growers, issues paper submission 17, p. 5; Bondi Group, issues paper submission 32, p. 18; Narromine Irrigation Board of Management, issues paper submission 33, p. 14; Southern Riverina Irrigators’ and Ricegrowers Association of Australia, draft advice submission 4, pp. 1–3.

²⁴ Noting the uncertainty around coverage of the water market rules described in section 4.1.1.

²⁵ An operator holding less than 10,000 ML for irrigation purposes, excluding stock and domestic water.

Given these factors, the limited coverage alternative is not supported.

Compulsory transformation

Another alternative would be for the water market rules to mandate transformation. In this regard the Australian Bankers' Association (ABA) submitted²⁶ that:

"... State governments (should) assist the transformation of all private water rights to statutory water rights registered on a land title type register."

The ABA submitted that all banks that have an exposure to water rights support the ABA position that statutory water rights that are consistent with the NWI provide a better form of security than private contractual water rights. The ABA also supported the ACCC view that transforming contractual water rights to statutory water rights will improve an irrigator's finance prospects.

The Act, however, does not contemplate compulsory transformation, nor would it enhance trade to a greater degree than voluntary transformation. Consequently, compulsory transformation would require the Act to be amended. Therefore, the compulsory termination alternative is not supported.

4.1.3 Conclusion on viable alternatives

For the reasons detailed above, the only alternative that will be evaluated against the regulatory proposal for water market rules in Section 5 is the status quo alternative.

4.2 Termination fees

4.2.1 The regulatory proposal

The regulatory proposal is to adopt the ACCC advice with regard to the recommended water charge rules for termination fees provided to the Minister on 23 December 2008.

In summary, the regulatory proposal provides for operators to levy termination fees subject to the following qualifications:

- termination fees are only permitted when an irrigator opts to terminate access to the operator's irrigation network (by either notifying the operator or by defaulting on essential obligations of access).
- the operator must not apply termination fees on the sale of water access rights (i.e. no exit fees).
- termination fees should be calculated using actual fixed access fees (not shadow access fees).
- termination fees should be capped at 10 times the annual fixed access fee (this will provide 12 to 15 years of annual access fees).

The regulatory proposal also provides for the ACCC to approve the imposition of higher termination fees where contained in new or existing contracts. This rule will deal with those capital investments that may only be viable with cost recovery periods longer than those implied by the termination fee multiple of 10 proposed. In this regard the ACCC must be satisfied, amongst other things, that the termination fee is:

- clearly stated within the contract
- relates to the carrying out of capital works that occur within five years of the inception of the contract
- is reasonably required to recover the capital expenditure
- is a product of a genuine contract stipulating the rights and obligations of the parties.

²⁶ Australian Bankers' Association, position paper submission 18, p. 9.

In order to be subject to the water charge rules, an operator must meet the definition of an irrigation infrastructure operator for the purposes of the Act. It is likely that a number of structures would meet the definition of an operator including corporations, co-operatives and private water trusts. The situation is less clear for private irrigation districts, syndicates and JWSSs and will need to be considered on a case-by-case basis.

4.2.2 Alternatives to the proposal

Status quo

The Act provides that the Minister may make water charge rules. One alternative is for the Minister not to make rules and continue with the status quo. The status quo can therefore be considered as a reasonable alternative and as a baseline against which the regulatory options can be considered.

In April 2007 the Murray-Darling Basin Agreement Schedule E Protocol on Access, Exit and Termination fees (see [Appendix 5](#) for details) was approved by jurisdictional governments. The Protocol requires that an irrigator have the choice between terminating delivery to the operator's network and paying the termination fee or continuing to hold the delivery entitlement and paying the annual access fee. The Protocol also requires that the termination fee be capped at 15 times the annual fixed (or shadow) access fee. The Protocol specifically requires that no exit fees should be levied.

The Murray-Darling Basin Agreement is an intergovernmental agreement between the Commonwealth and the Basin States. It was revoked and remade in December 2008 with the effect that most of the functions of the Murray-Darling Basin Commission are now fulfilled by the Murray-Darling Basin Authority. Schedule E was in substance retained, but is Schedule D of the new Agreement. The protocol under Schedule E is continued in effect as if it was a protocol made under new Schedule D. Intergovernmental agreements are not generally legally enforceable. Further, because operators are not party to the Murray-Darling Basin Agreement, it is not possible to enforce the terms of that Agreement (or protocols under it) against them. The imposition on operators of the terms of the Schedule E protocol is the responsibility of individual jurisdictions.

Operators in the Basin are generally applying termination fees in accordance with the Protocol's cap. However, many are not operating in accordance with the restriction on exit fees, and have been imposing compulsory termination fees in breach of the Protocol.

Limited coverage

The Act provides for the water charge rules to take into account whether all operators should be subject to the water charge rules to the same degree.²⁷

For the large part, submissions considered there is a need to balance achieving greater benefits from applying wide-reaching water charge rules for termination fees while avoiding an unnecessary compliance burden. Macquarie River Food & Fibre (MRFF) stated:²⁸

While it is important that there are generic principles that are consistent across the Basin, MRFF strongly believes that only one set of water charge rules will have unintended, negative impacts on certain Infrastructure Operators ... distinctions should be made and/ or individual Operators should be able to make a case regarding rules that are onerous and not adding value for the customer being modified/waived for their business. The size of the network, administrative cost, volume of entitlements, number of customers and a combination of the above are all factors that may determine appropriateness of water charge rules for specific operators”.

²⁷ Section 93(3) of the Act states that the ACCC must have regard to the governance and charging (including historical) arrangements of operators.

²⁸ MRFF, submission 15 July 2008, p. 13.

The NSW Farmers' Association (NSWFA) similarly considered there to be a "need for consistent water charge rules to be applied across all operators" but that "smaller operators may have difficulty in meeting the increase compliance cost that entails a new regulatory regime."²⁹

Conversely, other operators argued that water charge rules for termination fees should have universal application. GMW stated that "water charge rules should apply to all operators. There should be no delay in applying water charge rules for specific classes of operator."³⁰ This viewpoint was also advocated by CIT, which stated that rules should apply "to all irrigation "trusts" including corporate and management investment schemes where members also own the water delivery schemes".³¹

Alternatively, the Bondi Group (TBG) submitted that:

*"... regulations should be applied to those entities that are non-private. That is where the owners of the assets are not the irrigators or beneficiaries of the revenue generated by the use of the assets. It is government owned and quasi-privatised entities with government appointed boards that require close scrutiny."*³²

The ACCC concluded that on balance there is little merit in limiting the scope of application of the water charge rules for termination fees. The Basin water charging objectives and principles would be best achieved with universal application of the water charge rules for termination fees. This would ensure certainty for all market participants regarding their rights and obligations and facilitate efficiently functioning water markets. Termination fees may influence the decisions of irrigators to trade water, and this influence is unlikely to be significantly affected by size, governance arrangements or any other characteristics of operators.

Operators are unlikely to incur significant administrative costs resulting from complying with the water charge rules for termination fees. The regulatory proposal's positions on calculating and imposing termination fees are relatively simple, and do not represent a significant departure from the Schedule E Protocol (which does not discriminate between operators within the Basin).

Taking into account these factors, the limited coverage alternative is not supported.

Compulsory termination fees

The ACCC considered the option of allowing operators to compel termination when an irrigator transforms and effectively charge a compulsory termination fee (or exit fee) as is currently the practice by a number of operators in NSW and SA.

Many submissions argued that compulsory termination is necessary because customers without water entitlements are unlikely to have sufficient assets or cash flow to meet their access fee obligations.³³ However, concerns about security over the payment of future access fees are being addressed through the provisions of the water market rules.³⁴

The value to the irrigator and consequently the operator is in the option of retaining delivery and having the flexibility to rationalise on-farm operations and remain connected to the system. The regulatory proposal considers that irrigators should be allowed to retain access (and therefore retain any associated obligations such as payment of access fees and security) without holding a water entitlement.

²⁹ NSWFA, submission 15 July 2008, p. 1.

³⁰ GMW, submission 15 July 2008, p. 12.

³¹ CIT, submission 14 July 2008, p. 3.

³² TBG, submission 15 July 2008, p. 8.; in response to ACCC, Water charge rules for charges payable to irrigation infrastructure operators, May 2008.

³³ WMI, issues paper submission, p. 19; CIT, position paper, p. 4; SRI & RGA, position paper submission, p. 4; RIT, position paper submission, p. 2; TBG, position paper submission, p. 3.

³⁴ See section 4.1.1.

Furthermore, this alternative is not supported in line with the arguments above that exit fees (or compulsory termination fees) decrease economic welfare compared to free trade, dampen the signal to operators that rationalisation of the network may be warranted, and diminish the signal to remaining irrigators as to the actual cost of continuing to provide them with delivery services.

High and low (or no) termination fees

Submissions commented extensively on the appropriate level of the termination fee multiple. Submissions from irrigators typically argued that the current termination fees imposed by operators are too high,³⁵ while operators largely supported the current practice of using a termination fee multiple capped at 15 times.³⁶

Capping the termination fee at a higher multiple than 10 times the annual fixed access fee is not considered viable in line with the arguments above that high termination fees across the board constitute a barrier to infrastructure rationalisation and water trade.

Capping the termination fee at a low multiple, or having no termination fee at all, is not considered viable on the grounds that low (or no) termination fees will impact on an operator's willingness to undertake otherwise efficient investment, and will allow irrigators terminating access to avoid contributing to an operator's ongoing unavoidable costs.

4.2.3 Conclusion on viable alternatives

For the reasons outlined above, the only formal alternative to be evaluated against the regulatory proposal for termination fee rules in Section 5 is the status quo alternative.

5.0 Economic impact analysis

In this section, the economic impacts of the regulatory proposal for the water market rules and termination fee charge rules are evaluated against the alternative of maintaining the status quo (the reference or base case). The evaluation considers, and quantifies where feasible, the costs and benefits of the regulatory proposal on all stakeholders affected by the problem, as well as those likely to be affected by the proposed solution.

This section provides a summary of the impact analysis, with more detail and assumptions contained in [Appendix 6](#).

5.1 Methodology and approach

For the purposes of assessing the impacts of the regulatory proposal on the irrigation industry in the Murray-Darling Basin and the broader economy, a cost-benefit analysis has been undertaken using the benefit-cost ratio (B/C ratio) method.³⁷ The analysis is based on comparing the incremental costs and benefits of moving from the current *status quo* industry situation to the "new" industry situation following the introduction of the water market rules and termination fee rules.

In line with the arguments recommending the regulatory proposal above, the key premise underpinning the analysis is that the level of trade in permanent water entitlements will increase as a result of the rules coming into effect, with economic benefits deriving from water moving from lower value to higher value uses.

³⁵ D Barclay, draft advice submission, p. 1; M Gatacre, draft advice submission, p. 1; D Star, draft advice submission, p. 1; J R Rorke, position paper submission, p. 1; D Crowhurst, position paper submission, p. 1; P Leslie & D Ferguson position paper submission, p. 1; G Doherty, position paper submission, p. 1.

³⁶ NSWIC, draft advice submission, p. 4; MRFF, draft advice submission, p. 2; TNIS, draft advice submission, p. 4; MI, draft advice submission, p. 7; MIL, draft advice submission, pp. 5-7; RIT, position paper submission, p. 2; WMI & CI, position paper submission, p. 4.

³⁷ See [Appendix 7](#) for definition.

The analysis is conducted over a 20 year timeframe, starting in 2007-08 with the first steps in the development of the rules. The rules are assumed to be effective from the 2009-10 water year.

The cost-benefit analysis in this section is conducted at the broad industry level across the Basin, and does not specifically contemplate impacts on the financial viability of individual operators or remaining irrigators. The analysis does take into consideration, at the industry-level only, potential access fee increases for remaining irrigators as a result of the proposed lower termination fee multiple.

To better understand the likely consequences of its recommendation to reduce the termination fee multiple, the ACCC examined the materiality of the proposed multiple on the financial viability of remaining irrigators and undertook an analysis of water delivery arrangements for certain operators to observe the effects of reducing the termination fee multiple on the recovery of new investment capital.

Materiality of the termination fee multiple

The ACCC contracted Frontier Economics to undertake an analysis³⁸ comparing the impact on farm profitability of the lower termination fee multiple to other factors such as output prices, yields and water prices.

The results suggest that the impact of reducing the termination fee multiple over most foreseeable rates of termination has a lesser impact on the decision of irrigators to terminate relative to other considerations and, all other things being equal, is unlikely to have a bearing on the financial viability of operators or the on-farm investments of remaining irrigators.

The impact on future access fees of a reducing the termination fee multiple below the 15 times advocated by operators will be higher with greater levels of irrigators terminating. However, at higher levels of termination there are likely to be off-setting avoided costs that may be achieved from rationalisation and subsystem retirement.

The ACCC noted that while opportunities for physical rationalisation of irrigation networks may be limited in the short-term, operators could do more to rationalise and innovate with respect to pricing arrangements and the use of alternative measures to manage risk (e.g. by removing postage stamp pricing, moving to full cost recovery and reducing or waiving the termination fee in certain circumstances).

In addition to analysing the impact on irrigators' gross margins and production decisions, the ACCC undertook a comparison of water delivery arrangements for certain operators to observe the effects of reducing the termination fee multiple on the recovery of new investment capital (as opposed to ongoing major periodic maintenance).³⁹

The results of the case studies revealed that the proposed termination fee multiple of 10 times provides for a reasonable period of certainty associated with the recovery of initial capital for new investments. The analysis also revealed that the implied termination fee multiple is sensitive to assumptions about the profile for the recovery of capital, the discount rate and the term of the contract. In certain circumstances, longer periods of capital recovery may be warranted. As a result, the regulatory proposal allows higher termination fees negotiated under new and existing contracts, provided they are approved by the ACCC.

³⁸ Available on the ACCC website www.accc.gov.au

³⁹ For more details of the case studies see Appendix G of the ACCC draft advice on water charge (termination fees) rules available on the ACCC website www.accc.gov.au

5.2 Stakeholders

In determining the distribution of costs and benefits of the proposal, it is necessary to identify the key stakeholders that are affected by the problem, and likely to be affected by the proposed solution. The list of major stakeholders is identified as follows:

- the Australian Government
 - Department of the Environment, Water, Heritage and the Arts (DEWHA)
 - ACCC.
- operators – subject to the provisions of the Act,⁴⁰ operators across the Basin will be required to comply with the water charge rules for termination fees, while operators particularly in NSW and SA, will be subject to the provisions of the water market rules.
- irrigators – all irrigators across the Basin within an operator’s irrigation network will have an interest in the termination fee rules, whether or not they choose to terminate access to the network. Irrigators, that have a right to a share of water under an irrigation right against an operator, predominantly in NSW and SA, will have an interest in the water market rules.
- other water market participants – other water traders in the Basin, including irrigators in other networks (or private diverters) and organisations purchasing water for environmental purposes, may be affected by the proposed solution.

5.3 Benefits

A cornerstone of arguments for free trade in water markets is that trade facilitates the movement of water towards its most valuable uses. This occurs where the water is more valuable for use in the enterprise of the water buyer than of the seller, or more simply, the buyer is willing to pay more for the water than it is worth to the seller. Trade benefits accrue to both the buyer and seller.

The analysis assumes that the principal benefits of the regulatory proposal will derive from freeing up trade in water entitlements across the Basin with water moving from lower value users (mostly cereals, rice and cotton) to higher value users (most notably fruit, vegetables, grapes and dairy pasture).

The analysis is based on water entitlement trade increasing following the introduction of the rules as the current trade-banning and deterring practices of operators across the Basin are ameliorated:

- the water market rules will remove the ability of operators (primarily in NSW and SA) to prevent trade in entitlements by their member irrigators – for example those operators that currently ban permanent water trade will no longer be permitted to prevent transformation and external trade of irrigation rights
- the primary trade advantage of the water market rules and termination fee rules will derive from breaking the current link between water trade and delivery rights (that is the compulsory termination or exit fee practice prevalent in NSW and SA) and instead provide irrigators with the choice between continuing to pay access fees or terminate access and pay the termination fee
- lowering the termination fee multiple from 15 times to 10 times, and in particular outlawing the use of shadow access fees in their calculation, may generate a small trade boost across all operators in the Basin.

Transformation under the market rules may also improve access to external finance as security of water entitlements is strengthened. The ABA⁴¹ has indicated that an individual entitlement on a

⁴⁰ Noting the uncertainty around coverage of the water market rules (Section 4.1.1) and water charge rules (Section 4.2.1).

statutory register provides a better form of security than a contractual irrigation right against a “group” water licence. Some investment benefits may flow from better access to finance. These potential benefits are not considered in the analysis.

Access Economics was contracted to estimate and quantify the trade benefits on the agricultural sector and broader economy flowing from the introduction of the rules.⁴² Access Economics estimated the benefits of increased trade in three stages.

- estimating how much rejected (from trade bans) or deterred (from compulsory or high termination fees) trade will proceed following the introduction of the water market rules and termination fee rules, using DEWHA estimates
- estimating the value of trade and its direct impact on agricultural production, and
- estimating the overall economic impacts on Gross Domestic Product (GDP) of the additional trade using computable general equilibrium (CGE) modelling.

Trade volumes

Separate estimates were made for the entitlement trade increase due to irrigators terminating and trading out of NSW and SA operators (about 100,000 ML per year for the first three years before dropping to about 25,000 ML per year), and the more general entitlement trade increase in NSW, SA and Victoria as a result of fewer trade restrictions (about 12,800 ML per year from 2009-10).

The former estimate is based on the assumption that 30 per cent of irrigators leave irrigation networks in the Basin over the next 20 years.⁴³ The higher figure in the first 3 years is due to the sudden removal of restrictions that have been in place for many years that had generated a backlog in trade volumes. The general entitlement trade increase estimate assumes a conservative 5 per cent (NSW and SA) and 1 per cent (Victoria) increase in 2007-08 trade volumes.

Trade values

In estimating the value of the extra trade due to reduced termination fees, the magnitude of that termination fee reduction provides an upper bound to the surplus value (from the sellers perspective) of any additional trade (on a per ML basis). To the extent that the fees deter trade, they are a deterrence to the lower value trades only, or those up to where the value of the trade for the seller is the same as the magnitude of the reduced termination fees.

Higher value trades, in excess of the termination fee reduction, would (and have) proceeded regardless. The same upper bound does not apply to the direct value of trades that have been rejected due to restrictions on irrigators trading out of NSW and SA operators where an average value of all trades is used, adjusted for whether they are high or low security entitlements.

For the additional entitlement trade resulting from the increase due to irrigators trading out of NSW and SA operators specifically, and more general entitlement trade increase in NSW, SA and Victoria as a result of fewer trade restrictions, the increase in the agricultural production value across all States is estimated at about \$25 million in the first two years of the projection period, declining to an annual average of \$2.9 million by 2012-13 and beyond (see *Figure 2*).

The increased value of agricultural production reflects an overall transfer of water to higher value irrigation land uses, most notably fruit, grapes, dairy and vegetables, away from lower value irrigated land uses including broadacre cereals, rice and cotton.

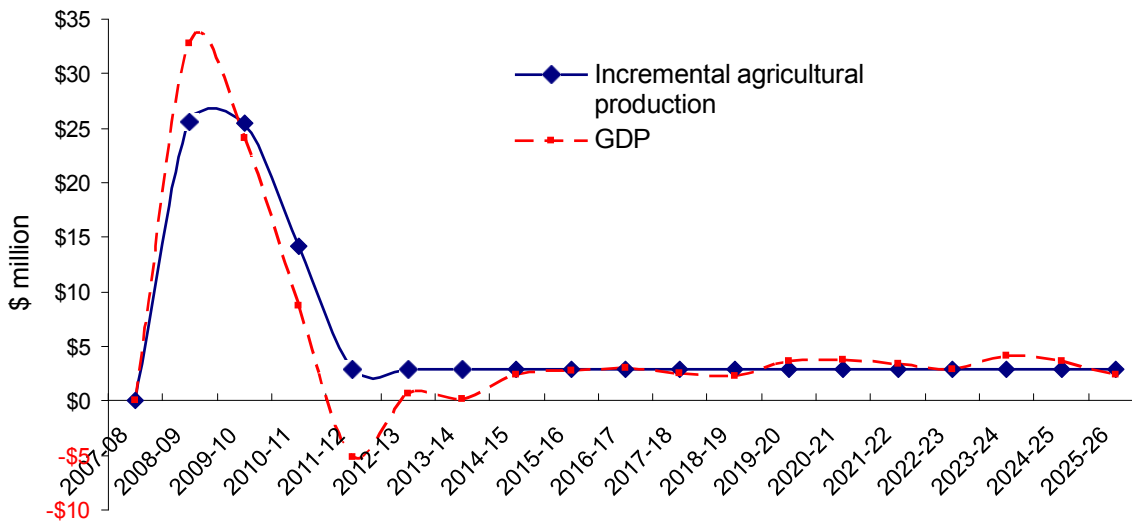
⁴¹ See section 4.1.2.

⁴² Access Economics' full report is contained in [Appendix 8](#).

⁴³ See section 5.4.4 for rationale.

To the extent that some of the trade may be water bought for environmental purchases (rather than another agricultural land use), the estimated value is assumed to have the same value as the average value of water purchased for a higher value agricultural land use.

Figure 2: Estimated trade impacts on agricultural production and GDP



Source: Access Economics

Economic impacts

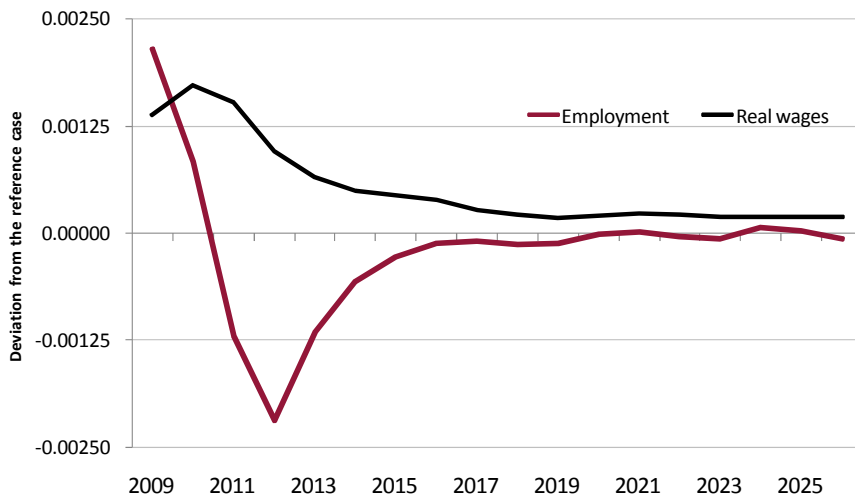
Access Economics uses CGE modelling to determine the direct and indirect impacts of the trade increase from the new rules. This includes positive flow-on effects created by the additional investment and production following the introduction of the rules, as well as any offsetting impacts through ‘crowding out’ effects arising from increased competition for resources (which can be particularly important, for example, if the economy is facing skill shortages). The modelling is used to project the relationship between variables under the base (status quo) and rules scenarios, over the 20 year timeframe.

As illustrated in *Figure 2*, in the first year GDP is \$32.8 million (0.00280 per cent) higher than the base case. GDP remains higher than the base case to 2012 where increased activity in the primary agriculture industry temporarily crowds out activity in other parts of the economy and GDP falls below the reference case, before recovering again by the following year. The crowding out is caused by a period of adjustment where economic activity is diverted from other sectors of the economy to the agricultural sector (see below for more discussion on the industry effects). After this period of adjustment GDP, is again higher than the reference case by an annual average of just over \$3 million beyond 2015-16.

Figure 3 shows the path of employment, measured in full time equivalents (FTE) and real wages over the modelling period. Employment follows the same general path as GDP, with higher levels of employment in the years 2009 to 2011, with a period of adjustment from 2012 to 2015 and a reversion to the reference case.

Unlike GDP, employment, after the period of adjustment, stays below the reference case. But the increase in real wages visible over the modelling period suggests an increase in real wages. This suggests the gains to employment are through higher wages and not increased full time employment.

Figure 3: Employment and real wages, deviation from the reference case, per cent



Source: Access Economics

5.4 Costs

The analysis identifies, and quantifies where possible, the major costs that stakeholders are likely to incur as a direct result of the regulatory proposal. Costs that are directly recoverable from end-users (i.e. irrigators) are not material to the analysis as they cancel each other out in the cost-benefit equation.

5.4.1 Australian Government

The primary costs to the Australian Government will be the implementation, monitoring and compliance costs of the water market and charge rules incurred by the ACCC. These costs have been estimated at approximately \$2 - \$3 million per annum.

There will also be smaller costs associated with monitoring and reviewing the rules as well as costs associated with related policy formulation. These tasks will be performed by the Department of the Environment, Water, Heritage and the Arts (DEWHA) and are estimated to be about \$50,000 - \$100,000 per annum.

5.4.2 State Government

Water market rules

Approving water trades and changing title deeds is the responsibility of the State Governments. The number of water trades and title deed change requests is likely to increase significantly as a result of the water market rules, and this will involve a greater administrative cost for the relevant state agencies. These costs will however be recoverable through administration fees charged by the relevant agencies undertaking these services and need not be taken into account in the economic impact analysis. Such fees will form part of the irrigator's decision with regard to the costs and benefits of transformation.

A further possible cost for State Governments may result from an increased role in water delivery, ordering, metering, and environmental and land use management. These roles are currently undertaken by operators as the title holder on behalf of their member irrigators. However, if an irrigator chooses to transform their entitlement, this role may no longer be fulfilled by the operator.

At this time, it is uncertain what service structure will evolve. Either the operator may be required by the State Governments to continue to undertake these services for all its customers including non-members, or, non-member irrigators may be required to deal directly with the State Government (as the State Government currently deals directly with private diverters).

Should the former situation develop then the additional costs of these services can be passed on to the transformed irrigator. Should transformed irrigators be required to deal directly with State Government departments then this may also lead to an increase in costs associated with these dealings. However, in either case these costs are recoverable from irrigators and need not be taken into account in the economic impact analysis.

5.4.3 Operators

Water market rules

There are a number of potential ongoing costs to the operators most of which result from processing applications. The water market rules allow for these costs to be fully recovered from those irrigators who are initiating the transformation process and as such are not taken into account in the economic impact analysis.

There are also some unavoidable costs of the water market rules that do not relate directly to any specific irrigator choosing to transform. These costs are one-off costs borne by each operator in adapting their structure and processes (such as amending their constitution) to reflect the requirements of the water market rules.

The ACCC has committed to providing assistance to operators (and smaller operators in particular) to minimise the administrative burden of the water market rules. They will provide pro-forma application forms (for transformation) and other guidance material in relation to delivery contracts. This should reduce the costs outlined above to some extent, particularly for smaller operators.

To further alleviate the compliance burden on smaller players, the proposed rules provide that small operators should not be required to update their internal processes to comply with the rules by 31 December 2009. Instead the proposed rules require small operators to have updated their processes when a transformation request is received.

Operators have raised concerns about the water market rules prohibition on compulsory termination after transformation potentially resulting in additional costs from customers without water access rights not having sufficient assets or cash flow to meet their access fee obligations.⁴⁴ Concerns about security over the payment of future access fees are addressed through the provisions of the water market rules. Operators can require that the irrigator provide security against the payment of their applicable termination fee, provided the volume of water the irrigator is entitled to have delivered under their delivery right is 5 times greater than the volume of water that they are entitled to under their irrigation right after transformation.

The one-off costs of the water market rules for operators are based on estimates from a large NSW operator, at about \$46,000 for large operators (over 200 irrigators), about \$11,000 for medium operators (50-200 irrigators) and approximately \$5,000 for small operators (2-50 irrigators). DEWHA has adopted a conservative approach in using these estimates which are likely to be at the upper end of the scale, in the interests of ensuring operator costs are not underestimated. In any event, the level of operator costs has little impact on the cost-benefit analysis results.

These are one-off costs⁴⁵ and include expenditure on activities such as informing irrigators that the rules have been made, how copies may be obtained and information regarding the ACCC, developing or updating procedures for transformation, developing or updating new constitutional or governance arrangements and developing new delivery contract templates.

⁴⁴ See section 4.1.2.

⁴⁵ See [Appendix 6](#) for more detail.

The number of large and medium operators has been estimated at 8 and 10, respectively. The number of small operators is more difficult to ascertain, particularly in NSW. For the purposes of this analysis, it is estimated that there may be as many as 600 small operators across the Basin. The number of smaller operators may be significantly overestimated due to the uncertainty around coverage of the water market and water charge rules discussed above. However, even though this may inflate the overall level of compliance costs, in the interests of fully-assessing potential costs of the new rules, this figure has been used.

Termination fees

Operators are unlikely to incur significant administrative costs as part of complying with the water charge rules for termination fees. The preliminary positions on calculating and imposing termination fees are relatively simple, and do not represent a significant departure from the Schedule E Protocol on access, exit and termination fees.

The contract approval provisions of the proposal provide flexibility for operators to deal with capital investments that have cost recovery periods longer than that implied by the proposed termination fee multiple of 10 times the access fee. Costs associated with the development and approval of such contracts should be recoverable from parties that sign the contract.

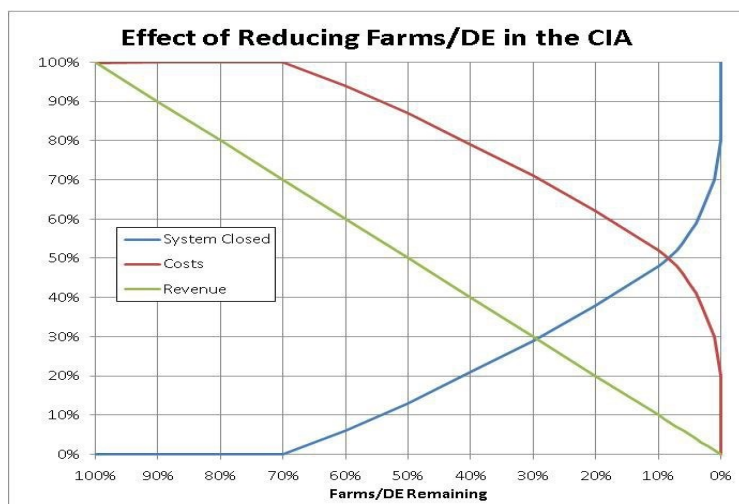
Nevertheless, to fully account for all potential compliance costs, for the purposes of this analysis allowance has been made for operators incurring some one-off administrative costs to inform members of the new rules, and possibly undertake some additional financial analysis if a change in ratio between fixed and variable charges is contemplated. The upfront cost of the termination fee rules has been estimated at about \$7,000, \$3,500 and \$1,600 for large, medium and small operators, respectively.

The prohibition on charging compulsory termination (or exit) fees will not impact on an operator’s financial viability as the rules provide for departing irrigators to either pay the termination fee if they choose to terminate delivery or not terminate and continue to pay the annual access fee.

5.4.4 Remaining irrigators

Irrigators remaining in the network may be impacted by rising fixed access fees as irrigators terminate delivery. A termination fee multiple of 10 times should provide a 12–15 year period with no access fee increases.⁴⁶ For the purposes of this analysis, it is assumed that operators pass on the full costs associated with departing irrigators to those remaining, from Year 13 once termination fees collected have been utilised, in the form of access fee increases.

Figure 4: Change in costs as a result of termination of delivery shares



Source: WM & CI, position paper submission, p.8

⁴⁶ This does not include access fee rises due to factors other than irrigators departing e.g. inflation.

The analysis base case assumes that 30 per cent of irrigators leave irrigation networks in the Basin over the 20 year period. The 30 per cent scenario reflects that it is likely that there will be opportunities for efficient rationalisation of an irrigation system's layout beyond 30 per cent termination of delivery rights. For example *Figure 4* shows the projected change in costs in CICL as a result of the termination of delivery shares.

The most significant changes in demand for irrigation access services are likely to occur over the next five years as trade opportunities open-up and the Australian Government continues its water purchasing and infrastructure modernisation programs. As such, the analysis assumes that the bulk of departing irrigators elect to terminate delivery in the first 5 years after the introduction of the regulatory proposal.

As discussed above, while short-term rationalisation options may be limited even in a situation where about one-third of irrigators elect to terminate, the 12-15 years of access fees provided for by the termination fee multiple of 10 times provides scope for rationalisation. Irrespective of timing, it would be in the operator's and remaining irrigators' best interests to coordinate termination and realise the maximum possible efficiency savings from rationalisation.

The extent (or rate) at which an irrigation network will rationalise depends on many factors. These include the rate of termination of access, the location of those irrigators that elect to terminate, the servicing requirements of remaining irrigators, and their willingness to finance a network reconfiguration (in whole or part) or absorb the re-distribution of fixed access fees once termination fee reserves are exhausted.

Coordinated programs for the reconfiguration and decommissioning of irrigation infrastructure currently exist in some irrigation networks across the Basin, such as GMW's Shepparton Modernisation Project and Pyramid-Boort Future Management Strategy. Both projects envisage coordinating rationalisation through a compensation and incentive package to provide the landowner with sufficient compensation to encourage the irrigation network to be reconfigured.

As part of its Water for the Future program of water purchases, the Australian Government has also invited groups of irrigators to work with operators and other directly affected parties to develop coordinated proposals for selling water entitlements to the government and decommissioning or altering irrigation networks.

The analysis acknowledges that there are a range of different types of irrigation networks across the Basin, each with varying cost and demand characteristics, and that rationalisation opportunities for certain operators may be more limited. Nonetheless, the analysis considers that there is scope for operators in terms of coordinated reconfiguration, rationalisation, and innovation of pricing policies within the 12-15 year period provided for by the termination fee multiple of 10.

As such, the analysis assumes that there are cost savings from rationalisation of 20% from Year 13 for remaining irrigators. The analysis also makes the conservative assumption is that 25 per cent of departing irrigators' water entitlements remain in the Basin operator network, with the balance going to private diverters or the environment. This has the effect of reducing the cost impact on remaining irrigators as individuals elect to take on the access fee responsibilities of this proportion of departing irrigators by buying (and using) their water.

Furthermore, the analysis conservatively assumes that all departing irrigators choose to terminate and pay the termination fee. That is, no departing irrigator elects to retain delivery and continue to pay access fees (which would have no impact on remaining irrigators).

For the base case of 30 per cent of irrigators departing operator networks over the 20 year period, total costs on remaining irrigators are estimated to rise from \$0.8 million per annum in 2020-21 to about \$4 million per annum by 2026-27.⁴⁷

5.5 Summary of the analysis

A summary of the discounted total costs and benefits of the regulatory proposal over 20 years is detailed in *Table 3*.

Table 3: Total discounted⁴⁸ costs and benefits of the regulatory proposal over 20 years

	Costs (\$m)		Benefits (\$m)	Net Benefits (\$m)
ACCC	\$23.6	Trade benefits	\$72.9	
DEWHA	\$0.8			
Operators	\$4.0			
Remaining Irrigators	\$9.0			
Total Costs	\$37.5	Total Benefits	\$72.9	\$35.4

Source: Appendix 6

The incremental discounted benefits over 20 years are \$72.9 million, significantly greater than costs of \$37.5 million over the same period. The resulting B/C ratio is 1.9.

Some sensitivity analysis was undertaken to test the robustness of the analysis, with results detailed in *Table 4*.

Table 4: Sensitivity analysis results

Change made to base case	Costs (\$m)	Benefits (\$m)	Net Benefits (\$m)	B/C ratio
Base case (for comparison)	37.5	72.9	35.4	1.9
Discount rate increased from 4.3% to 6%	32.0	65.9	33.9	2.1
Discount rate decreased from 4.3% to 2%	47.5	84.8	37.3	1.8
Operator and remaining irrigator costs double base assumptions	50.5	72.9	22.4	1.4
15% of irrigators depart rather than 30% ⁴⁹	34.4	39.9	5.6	1.2

Source: Calculated from Appendix 6

The sensitivity analysis shows that although net benefits are responsive to changes in the discount rate, cost and level of irrigator departure assumptions, the B/C is relatively robust remaining favourable (above 1) in all cases.

The economic impact analysis shows that the projected economic benefits directly resulting from the regulatory proposal outweigh the estimated industry and government costs by a substantial margin.

⁴⁷ See [Appendix 6](#) for more detail.

⁴⁸ Discounted at 4.3% (10 year Treasury bond rate, 6 January 2009).

⁴⁹ For the purposes of this analysis it is assumed that 15% irrigators of departing provides limited opportunities for rationalisation.

6.0 Consultation

6.1 Consultation process

Under the Act, the ACCC has the role of providing advice to the Minister on making the water market and water charge rules. In developing this advice, the ACCC has undertaken a comprehensive public consultation process.

The ACCC adopted a three stage process in developing the rules (see *Table 5*), consulting on an issues paper, a position paper, and the draft rules. The position paper stage was added following stakeholder requests for more time to consider the draft rules. Accordingly, the ACCC requested, and the Minister granted, an extension to the deadline for the provision of advice to allow an additional consultation stage.

Table 5: ACCC consultation timeline

Consultation	Release date	Submission date	Consultation period	No. submissions received ⁵⁰
Water market rules				
Issues paper	4 April 2008	9 May 2008	6 weeks	64
Position paper	7 July 2008	15 August 2008	6 weeks	44
Draft report and rules	10 October 2008	10 November 2008	4 weeks	22
Advice to the Minister (including draft rules)	23 December 2008	N/A	N/A	N/A
Termination fee rules				
Issues paper ⁵¹	30 May 2008	15 July 2008	6 weeks	30
Position paper	15 August 2008	15 September 2008	4 weeks	20
Draft advice and rules	17 October 2008	17 November 2008	4 weeks	19
Advice to the Minister (including draft rules)	23 December 2008	N/A	N/A	N/A

At each stage of the consultation process, the ACCC invited comment from Basin State Ministers, operators, interested stakeholders and the public. The ACCC also published notices in national and regional newspapers and on the internet, notifying stakeholders of the public forums and inviting submissions in response to the issues papers, position papers, and draft advice.

The ACCC's consultation process also involved conducting public forums in regional centres across the Basin (see *Table 6*). A record of the forums is available on the ACCC website. In addition to formal consultation, the ACCC undertook targeted stakeholder consultation with Basin jurisdictional governments, operators, industry associations and irrigator groups on an ongoing basis.

A complete list of all ACCC stakeholder consultations was provided to the Minister with the ACCC's advice.

Table 6: ACCC public forums

Location	Date
Renmark, SA	30 October 2008
Mildura, VIC	30 October 2008
Dubbo, NSW	10 November 2008
Shepparton, VIC	13 November 2008
Deniliquin, NSW	13 November 2008
Griffith, NSW	14 November 2008

⁵⁰ All written submissions are publicly available on the ACCC website www.accc.gov.au

⁵¹ ACCC (2008b) which included termination fees.

6.2. Stakeholders

The main stakeholders likely to have an interest in the water market and termination fee charge rules were identified as:

- operators (such as MIL in NSW and CIT in SA)
- irrigators and other water users
- irrigation industry representative organisations (such as the Irrigators Council of New South Wales and National Farmers Federation)
- water market intermediaries (such as Water find)
- State water agencies (such as the Department of Sustainability and the Environment in Victoria).
- other water purchasers (such as environmental water purchase programs).

6.3 Taking stakeholder views into account

In developing its advice on the water market and termination fee rules to the Minister, the ACCC has taken into account a wide range of stakeholder views from written submissions, public forums and direct contacts. The ACCC has shown itself to be highly responsive to the views of stakeholders.

This section highlights the changes in policy position in response to stakeholder views between the ACCC's position paper, its draft report and then advice to the Minister.

6.3.1 Water market rules

Security over ongoing access fees

The ACCC's initial position provided for operators to request security for future payment of access fees where an irrigator trades more than 80 per cent of their water access entitlement and the operator considers on reasonable grounds that the irrigator is a credit risk. The value of security was limited to 50 per cent of the applicable termination fee.

Operators did not support the requirement to establish reasonable grounds before they could request security, arguing that this is a micro-management approach and does not provide sufficient flexibility. Operators submitted that this approach did not recognise the seasonal impacts of farming, and that changing economic circumstances meant every irrigator was currently a debt recovery risk. Some operators expressed the view that they do not have the resources to assess financial risk.

In response to submissions the ACCC revised its position and proposed in the draft report that the water market rules permit operators to require security at the time of transformation or trade of more than 80 per cent of the original entitlement to water under an irrigation right, irrespective of the credit risk of an irrigator. The value of the security was adjusted to 100 per cent of the value of the applicable termination fee. However, consultation on the draft report identified limitations in the application of the rule.

In response, the advice to the Minister permits an operator to require security if the volume of water the irrigator is entitled to have delivered under their delivery right (disregarding any constraints on delivery) is five times greater than the volume of water that they are entitled to under their irrigation right after transformation. The value of security remains limited to 100 per cent of the applicable termination fee. The advice also broadens the forms of security⁵² that can be offered by an irrigator than those proposed in the draft advice.

⁵² This includes bank guarantees, security deposits, an unencumbered water access entitlement as well as security over water entitlements.

This approach more appropriately correlates the security threshold with the risk exposure of the operator which is linked to the delivery rights held by irrigators.

Conveyance losses

In the ACCC's position paper, conveyance adjustments were not permitted on the understanding that states would issue separate conveyance licences to operators. Since not all operators hold a separate conveyance entitlement, stakeholder submissions indicated that the process for establishing a separate conveyance licence may not be possible or timely.

In response, the ACCC's draft report provided that in the absence of holding a separate conveyance licence, an operator was permitted to withhold a portion of an irrigator's entitlement to water from transformation, to account for the fixed conveyance losses of the network.

In its advice to the Minister, the ACCC responded to stakeholder concerns that the definition of fixed network losses in the draft rules did not accurately capture all of the factors that contribute to fixed losses incurred throughout an irrigation season by expanding the definition of fixed network losses. In addition, the advice recommends that fixed network losses calculated by an operator are averaged using the previous ten years data.

The ACCC draft advice also proposed that future upgrades to the operator's infrastructure, including successful applications for modernisation or rationalisation, should be included in the estimate of fixed loss. In its final advice, the ACCC responded to stakeholder concerns about the difficulties associated with this requirement by adjusting its position so as to no longer propose that an operator be required to take account of any future reductions in fixed losses resulting from network upgrades if at the time of transformation the irrigator terminates delivery.

Requirement for ongoing delivery

The recommended rules require operators to provide ongoing delivery if requested by irrigators prior to transformation, and the terms and conditions of delivery to be the same as those attached to the irrigation right before transformation (subject to variations necessary to facilitate the transformation), unless otherwise negotiated.

Several operators made submissions opposing the position that operators should be required to provide ongoing delivery if requested by a transforming irrigator. However, many other stakeholders supported the requirement for ongoing delivery.

The ACCC maintained its position in this regard arguing that failure to provide ongoing delivery arrangements if requested will discourage transformation and trade, particularly if irrigators choose to sell their permanent entitlements with the objective of buying allocations. This approach will significantly contribute to the Basin water market and trading objectives by increasing opportunities for trade and enabling irrigators to select the appropriate mix of water delivery entitlements, water entitlements and water allocations.

Administrative processes

In response to stakeholder submissions, the ACCC has reduced the administrative requirements on operators.

For example, in the advice to the Minister operators are only required to inform their irrigators of the water market rules, rather than provide them with copies as indicated in the position paper. The maximum timeframe within which operators must approve (or reject) applications for transformation has also been extended from 10 to 20 business days.

The ACCC has also agreed to develop a base set of application forms for the process of transformation and/or trade based on the varying state obligations and requirements. These standardised forms will be provided for voluntary adoption by operators and will provide a more

consistent and streamlined process, reducing processing times and transaction costs for market participants.

Small operators

To further alleviate the compliance burden on smaller players, in its final advice the ACCC adjusted its earlier position to recommend that small operators should not be required to update their internal processes to comply with the rules by 31 December 2009. Instead the recommended rules require small operators to have their processes updated when a transformation request is received.

6.3.2 Termination fees

Should termination fees be levied?

In its position paper, the ACCC proposed that operators should be allowed to levy termination fees, but only when an irrigator terminates access to the operator's network, either voluntarily or where the irrigator fails to meet obligations associated with the delivery right.

A number of stakeholders provided submissions suggesting that an operator should be able to terminate an irrigator's right to access (in whole or in part) following a corresponding or proportionate outward trade of the irrigator's water access rights. On the other hand, a number of stakeholders also submitted that irrigators should have the option of deciding when to terminate access.

The ACCC maintained its preliminary position in this regard in the draft report and advice to the Minister, arguing that permitting an operator to automatically terminate rights to access in proportion to water access rights traded outside the operator's area of operations denies irrigators the benefit of having the option of retaining access to the irrigation network.

Level of the termination fee multiple

In its position paper the ACCC proposed that the maximum termination fee be a multiple of the access fee (minus any identified avoidable fixed costs) on a sliding scale, moving from a maximum of 11 times in 2009-10 to 8 times from July 2015.

The ACCC received extensive comments on the appropriate termination fee level. Many irrigators submitted that the current termination fees imposed by operators are too high, while operators largely supported the current practice of using a termination fee multiple of 15 times. Operators in support of higher termination fees generally argued that:

- there is a need to align the termination fee with the engineering life of assets.
- the ACCC relied upon improper discount rates when considering an appropriate termination fee multiple.
- rationalisation opportunities are limited.
- financial viability of operators is threatened with lower termination fees.
- the termination fee should ensure that there are no third party impacts resulting from an irrigator's decision to terminate.

The ACCC noted that considering the engineering life as the appropriate asset life assumes that demand for the service will be sustained over this period (before consideration of rationalisation opportunities). In the case of access services, the ability for an irrigator to change their land use decisions creates substitutes for irrigated land use that may render access services redundant at some future point. In addition, there is potential for significant change in water availability in coming decades, which is likely to significantly affect the demand for access services.

Providing termination fees based on the engineering life of assets provides operators with revenue security in relation to an asset over a period longer than it might be considered

economically useful. Operators would be shielded from risks that other businesses would usually be unable to avoid. Similarly, remaining irrigators would be shielded from any price impacts resulting from termination. Efficiency supports providing incentives for operators to provide only those services required by their customers and to restructure their operations when certain services are no longer required. Insulating irrigators from third party impacts in this manner removes the price signals necessary to achieve such efficiency.

The ACCC termination fees position paper highlighted that there are a variety of mechanisms available to operators when dealing with demand risk and revenue uncertainty. The ACCC draft report on termination fees acknowledged that recovery of capital over periods shorter than the engineering life of an asset is a useful way of addressing demand risks. The draft report also indicated that termination fees that provide revenue certainty over the engineering life of assets are not necessary to maintain the financial viability of operators.

As discussed in Section 5.1, the ACCC contracted Frontier Economics to undertake an analysis comparing the impact on farm profitability of the lower termination fee multiple to other factors such as output prices, yields and water prices. The results suggest that the impact of reducing the termination fee multiple over most foreseeable rates of termination has a lesser impact on the decision of irrigators to terminate relative to other considerations and, all other things being equal, is unlikely to have a bearing on the financial viability of operators or the on-farm investments of remaining irrigators.

The ACCC considers that while opportunities for physical rationalisation of irrigation networks may be limited in the short-term, operators could do more to rationalise and innovate with respect to pricing arrangements and the use of alternative measures to manage risk (e.g. by removing postage stamp pricing, moving to full cost recovery and reducing or waiving the termination fee in certain circumstances). Operators appear to be advocating a multiple of 15 times in place of a combination of legitimate approaches to managing demand uncertainty (which includes termination fees).

Considering all of the above, the ACCC considered that a more appropriate multiple is less than 15 times (which provides 25 to 39 years of access fees).

As discussed in Section 5.1, the ACCC also undertook a comparison of water delivery arrangements for certain operators to observe the effects of reducing the termination fee multiple on the recovery of new investment capital (as opposed to ongoing major periodic maintenance).⁵³

The results of the case studies revealed that the proposed termination fee multiple of 10 times provides for a reasonable period of certainty associated with the recovery of initial capital for new investments. The analysis also showed that the implied termination fee multiple is sensitive to assumptions about the profile for the recovery of capital, the discount rate and the term of the contract. In certain circumstances, longer periods of capital recovery may be warranted. As a result, the regulatory proposal allows higher termination fees negotiated under new and existing contracts, provided they are approved by the ACCC.

Submissions generally opposed the transition path of gradually phasing-down the termination fee multiple over a period of six years, with many stakeholders suggesting that it may create unnecessary distortions to the timing of termination.

In arriving at a position on the level of the termination fee multiple, the ACCC also acknowledged that the most significant changes in demand for access services are likely to occur over the next five years as trade opportunities open up and the Australian Government continues its water purchasing and infrastructure modernisation programs. The result is likely to be a net reduction in irrigation water-use across the Basin.

⁵³ For more details of the case studies see Appendix G of the ACCC draft advice on water charge (termination fees) rules available on the ACCC website www.accc.gov.au

On balance of the above considerations, including the proposal to move straight to a new termination fee multiple rather than phasing it in, the ACCC's draft report recommended a termination fee multiple of 10 times the access fee. This position was maintained in the ACCC's advice to the Minister.

New and existing contracts

In its position paper, the ACCC noted the possibility that some efficient investments may only be viable with cost recovery periods longer than those implied by the termination fee multiples proposed. Many stakeholders submitted that operators and irrigators should be able to enter into contractual arrangements without interference from the water charge rules for termination fees.

Taking these views into consideration, the ACCC's draft report proposed that the rules should allow contracts between irrigators and operators to specify higher termination fees than a multiple of 10 times the irrigator's annual access fee, provided that the higher termination fees are required to support capital expenditure associated with major investments and contracts are entered into following 'good faith' negotiations. The draft report also provides for the approval by the ACCC of termination fee arrangements within existing and new contracts. This position was maintained in the ACCC's advice to the Minister.

Future review

Owing to the lack of data and uncertainty about the impact of water trading and the drought, the position paper proposed a review of the water charge termination fees rules between 2013 and 2015.

Submissions reflected a mixed response by stakeholders to this recommendation. Numerous submissions stated that the importance of the issues means that the review should be conducted earlier. Conversely, a number of submissions argued that any review should be delayed in order for these important issues to be adequately assessed. On balance, the submissions favoured bringing forward the review.

The ACCC responded in its draft report by bringing forward the review to start in 2012 so as to finish in 2013. This position was maintained in the ACCC's advice to the Minister.

7.0 Conclusion and recommended alternative

7.1 Water market rules

The regulatory proposal will achieve the water market objectives and principles by setting rules that deal with actions (or inactions) of an irrigation infrastructure operator that either prevents or unreasonably delays transformation or trade.

The water market rules will remove operator-based barriers to water trade which will facilitate the operation of efficient water markets, provide opportunities for water trading, and allow water to move to its highest value use.

This regulation impact statement has considered three options, including the status quo, with regards to preventing irrigation infrastructure operators from preventing and deterring irrigators from transforming their irrigation rights. Two of the options, requiring compulsory transformation for all operators and setting out different rules for different operators, were not pursued as neither was contemplated by the Act. The Act sets out the parameters for the rules.

The remaining option that was considered is the ACCC advice on the water market rules. These set out rules that prohibit irrigation infrastructure operators from preventing or inhibiting transformation and/or subsequent trade of the transformed title.

7.2 Termination fees

The regulatory proposal will achieve the water charging objectives and principles by setting rules for when a termination fee can be charged and the level at which the termination fee should be set.

A uniform approach across the Basin to setting termination fees will facilitate the efficient functioning of water markets by removing distortions to trade and by sending signals to water users about efficient investment in water service infrastructure.

The regulatory proposal for termination fee charge rules has advantages over the *status quo* alternative for the following reasons:

- linking termination fees to terminating access to an irrigation network rather than to water transfer out of district (as currently practiced across much of the Basin) removes a key trade barrier – it also provides irrigators with the flexibility to rationalise on-farm operations while remaining connected to the system.
- capping the termination fee multiple at 10 – rather than the current 15 - strikes a reasonable balance between providing incentives for efficient investment in irrigation and on-farm infrastructure, rationalisation and water trade.
- the provision for approval by the ACCC of higher termination fees, where contained in new or existing contracts, will deal with efficient investments that may only be viable with cost recovery periods longer than that implied by the 10 times multiple.
- the ACCC, an independent and expert economic regulator, will monitor and enforce compliance with the water charge rules for termination fees across the Basin - this means compliance will be enforced solely and objectively with regard to the rules by a single organisation, and will not rely on individual jurisdictions imposing the terms of Schedule E Protocol on operators as is currently the case.

It is also important to note that the regulatory proposal is consistent with the Schedule E Protocol in many respects. Where the proposal does vary from the Protocol and current charging arrangements of operators, it does so having regard to the Basin water charging objectives and principles in the Act.

7.3 Conclusion

The regulatory proposal will promote the efficient operation of water markets, provide more opportunities for water trading, and allow water to move to its highest value use. It will also remove distortions to trade and send signals to water users about efficient investment in water service infrastructure.

The incremental discounted benefits of the regulatory proposal over 20 years are \$72.9 million, significantly greater than costs of \$37.5 million over the same timeframe. The economic impact analysis shows that the projected economic benefits directly flowing from the regulatory proposal outweigh the estimated industry and government costs.

Overall, the regulatory proposal is superior to the status quo alternative and should be adopted.

8.0 Implementation of the regulatory proposal and review

8.1 Water market rules

Transitional arrangements

The water market rules will take effect from the day after they are registered on the Federal Register of Legislative Instruments, in that from that date (except for existing arrangements, such as contracts) operators cannot undertake actions that would conflict with the water market rules.

Section 97(3)(a) of the Act provides for the water market rules to take into account transitional arrangements involved in introducing the rules. In this regard, the regulatory proposal provides for a transitional period (to 31 December 2009), enabling operators to update existing arrangements, as appropriate. The transitional period would only apply to existing arrangements, such as contracts. The length of the transitional period was chosen to take into account the ability of smaller operators to become compliant. While the ACCC recommended a transition period to 31 August 2009, the regulatory proposal extends the transition period to provide sufficient time for operators to adjust their arrangements from the time the rules are made.

As smaller operators have fewer customers over which to distribute these upfront compliance costs, the rules do not require small operators to update their internal processes to comply with the rules by 31 December 2009. Instead the regulatory proposal requires small operators to have updated their processes when an irrigator seeks transformation.

Monitoring and review

The Act sets out the monitoring and enforcement regime for the water market rules. Section 99 requires the ACCC to monitor transformation arrangements and compliance with the water market rules, and to provide the Minister with periodic reports on the results of such monitoring. Part 8 of the Act sets out the enforcement structure for the Act, including for the water market and water charge rules. It stipulates that the ACCC is the appropriate enforcement agency with regard to the rules.

Neither the Act nor the water market rules detail a timeframe for reviewing the water market rules. The Act does however provide a mechanism for the Minister to write to the ACCC seeking amendment, revocation or further advice on market rules, which provides a mechanism for triggering a review. Office of Best Practice Regulation advice is that a review of the efficacy and effect of the water market rules should occur within 5 years.

8.2 Termination fees

Transitional arrangements

Section 92(3)(k) of the Act provides for the water charge rules to take into account transitional arrangements involved in introducing the rules. The regulatory proposal considers that since termination fees have the potential to influence investment and rationalisation of irrigation and on-farm infrastructure, and to influence on-farm operations, including the trade of water, water charge rules for termination fees should take effect as soon as is practical.

The regulatory proposal for water market rules recommends that the water market rules include provision for the continuation of delivery contracts in circumstances where an irrigator requires access to an operator's irrigation network following transformation. Conditions for the termination of access would be likely to be included in such delivery contracts. As such, it would then be pertinent for the water charge rules for termination fees to be in effect at the time that the water market rules come into effect. The regulatory proposal for the water market rules provides for the water market rules with regard to existing arrangements to come into effect on 1 January 2010.

The regulatory proposal for the termination fee provides for a transition period until 31 August 2009. While the ACCC recommended a transition period to the end of June 2009, the regulatory

proposal extends this transition period to ensure operators have sufficient time to adjust their charging arrangements from the time the rules are made.

Monitoring and review

It is generally prudent to monitor any new regulatory arrangements to ensure that they have the desired effect on the behaviour of market participants, and do not have any unintended consequences. To this end, the regulatory proposal provides for a review of the water charge rules, including termination fees, to commence by 2012 and conclude by 2013. This timeframe provides up to four years of data, including two years of data following the expected finalisation of the Basin Plan.

Section 94 of the Act provides for the ACCC to monitor regulated water charges and compliance with the water charge rules, and to provide a report on the results of such monitoring to the Minister. The regulatory proposal anticipates a cooperative approach to information-gathering by all parties in the first instance, primarily relying on complaints from aggrieved parties and supplemented with publicly accessible information.

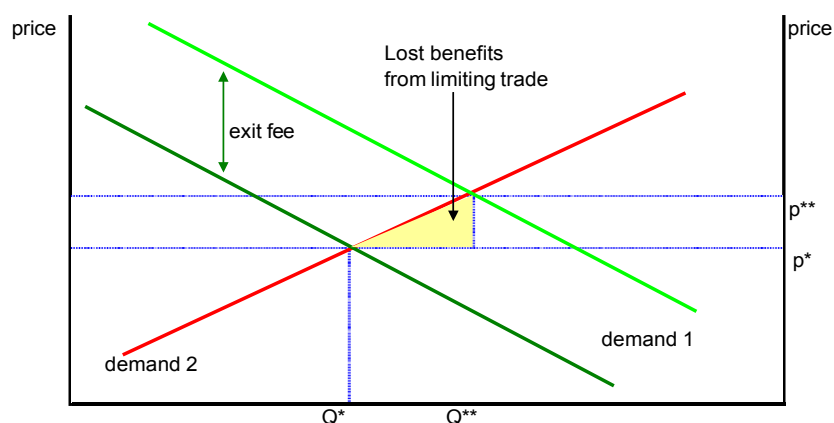
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Appendix 1: Ex-post exit fees (or compulsory termination fees) a barrier to trade

The inefficiency of ex-post exit fees in the context of water trade has been analysed at length in publications by ABARE⁵⁴, the Productivity Commission⁵⁵ and the ACCC.⁵⁶ This section draws heavily on these analyses.

Figure 5: Water demand and exit fees



Source: Goesch *et al.* (2006)

Productivity Commission (2006) notes that the imposition of exit fees (or compulsory termination fees) on the trade of water entitlements tends to increase entitlement prices in importing (buying) regions, reduces the net proceeds from entitlement sales in exporting (selling) regions, reduces the quantity of water traded and decreases economic welfare compared to free trade.

Goesch *et al.* (2006) contends that an exit fee on the sale of water acts as a tax on out of district water sales by driving a wedge between the price the importer pays and the price the exporter receives. This shifts the demand curve up for the exporting region (region 1) as in *Figure 5* with a fall in the quantity of water traded (from Q^* to Q^{**}) and rise in traded price (from p^* to p^{**}) generating a loss in gains from trade equivalent to the shaded area.

Using a stylised empirical model with two water exporting sectors and one water importing sector, Goesch *et al.* (2006) found that the larger the exit fee as a proportion of the traded water price, the larger is the loss in economic gains.

ACCC (2006) notes that exit fees dampen the signal to operators that rationalisation of the network may be warranted, since some irrigators will sub-optimally remain in the network. They also dampen the signal to remaining irrigators as to the actual cost of continuing to provide them with delivery services.

The ACCC also maintain that ex-post exit fees raise issues about equity between those irrigators that wish to exit the network and those that remain in that they may not take into consideration:

- costs that may be avoided due to future rationalisation of the network
- previous contributions to reserves for future asset renewal, and
- the benefit from any reduction in congestion of the delivery network.

⁵⁴ Goesch *et al.* (2006).

⁵⁵ Productivity Commission (2006).

⁵⁶ ACCC (2006).

Appendix 2: Termination fees in practice

A number of the major operators in the Basin, particularly in New South Wales (NSW) and South Australia (SA), impose compulsory termination fees or exit fees.

For example, in April 2008 Murray Irrigation Limited (MIL) changed its policy on water transfers to require termination of delivery entitlements when water entitlements are transferred out the district without delivery entitlements.⁵⁷ MIL argued this change was necessary to manage the income risks for future infrastructure costs following active participation in the water market by MIL members. The current MIL termination fee is \$332.55 per entitlement⁵⁸, which is 15 times the shadow access fee.

Coleambally Irrigation Co-operative Limited (CICL) requires the payment of a termination fee where more than 50 per cent of the water entitlement attached to a farm is to be permanently traded out of the CICL licence.⁵⁹ The 2007-08 termination fees are \$398.25 per megalitre (ML) for general security water, and \$569.10 per ML for high security water.

Murrumbidgee Irrigation Limited (MI) requires mandatory termination of the residual delivery entitlement following external trade off the company licence.⁶⁰ The termination fees effective from 1 July 2008 are \$180 per residual delivery entitlement for general security water, and \$315 per residual delivery entitlement for high security water.

Western Murray Irrigation (WMI) requires that where water entitlements are transferred to non-landholders or non-irrigators the termination of delivery entitlements is mandatory with payment of the applicable termination fee.⁶¹ The termination fees effective in 2007-08 range from \$320 to \$998 per delivery entitlement.

Central Irrigation Trust (CIT) in SA imposes a compulsory termination fee of \$317 per ML⁶² on all permanent water traded outside the CIT districts to ensure that “the seller pays out their contribution to the infrastructure costs so that the remaining growers are not burdened with this additional cost”.⁶³

The major operators in Queensland and Victoria provide irrigators with the choice between continuing to pay the access or terminating delivery and paying the termination fee.

Goulburn-Murray Water (GMW) provides irrigators the choice of continuing to pay the access or terminating delivery and paying the termination fee.⁶⁴ The termination fees applicable in 2008-09 range from \$28,145.25 per ML per day in Pyramid-Boort to \$64,093.05 per ML per day in Tresco.

SunWater does not impose specific requirements in relation to delivery entitlements upon the transfer of water access entitlements. Customers have the option of paying a termination charge or continuing to pay the channel access fees when they trade a water access entitlement out of a channel.⁶⁵

⁵⁷ MIL Media Release, Modified Policy on Water Transfers, 9 April 2008.

⁵⁸ MIL Talking Water, Tuesday 18th November 2008.

⁵⁹ CICL, Permanent Trade of Water Entitlement, 2007-08 Irrigation Season.

⁶⁰ MI, Notice to Water Entitlement Holders: Permanent Trade of Water Entitlement (Clause 24) – Effective 1 July 2008.

⁶¹ WMI, Water and Delivery Entitlement Policy - Effective: 1 May 2008.

⁶² CIT, October 2008 Newsletter to Customers.

⁶³ CIT, Fact Sheet No. 1, Water Trade.

⁶⁴ GMW, Unbundling Water Entitlements, Delivery Share and Termination Fees Flyer.

⁶⁵ SunWater, Public Submission on Water Charge Rules for Charges Payable to Irrigation Infrastructure Operators, 15 July 2008.

Appendix 3: Basin water market and trading objectives and principles

2 Objectives and principles

This Schedule sets out:

- (a) the Basin water market and trading objectives; and
- (b) the Basin water market and trading principles.

Note 1: These objectives and principles are relevant to the formulation of:

- (a) the provisions of the Basin Plan (see item 12 of the table in subsection 22(1)); and
- (b) the provisions of water management plans for particular water resource plan areas (see subsection 22(3)); and
- (c) the provisions of the water market rules (see paragraph 97(1)(b)).

Note 2: These objectives and principles are based on those set out in clauses 58 to 63 and Schedule G of the National Water Initiative when Part 2 of this Act commences.

3 Basin water market and trading objectives

The objectives of the water market and trading arrangements for the Murray-Darling Basin are:

- (a) to facilitate the operation of efficient water markets and the opportunities for trading, within and between Basin States, where water resources are physically shared or hydrologic connections and water supply considerations will permit water trading; and
- (b) to minimise transaction cost on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions; and
- (c) to enable the appropriate mix of water products to develop based on water access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time; and
- (d) to recognise and protect the needs of the environment; and
- (e) to provide appropriate protection of third-party interests.

Basin water market and trading principles

- (1) This clause sets out the Basin water market and trading principles.
- (2) Water access entitlements may be traded either permanently, through lease arrangements, or through other trading options that may evolve over time, if water resources are physically shared or hydrologic connections and water supply considerations would permit water trading.
- (3) All trades should be recorded on a water register. Registers will be compatible, publicly accessible and reliable, recording information on a whole of catchment basis, consistent with the National Water Initiative.
- (4) Restrictions on extraction, diversion or use of water resulting from trade can only be used to manage:
 - (a) environmental impacts, including impacts on ecosystems that depend on underground water; or
 - (b) hydrological, water quality and hydro-geological impacts; or
 - (c) delivery constraints; or
 - (d) impacts on geographical features (such as river and aquifer integrity); or
 - (e) features of major indigenous, cultural heritage or spiritual significance.
- (5) A trade may be refused on the basis that it is inconsistent with the relevant water resource plan.
- (6) Trades must not result in the long-term annual diversion limit being exceeded. That is, trades must not:
 - (a) cause an increase in commitments to take water from water resources or parts of water resources; or

- (b) increase seasonal reversals in flow regimes;
- above sustainable levels identified in relevant water resource plans such that environmental water or water dependent ecosystems are adversely affected.
- (7) Trades within over-allocated water resources (including ground water resources) may be permitted in some cases subject to conditions to manage long-term impacts on the environment and other users.
- (8) Where necessary, water authorities will facilitate trade by specifying trading zones and providing related information such as the exchange rates to be applied to trades in water allocations to:
- (a) adjust for the effects of the transfer on hydrology or supply security (transmission losses) or reliability; and
 - (b) reflect transfers between different classes of water resources, unregulated streams, regulated streams, supplemented streams, ground water systems and licensed runoff harvesting dams.
- (9) Water trading zones, including ground water trading zones, should be defined in terms of:
- (a) the ability to change the point of extraction of the water from one place to another; and
 - (b) the protection of the environment.
- The volume of delivery losses in supplemented systems that provide opportunistic environmental flows will be estimated and taken into account when determining the maximum volume of water that may be traded out of a trading zone.
- (10) Exchange rates must not be used to achieve other outcomes such as to alter the balance between economic use and environmental protection or to reduce overall water use.
- (11) Trade in water allocations may occur within common aquifers or surface water flow systems consistent with water resource plans.
- (12) Trade from a licensed runoff harvesting dam (that is, not a small farm dam) to a river may occur subject to:
- (a) a reduction in dam capacity consistent with the transferred water access entitlement; or
 - (b) retention of sufficient capacity to accommodate evaporative and infiltration losses; or
 - (c) conditions specified in water resource plans to protect the environment.
- (13) Compatible institutional and regulatory arrangements will be pursued to improve intrastate and interstate trade, and to manage differences in entitlement reliability, supply losses, supply source constraints, trading between systems and cap requirements.
- (14) The transfer of water allocations and entitlements will be facilitated (where appropriate) by water access entitlement tagging, water access entitlement exchange rates or other trading mechanisms that may evolve over time.
- (15) Institutional, legislative and administrative arrangements will be introduced to improve the efficiency and scope of water trade and to remove barriers that may affect potential trade.
- (16) Barriers to permanent trade out of water irrigation areas up to an annual threshold limit of 4% of the total water entitlement of that area will be immediately removed, subject to a review by 2009 by the National Water Commission under paragraph 7(2)(h) of the *National Water Commission Act 2004*, with a move to full and open trade by 2014 at the latest.
- (17) Subject to this clause, no new barriers to trade will be imposed, including in the form of arrangements for addressing stranded assets.'

Appendix 4: Basin water charging objectives and principles

2 *Water charging objectives*

The *water charging objectives* are:

- (a) to promote the economically efficient and sustainable use of:
 - (i) water resources; and
 - (ii) water infrastructure assets; and
 - (iii) government resources devoted to the management of water resources; and
- (b) to ensure sufficient revenue streams to allow efficient delivery of the required services; and
- (c) to facilitate the efficient functioning of water markets (including inter-jurisdictional water markets, and in both rural and urban settings); and
- (d) to give effect to the principles 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
- (e) to avoid perverse or unintended pricing outcomes.

3 *Water storage and delivery principles*

- (1) Pricing policies for water storage and delivery in rural systems are to be developed to facilitate efficient water use and trade in water entitlements.
- (2) Water charges are to include a consumption-based component.
- (3) Water charges are to be based on full cost recovery for water services to ensure business viability and avoid monopoly rents, including recovery of environmental externalities where feasible and practical.
- (4) Water charges in the rural water sector are to continue to move towards upper bound pricing where practicable.
- (5) In subclause (4):

upper bound pricing means the level at which, to avoid monopoly rents, a water business should not recover more than:

- (a) the operational, maintenance and administrative costs, externalities, taxes or tax equivalent regimes; and
 - (b) provision for the cost of asset consumption; and
 - (c) provision for the cost of capital (calculated using a weighted average cost of capital).
- (6) If full cost recovery is unlikely to be achieved and a Community Service Obligation is deemed necessary:
 - (a) the size of the subsidy is to be reported publicly; and
 - (b) where practicable, subsidies or Community Service Obligations are to be reduced or eliminated.

- (7) Pricing policies should ensure consistency across sectors and jurisdictions where entitlements are able to be traded.

4 *Cost recovery for planning and management*

See forthcoming ACCC Water Planning and Management Issues Paper.

5 *Environmental Externalities*

- (1) Market-based mechanisms (such as pricing to account for positive and negative environmental externalities associated with water use) are to be pursued where feasible.
- (2) The cost of environmental externalities is to be included in water charges where found to be feasible.

6 *Benchmarking and efficiency reviews*

- (1) Independent and public benchmarking or efficiency reviews of pricing and service quality relevant to regulated water charges is or are to be undertaken based on a nationally consistent framework.
- (2) The costs of operating these benchmark and efficiency review systems are to be met through recovery of regulated water charges.

Appendix 5: Schedule E protocol on access, exit and termination fees

(Revised No.2, 29 May 2007)

1. AUTHORISING PROVISION

This Protocol is made under paragraph 6(1)(f) of Schedule E.

2. PURPOSES

The purposes of this Protocol are:

- (a) to specify principles about access, exit and termination fees relating to infrastructure that delivers water to land in an irrigation district; and
- (b) to adopt certain recommendations set out in the Australian Competition and Consumer Commission's Report entitled *A regime for the calculation and implementation of exit, access and termination fees charged by irrigation water delivery businesses in the Southern Murray-Darling Basin*; and
- (c) to adopt certain parts of agreements made by New South Wales and South Australia on 28 December 2006 and New South Wales and Victoria on 29 December 2006.

3. DEFINITIONS

- (1) Expressions defined in the Murray-Darling Basin Agreement and Schedule E (including its Appendices) have the same meaning in this Protocol.

- (2) In this Protocol:

access fee means an annual fee levied on the holder of a delivery entitlement for continuing access to an infrastructure operator's irrigation water delivery network and services, that does not vary with the quantity of water delivered.

delivery entitlement means an explicit or implicit entitlement to have irrigation water delivered within an irrigation district

exit fee means a fee levied by an infrastructure operator on the transfer of a water entitlement out of the infrastructure operator's network or irrigation district (excluding any fee associated with the costs of processing that transfer).

infrastructure operator means either or both of the owner and operator of infrastructure to deliver irrigation water within an irrigation district.

irrigation district means an irrigation district supplied with water by an infrastructure supply network, operated and maintained primarily to supply water used within that irrigation district.

retail tagging occurs when a water entitlement, transferred to a transferee located either outside the transferor's irrigation district or beyond the relevant infrastructure operator's network, remains on the register of the transferor's infrastructure operator and retains all its original attributes (including any obligation of the transferee to pay fees and charges levied on the water entitlement by the transferor's infrastructure operator).

shadow access fee means an annual fee which, if levied upon and paid by every holder of a delivery entitlement in an infrastructure operator's irrigation district, would collect revenue equal to the fixed costs of the infrastructure operator, otherwise recovered by:

- (a) the access fee actually levied; and
- (b) other variable fees levied under the infrastructure operator's other fees and tariffs.

termination fee means a fee levied by an infrastructure operator when a delivery entitlement is surrendered to the infrastructure operator in order to terminate any rights or obligations associated with that delivery entitlement (including any requirement to pay an access fee).

variable delivery fee means a fee levied on the basis of the quantity of water delivered.

4. **APPLICATION**

To the extent that it is consistent with State law, this Protocol applies from 1 July 2007 to:

- (a) calculating and applying any access, exit or termination fee levied by an infrastructure operator relating to:
 - (i) the holding or termination of a delivery entitlement; or
 - (ii) the transfer of a water entitlement (whether an exchange-rate or tagged transfer) ;
and
- (b) fees relating to retail tagging, levied on a person who diverts water from a source outside an irrigation district, through infrastructure other than infrastructure of the relevant infrastructure operator.

5. **RECOVERING COSTS OF DELIVERY SERVICES**

Costs of providing delivery services should be recovered through access fees levied on delivery entitlements, whether the entitlement is implicit or explicit, and variable delivery fees, levied on the quantity of water delivered.

6. **UNBUNDLING OF WATER AND DELIVERY ENTITLEMENT**

- (1) From a date no later than 30 June 2010, any implicit entitlement to have water delivered within an irrigation district should be:
 - (a) unbundled from any entitlement to the water; and
 - (b) recognised through a separate, explicit delivery entitlement.
- (2) The rights and obligations of any explicit delivery entitlement should be clearly specified, including permissible rates of either or both extraction and supply; times and location of delivery; service levels and conditions of delivery.
- (3) By a date no later than 30 June 2010, a delivery entitlement (and any obligations associated with it) should be made transferable, subject to the approval of the infrastructure operator.
- (4) A transferee who has acquired a water entitlement by means of retail tagging before this Protocol is made, should have power to surrender any implicit or explicit delivery entitlement by paying a termination fee to the relevant infrastructure operator.
- (5) After this Protocol is made, a transferee who acquires a water entitlement from within the irrigation district of an infrastructure operator that offers retail tagging, should be able to acquire that entitlement either:
 - (a) subject to retail tagging; or
 - (b) in accordance with the principles set out in this Protocol.

7. **TERMINATING DELIVERY ENTITLEMENTS**

- (1) The holder of a delivery entitlement should be able to surrender some or all of that entitlement to the relevant infrastructure operator upon payment of any termination fee, by a process clearly specified by the infrastructure operator.

- (2) When some or all of a delivery entitlement is surrendered.
 - (a) any obligation on the infrastructure operator to deliver, or to maintain the capacity to deliver, water pursuant to the surrendered delivery entitlements should cease; and
 - (b) any obligation on any person to pay access fees in relation to the surrendered delivery entitlement for any period after the entitlement is surrendered should cease.

8. EXIT FEES

No exit fees should be levied.

9. SECURITY FOR ACCESS FEES

- (1) Before approving the transfer of any water entitlement, an infrastructure operator should not require security for the payment of future continuing access fees unless:
 - (a) the current market value of any water entitlements retained by the transferor to water within the relevant irrigation district is less than 50% of any termination fee which would be payable upon the surrender of all of the delivery entitlements retained; and
 - (b) the infrastructure operator considers, on reasonable grounds, that there is a significant risk that the transferor may be unable to pay future access fees in relation to those delivery entitlements, when they fall due.

10. CALCULATING ACCESS FEES

- (1) Any annual access fee levied on a delivery entitlement should be for the purpose of recovering an infrastructure operator's fixed costs of providing continuing core irrigation water delivery services through the infrastructure operator's network.
- (2) An access fee may therefore include:
 - (a) fixed operating expenditure (for example, annual maintenance, administration costs); and
 - (b) the fixed component of any bulk water charges for distribution or conveyance losses (unless the charges for such losses are paid by customers through a bulk water charge levied on customers by the infrastructure operator); and
 - (c) any annuity for operating expenditure associated with periodic network maintenance or renewal, based on forecasts of prudent and efficient costs; and
 - (d) any contributions to future capital expenditure for maintaining the current level of service, including expenditure necessitated by mandated improvement in standards for items such as health and safety and metering; and
 - (e) any contributions to future capital expenditure for improving the level of service, provided that -
 - (i) the infrastructure operator has committed to the expenditure; and
 - (ii) the expenditure has been approved through a customer or regulatory review; and
 - (iii) the expenditure will occur within 5 years; and
 - (f) any costs incurred by the infrastructure operator for return on and return of capital previously invested for the provision of continuing core irrigation water delivery services through the infrastructure operator's network, provided that -
 - (i) the costs are based on the infrastructure operator's policies for asset valuation, return on capital and return of capital; and

- (ii) the policies are consistent with the NWI and the infrastructure operator's regulatory environment and customer oversight processes.
- (3) Any access fee should not include any operating costs that vary with the volume of water delivered.
- (4) Costs associated with future capital expenditure that is to improve an infrastructure operator's quality of service or network capacity but does not comply with subclause 10 (2) (e) should:
 - (a) be financed through a separate levy, unrelated to water entitlements; and
 - (b) be separate from any access fee; and
 - (c) not be included in the calculation of any termination fee; and
 - (d) not be payable by the holder of a deliver entitlement, after that entitlement has been surrendered.
- (5) Any shadow access fee should include only costs that -
 - (a) may be included in an access fee as calculated in accordance with Clauses 10 (1) to 10 (4), and
 - (b) the infrastructure operator is collecting or intends to collect from users of core irrigation water delivery services through its published tariffs.

11. **CALCULATING TERMINATION FEES**

- (1) A termination fee should be calculated by reference to the annual access fee actually levied at the time of termination.
- (2) If an infrastructure operator calculates access fees other than in accordance with clause 10, a termination fee may be calculated by reference to the shadow access fee, until:
 - (a) 30 June 2010; or
 - (b) any later date determined after a review to be conducted by State Contracting Governments, in consultation with the ACCC, before 1 January 2009.
- (3) The holder of a delivery entitlement should be able to choose whether:
 - (a) to surrender the delivery entitlement and pay the relevant termination fee; or
 - (b) to continue to hold the delivery entitlement and to pay the annual access fee, actually levied from time to time.
- (4) If an infrastructure operator levies a termination fee based on a shadow access fee, the infrastructure operator should provide any person required to pay that termination fee with all information necessary to demonstrate that the relevant shadow access fee has been properly calculated.
- (5) Any termination fee should be:
 - (a) a multiple of the annual access fee (or shadow access fee, as the case requires) levied on the relevant delivery entitlement at the date it is surrendered; and
 - (b) not more than 15 times greater than that access fee (or shadow access fee) adjusted in accordance with sub-clause (6).
- (6) When calculating any termination fee, an infrastructure operator should deduct any future fixed costs:

- (a) referred to in sub-clause 10(1), not being charges and costs referred to in sub-clause 10(2); and
 - (b) that will be directly and immediately avoided as a result of the surrender of a delivery entitlement.
- (7) An infrastructure operator should only include an allowance for income tax payable by the infrastructure operator when calculating any termination fee, to the extent that the infrastructure operator can demonstrate that:
- (a) future fixed costs referred to in sub-clause 10(1), not being charges and costs referred to in sub-clause 10(2), will be incurred; and
 - (b) those future fixed costs will not be deducted under sub-clause (6) when calculating the termination fee; and
 - (c) the infrastructure operator will be unable to deduct those future fixed costs at a time which is reasonably contemporaneous with the imposition of income tax on the termination fee.
- (8) If an infrastructure operator can demonstrate that sub-clause (7) applies, any allowance for income tax included in any calculation of a termination fee must reflect only the tax cost of the inability to deduct the future fixed costs as referred to in paragraph (7)(c).
- (9) The multiple referred to in paragraph (5)(b) should be reviewed by State Contracting Governments, in consultation with the ACCC, before 1 January 2009.

12. **AGREED CONTRIBUTIONS TO CAPITAL EXPENDITURE**

- (1) Where the holder of a delivery entitlement has previously entered into an agreement with an infrastructure operator to contribute towards specified capital expenditure to be incurred by that operator, any sums payable under that agreement should be recovered under the terms of that agreement.
- (2) An infrastructure operator should not include any unpaid contribution referred to in sub-clause (1) in any termination fee.

Appendix 6: Impact analysis details

Water Market and Termination Fee Rules Cost-Benefit Analysis

Scenario 1: 30 per cent of irrigators departing

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	Incremental Costs (\$m)				Total Costs	Incremental Benefits (\$m)		Net Benefit Stream
	ACCC	DEWHA	Operators	Remaining irrigators		Trade impacts on GDP	Total Benefits	
2007-08	2.1	0.15	0.0	0.0	2.2	0.0	0.0	-2.2
2008-09	2.0	0.15	0.0	0.0	2.2	0.0	0.0	-2.2
2009-10	1.8	0.05	4.6	0.0	6.4	32.8	32.8	26.4
2010-11	1.8	0.05	0.0	0.0	1.9	24.1	24.1	22.2
2011-12	1.8	0.05	0.0	0.0	1.9	8.8	8.8	6.9
2012-13	1.9	0.05	0.0	0.0	1.9	-5.2	-5.2	-7.1
2013-14	1.9	0.05	0.0	0.0	2.0	0.7	0.7	-1.3
2014-15	2.0	0.05	0.0	0.0	2.0	0.1	0.1	-1.9
2015-16	2.0	0.05	0.0	0.0	2.1	2.4	2.4	0.4
2016-17	2.1	0.05	0.0	0.0	2.1	2.8	2.8	0.7
2017-18	1.5	0.05	0.0	0.0	1.6	3.0	3.0	1.4
2018-19	1.5	0.05	0.0	0.0	1.6	2.6	2.6	1.0
2019-20	1.5	0.05	0.0	0.0	1.6	2.3	2.3	0.7
2020-21	1.5	0.05	0.0	0.8	2.4	3.6	3.6	1.2
2021-22	1.5	0.05	0.0	1.7	3.3	3.8	3.8	0.5
2022-23	1.5	0.05	0.0	2.5	4.1	3.4	3.4	-0.7
2023-24	1.5	0.05	0.0	2.9	4.5	2.9	2.9	-1.6
2024-25	1.5	0.05	0.0	3.3	4.9	4.2	4.2	-0.8
2025-26	1.5	0.05	0.0	3.7	5.3	3.6	3.6	-1.8
2026-27	1.5	0.05	0.0	4.0	5.5	2.4	2.4	-3.1
Total	34.9	1.2	4.6	18.9	59.6	98.1	98.1	38.5
NPV	\$23.6	\$0.8	\$4.0	\$9.0	\$37.5	\$72.9	\$72.9	\$35.4

37.5	<i>NPV Costs</i>
72.9	<i>NPV Benefits</i>
1.9	<i>B/C Ratio</i>

Assumptions:

- Discount rate 4.30% 10 year Treasury Bond Rate 6 January 2009
- Base case is status quo situation (15x multiple and compulsory termination fees in NSW and SA)
- Improved case is market rules, termination fee rules with 10x cap, provision for contracts higher than 10x, and applicable to termination of delivery only
- ACCC costs based on budget estimate
- GDP impacts from Appendix 8

Trade benefits from termination fee and market rules

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1. Entitlement trade 2007-08 (ML)

	Entitlement	Trade
NSW	4,248,000	210,210
SA	525,000	10,515
Victoria	2,783,000	181,788

Source: Hyder Report 2008, p7

2. Entitlement trade increase due to irrigators terminating NSW & SA

Year	Percentage of irrigators terminating	Estimated trade increase		Total volume (ML)
		NSW Extra trade volume (ML)	SA Extra trade volume (ML)	
2007-08	0%	0	0	0
2008-09	0%	0	0	0
2009-10	4%	93,456	11,550	105,006
2010-11	4%	92,708	11,458	104,166
2011-12	4%	91,967	11,366	103,333
2012-13	2%	45,615	5,638	51,253
2013-14	2%	45,433	5,615	51,048
2014-15	2%	45,251	5,592	50,844
2015-16	1%	22,535	2,785	25,320
2016-17	1%	22,490	2,779	25,270
2017-18	1%	22,445	2,774	25,219
2018-19	1%	22,400	2,768	25,169
2019-20	1%	22,355	2,763	25,118
2020-21	1%	22,311	2,757	25,068
2021-22	1%	22,266	2,752	25,018
2022-23	1%	22,222	2,746	24,968
2023-24	1%	22,177	2,741	24,918
2024-25	1%	22,133	2,735	24,868
2025-26	1%	22,088	2,730	24,818
2026-27	1%	22,044	2,724	24,769
	30%			

3. General entitlement trade increase NSW & SA due to fewer trade restriction

Year	Estimated % trade increase on 2007-08 levels	NSW Extra trade volume (ML)	SA Extra trade volume (ML)	Total volume (ML)
2007-08	0%	0	0	0
2008-09	0%	0	0	0
2009-10	5%	10,511	526	11,036
2010-11	5%	10,511	526	11,036
2011-12	5%	10,511	526	11,036
2012-13	5%	10,511	526	11,036
2013-14	5%	10,511	526	11,036
2014-15	5%	10,511	526	11,036
2015-16	5%	10,511	526	11,036
2016-17	5%	10,511	526	11,036
2017-18	5%	10,511	526	11,036
2018-19	5%	10,511	526	11,036
2019-20	5%	10,511	526	11,036
2020-21	5%	10,511	526	11,036
2021-22	5%	10,511	526	11,036
2022-23	5%	10,511	526	11,036
2023-24	5%	10,511	526	11,036
2024-25	5%	10,511	526	11,036
2025-26	5%	10,511	526	11,036
2026-27	5%	10,511	526	11,036

4. Entitlement trade increase in Victoria due to lower termination fees

Year	Estimated % trade increase on 2007-08 levels	Victoria Extra trade volume (ML)
2007-08	0%	0
2008-09	0%	0
2009-10	1%	1,818
2010-11	1%	1,818
2011-12	1%	1,818
2012-13	1%	1,818
2013-14	1%	1,818
2014-15	1%	1,818
2015-16	1%	1,818
2016-17	1%	1,818
2017-18	1%	1,818
2018-19	1%	1,818
2019-20	1%	1,818
2020-21	1%	1,818
2021-22	1%	1,818
2022-23	1%	1,818
2023-24	1%	1,818
2024-25	1%	1,818
2025-26	1%	1,818
2026-27	1%	1,818

Operator costs

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		Small	Medium	Large
Termination fee rules		Cost per operator	Cost per operator	Cost per operator
Advising members of new termination fee arrangements		\$100	\$500	\$1,010
Financial analysis		\$1,500	\$3,000	\$6,000
	Total unit cost	\$1,600	\$3,500	\$7,010
	Estimated number of operators	600	10	11
	Total cost	\$960,000	\$35,000	\$77,110
			Grand-Total	\$1,072,110

		Small	Medium	Large
Water market rules	Section of the water market rules	Cost per operator	Cost per operator	Cost per operator
The operators must inform all irrigators that the rules have been made, how copies may be obtained and information regarding the ACCC.	S.5	\$100	\$500	\$1,010
Developing or updating procedures for transformation.	S.6(1)	\$600	\$1,200	\$2,400
Ensuring that procedures for transformation are readily available to irrigators.	S.6(3)	\$60	\$80	\$100
Developing or updating new constitution / governance arrangements	N/A	\$3,000	\$6,000	\$17,500
Developing new delivery contract templates	S.8(1) (c)&(d)	\$1,200	\$3,000	\$4,900
Provision of information regarding new constitutions/governance arrangements/delivery rights to all irrigators within 10 business days.	S.21(1) & (2)	\$60	\$60	\$100
Costs of software redevelopment to accommodate the rules				\$20,000
	Total unit cost	\$5,020	\$10,840	\$46,010
	Estimated number of operators	600	10	8
	Total cost	\$3,012,000	\$108,400	\$368,080
			Grand-Total	\$3,488,480

Assumptions:

1. One-off start-up costs
2. Water market rules costs apply to NSW and SA operators only
3. Termination fee rules costs apply to NSW, SA, VIC and Qld operators

Cost impact on remaining irrigators of new termination fee cap

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1. Fixed access charge

Current CI fixed access fee
Fixed access charge \$15.61 per ML

1 Sensitivity

2. % of irrigators terminating

Access charge increase per irrigator	1% \$7.36	2% \$14.87	4% \$30.37	5% \$38.36	6% \$46.52	7% \$54.86	8% \$63.38	9% \$72.08	10% \$80.98	11% \$90.08	12% \$99.38	14% \$118.65	16% \$138.82	18% \$159.99	19% \$170.96	20% \$182.21	21% \$193.74	22% \$205.57	23% \$217.70	24% \$230.15	25% \$242.94	26% \$256.07	27% \$269.56	28% \$283.43	29% \$297.69	30% \$312.35
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3. Costs for remaining irrigators

				Costs																					
	% irrigators leaving	Cumulative	Number leaving	Number staying	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	
2007-08	0%	0%	0	47,563																					
2008-09	0%	0%	0	47,563																					
2009-10	4%	4%	1,903	45,660														\$1,386,600							
2010-11	4%	8%	1,903	43,758															\$2,773,199						
2011-12	4%	12%	1,903	41,855																\$4,159,799					
2012-13	2%	14%	951	40,904																	\$4,853,099				
2013-14	2%	16%	951	39,953																		\$5,546,399			
2014-15	2%	18%	951	39,002																			\$6,239,699		
2015-16	1%	19%	476	38,526																					\$6,586,348
2016-17	1%	20%	476	38,050																					
2017-18	1%	21%	476	37,575																					
2018-19	1%	22%	476	37,099																					
2019-20	1%	23%	476	36,624																					
2020-21	1%	24%	476	36,148																					
2021-22	1%	25%	476	35,672																					
2022-23	1%	26%	476	35,197																					
2023-24	1%	27%	476	34,721																					
2024-25	1%	28%	476	34,245																					
2025-26	1%	29%	476	33,770																					
2026-27	1%	30%	476	33,294																					
Scenario 1	30%		14,269		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$831,960	\$1,663,920	\$2,495,879	\$2,911,859	\$3,327,839	\$3,743,819	\$3,951,809	

Assumptions:

1. Cost savings from network rationalisation from Year 13 **20%**
2. % of departing irrigators' water staying in MDB operator network **25%** i.e. remaining irrigators elect to buy departing irrigators delivery share (and pay the access fee) - balance goes to private diverters or environmental water held outside of networks
3. Assumes remaining irrigators start paying higher access fees from Year 13
4. Assumes all departing irrigators choose to terminate and pay the termination fee i.e. do not elect to continue to pay access fees

Appendix 7: Benefit-cost ratio methodology

The B/C ratio is a discounted measure of project worth obtained by dividing the NPV of the benefit stream by the NPV of the cost stream. The B/C ratio is calculated by dividing the present value of the benefit stream by the present value of the cost stream as follows:

$$\frac{\sum_{t=1}^{t=n} \frac{B_t}{(1+i)^t}}{\sum_{t=1}^{t=n} \frac{C_t}{(1+i)^t}}$$

The formal selection criterion for this measure is to accept all investments with B/C ratio greater than or equal to 1 when the cost and benefit streams are discounted at the opportunity cost of capital.

Appendix 8: Access Economics - Economic benefits of increased water trade resulting from water market rules and termination fee rules

Economic benefits of increased water trade resulting from water market rules and termination fee rules

Report by Access Economics Pty Limited for

**Department of the Environment,
Water, Heritage and the Arts**

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Disclaimer

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1. APPROACH

1.1 SUMMARY

The approach to the benefits of increased trade is summarised in three stages as follows:

- ❑ Impacts on trade – estimates of how much additional trade will occur due to the water market and termination fee rules by State, using DEWHA estimates,
- ❑ The value of the additional trade and its direct impact on agricultural production, and
- ❑ Overall economic impacts of additional trade – GE modelling.

1.2 IMPACTS ON TRADE

The volume of trade estimates reflect how much trade is either rejected or deterred due to irrigation infrastructure operators inhibiting trade, by State, using DEWHA estimates. From the rejected or deterred trades, changes in water use by region were inferred, with resulting impacts upon the mix and value of agricultural production across the catchments of the Basin. These impacts were then used as inputs into a CGE model, with resulting flow on economic impacts.

Separate estimates were made for the entitlement trade increase due to irrigators trading out of NSW and SA operators specifically (approximately 100,000 ML each year over the first three years), and the more general entitlement trade increase in NSW, SA and VIC as a result of fewer trade restrictions (approximately 12,800 ML per year from 2009-10).

1.3 VALUE OF TRADE AND ITS IMPACT ON AGRICULTURAL PRODUCTION

The value of trade in water is well documented in reviews from the Murray Darling Basin, in terms of observed and projected transfers of water (entitlements and allocations) between different regions and different land uses. The National Water Commission recently released Australia's first national water market report (2008), and there have been a range of other water trading reports and forecasts (e.g. from the Productivity Commission, on future trade flows using the Enormous Regional Model – TERM). At a conceptual level, the main economic benefit of water trade is that it facilitates more valuable and productive uses of the water. This occurs where the water is more valuable for use in the enterprise of the water buyer than of the seller, or more simply, the buyer is willing to pay more for the water than it is worth to the seller. This value resides in the concept of a surplus value, caused by different parties (the buyer and the seller) valuing the same water differently. A voluntary water trade occurs because the buying party values the water more than the selling party. In these circumstances both the buyer and the seller are better off (than if the trade was prevented or deterred), otherwise they would not voluntarily enter the trade. In the case of the buyer, the surplus is found in the amount the buyer of the water values the water *in excess* of what was paid minus any costs of buying. In the case of the seller, it is found in the amount received for the water in excess of how much the seller valued it minus any costs of selling. The value

in the trade rests upon both the surplus for both the buyer and the seller, minus the costs of the transaction.

The impacts differ for permanent and temporary trade, as they do for intra and inter-regional trade. The reasons why different parties value the same water entitlement differently are obviously complex. At a broad level, the most important reasons include:

- ❑ Different land uses and regional productivity – the same volume of water may have a greater intended use value to some farmers more so than others because of ongoing differences in intended land uses (what the irrigation water would be used to grow) and regional differences (climate, soils, water table depth, access to markets etc). Trade allows entitlement holders to realise a greater value from the water, which may have previously been devalued because it was used in less productive land.
- ❑ Different expectations of future variables – different farmers may have different expectations relating to unknown future variables such as commodity prices, government policy, future water scarcity and future water entitlement prices.
- ❑ Different life situations – some may wish to realise the capital value of an asset (a water right) now, while others may prefer the security of an ongoing share of the water resource into the future. Trade allows for adaption to changing circumstances.

In estimating the value of the extra trade due to reduced termination fees, the magnitude of that termination fee reduction provides an upper bound to the surplus value (from the sellers perspective) of any additional trade (on a per ML basis). To the extent that the fees are deterrence to trade, they are deterrence to the lower value trades only, or those up to where the value of the trade for the seller is the same as the magnitude of the reduced termination fees. Higher value trades, in excess of the termination fee reduction, would (and have) proceeded regardless. The same upper bounds does not apply to the direct value of trades that have been rejected due to restrictions on irrigators trading out of NSW and SA operators where an average value of all trades is used adjusted for whether they are high or low security entitlements.

Across all States, and for the additional trade resulting from *both* the entitlement trade increase due to irrigators trading out of NSW and SA operators specifically and the more general entitlement trade increase in NSW, SA and VIC as a result of fewer trade restrictions the increase in the value of agricultural production is estimated at approximately \$25 million in the first two years of the projection period, declining to an annual average of \$2.9 million by 2012/13 and beyond. The initially higher figure is the result of the short term effect of the trade out of the NSW and SA operators. A short term spike in the volume and direct value of trade is also expected because of the sudden removal of restrictions that have been in place for many years; in these circumstances, an immediate and short term effect is expected due to the sudden relief of the barriers that had previously caused a backlog in trade volumes. The increase value of agricultural production reflects an overall transfer of water to higher value irrigation land uses, most notably fruit, grapes, dairy and vegetables, away from lower value irrigated land uses including broadacre cereals, rice and cotton.

It is important to note that the approach adopted here simplifies the direct value of water trade into its potential to enhance the value of agricultural production. There are other values to water trade that are not easily quantifiable for subsequent use in a CGE model. Loss of insurance or option values is the most important example, where the value resides in entitlement owners knowing that they can trade freely (without burdensome costs) if they have to, that they have the option to do so, even if they never actually trade. Options such as this have value in economic terms, though quantification of this sort of value is a complex

task and beyond the scope of this work. Other assumptions necessary to arrive at estimates of the benefits of water market rules in a short space of time include:

- ❑ To the extent that some of the trade may be water being bought for environmental purchases (rather than another agricultural land use), the estimated value is the same; in other words, the water being purchased for environmental flows is assumed to have the same value as the average value of water purchased for a higher value agricultural land use.
- ❑ We have estimated the value of trade in water entitlements as being a function of enhanced agricultural production only, enabled by water being used in land uses yielding higher returns. This is a simplistic assumption that does not consider the role of trade in water allocations (or temporary water), and the possibility that this trade may either reverse the direction of flow from trade in water entitlements or enhance it. Overall, the extent to which water trade can allow for different agricultural production depends upon both the entitlement and the allocation markets.
- ❑ The value of one year's trade is realised in the year of the trade whereas in reality, there can be a lag in the impacts of a water trade event and the full impact on farm profits, particularly in the case of permanent water trades. Of course agricultural markets are not static, and the value of different agricultural commodities into the future may be very different to their values today, and the direction of trade (from one agricultural land use to another) may be very different in the future to what is currently.

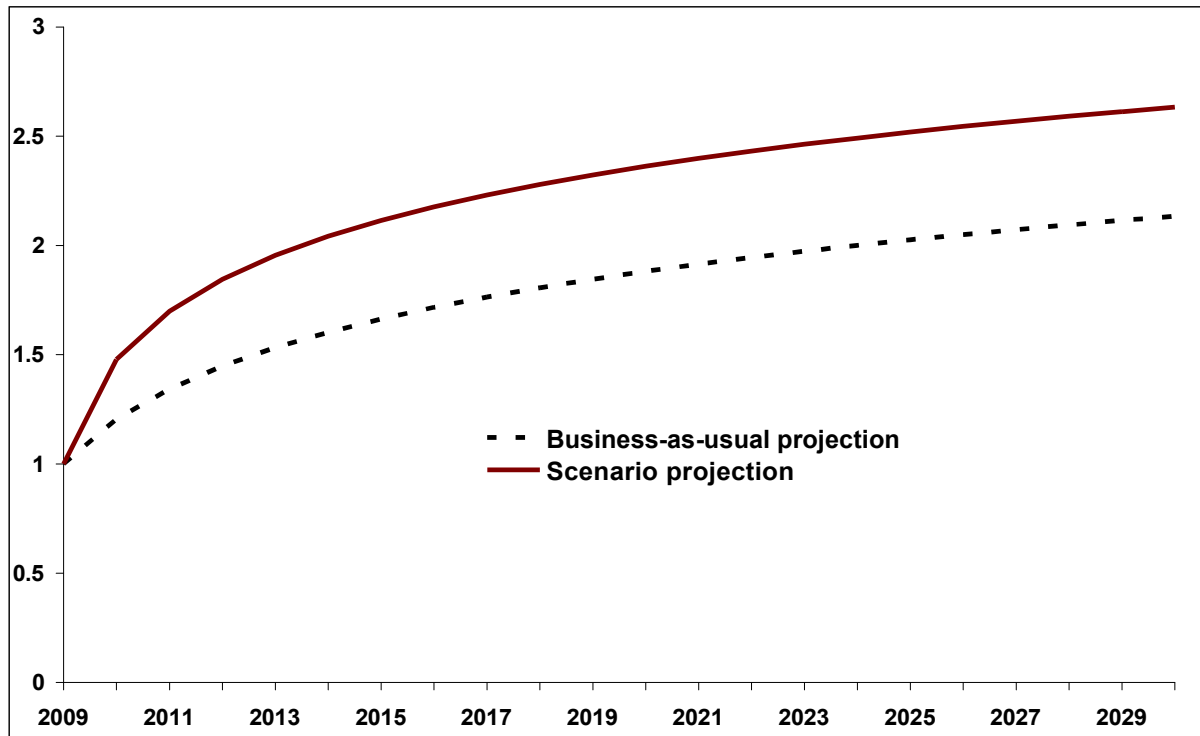
1.4 ECONOMIC IMPACTS OF ADDITIONAL TRADE

GENERAL EQUILIBRIUM MODELLING

The most widely accepted methodology for determining the direct *and* indirect impacts of a project expansion is the use of GE modelling. GE modelling captures the all-important flow-on effects of investments and policies. This includes positive flow-on effects created by the additional investment and production following commencement of a new project, as well as any offsetting impacts through 'crowding out' effects arising from increased competition for resources (which can be particularly important, for example, if the economy is facing skill shortages).

The model is used to project the relationship between variables under different scenarios, or states, over a predefined period. This is illustrated in Figure 1-1. It shows that the reference case or 'business as usual' (BAU) scenario forms the basis of the analysis. In this case, the reference case is the scenario of no changes to the status quo. The model is solved year by year from time 0 which reflects the base year of the model (2001) to a predetermined end year (in this case 2030). The variable represented could be one of the hundreds of thousands represented in the model ranging from macroeconomic indicators such as real GDP to sectoral variables such as the consumption of iron and steel in the construction sector. The percentage changes in the variables have been converted to an index (= 1.0 in 2005) which is projected to increase until 2030.

FIGURE 1-1: ANALYSIS OF A SCENARIO COMPARED TO THE REFERENCE CASE OR 'BUSINESS AS USUAL'



Source: Access Economics

Set against this reference case scenario is a 'scenario projection'. In this example, the scenario represents the impacts of the water market and termination fee rules on trade as previously discussed. The impacts of the policy change are reflected in the differences in the variable at any given point in time. It is important to note that the differences between the reference case and policy intervention scenario are tracked over the entire timeframe of the simulation.

To undertake the analysis for the current modelling task Access Economics has used its in-house model AE-RGEM; details can be found in the appendix to this report. The inputs to the model, defining the scenario being modelled, are the differences in the value of agricultural production discussed previously, themselves a function of the volume of trade stimulated by changes to the water market rules. These direct impacts upon production are then used as inputs into AE-RGEM, to model the flow on impacts and what they mean in terms of economy wide economic impacts. This approach reflects the different cost structures of different types of agricultural production, unlike pure gross margin analysis that can often overstate the direct benefits of trade by virtue of not taking into account the different levels of investment and resources associated with water use in different enterprises.

2. RESULTS

Table 2-1 outlines the results of the water market and termination fee rules, GDP increases during the whole period of the modelling results. In the first year GDP is 0.00280 per cent higher than the reference case (water market and termination fee rules have yet to come into effect); or \$32.8 million. GDP remains higher than the reference case to 2012 where increased activity in the primary agriculture industry temporarily crowds out (see discussion below on crowding out) activity in other parts of the economy and GDP falls below the reference case, before recovering again by the following year.

TABLE 2-1: SUMMARY RESULTS, GDP AND GNP, SELECTED YEARS, DEVIATIONS FROM THE REFERENCE CASE

	2009	2010	2011	2012	2015	2026
Gross Domestic Product	0.0028	0.0021	0.0002	-0.0010	0.0002	0.0002
Household consumption	0.0033	0.0024	0.0002	-0.0013	0.0000	0.0000
Government consumption	0.0019	0.0011	-0.0006	-0.0016	-0.0002	0.0000
Exports	0.0010	0.0023	0.0029	0.0024	0.0006	0.0006
Imports	0.0068	0.0047	0.0005	-0.0024	0.0003	0.0001
Investment	0.0067	0.0042	-0.0008	-0.0036	0.0002	0.0004

Source: Access Economics.

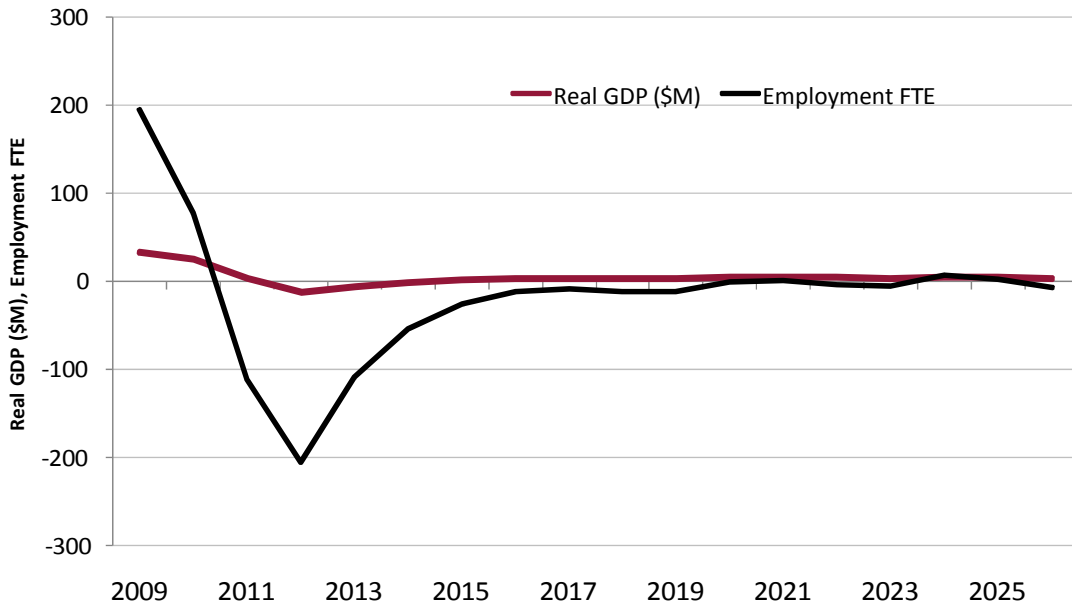
Note: 2009 refers to the 2009/2010 irrigation season/financial year

The crowding out is caused by a period of adjustment where economic activity is diverted from other sectors of the economy to the agricultural sector (see below for more discussion on the industry effects). After this period of adjustment GDP, from 2015, is again higher than the reference case, by an annual average of just over \$3 million beyond 2015/16

Other components of GDP follow this general trend of a period of adjustment in the years 2011/12 to 2015/16 with a reversion to the reference case. It should be noted that household consumption is only slightly higher than the reference case from 2015/16 to 2025/26. Similarly government consumption is slightly above the reference case from 2020/21 to 2025/26. Given the small size of the deviations after 2015 in household and government consumption, these can be interpreted as being no or negligible relative change from the reference case.

Figure 2-1 shows the path of GDP and employment – as measure in full time equivalents (FTEs) – over the modelling period 2009 to 2026. Employment follows the same general path as GDP, with higher levels of employment in the years 2009 to 2011, with a period of adjustment from 2012 to 2015 and a reversion to the reference case.

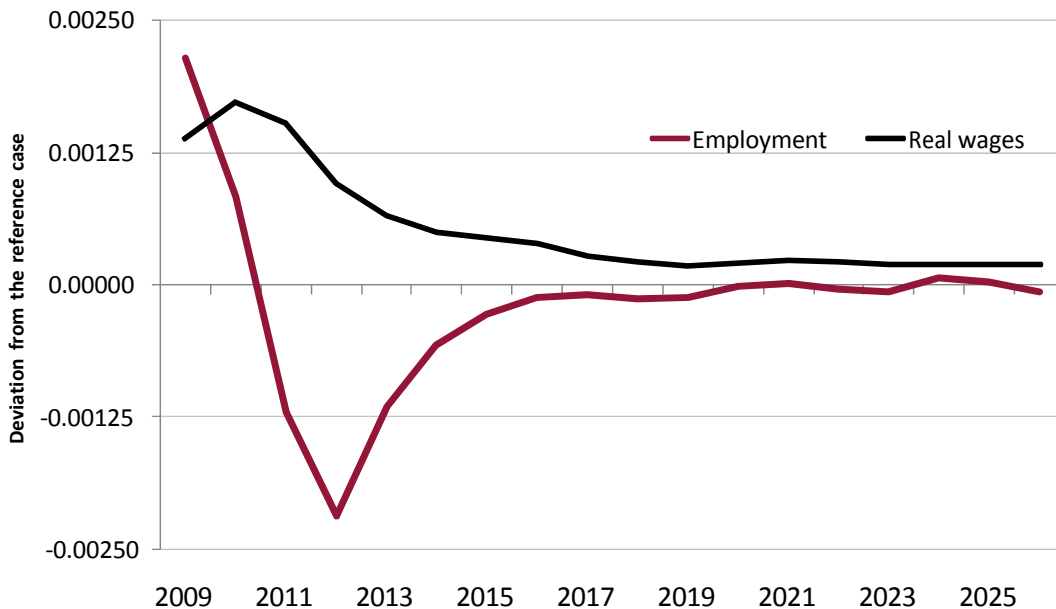
FIGURE 2-1: REAL GDP (\$M) AND EMPLOYMENT (FTE), 2009 – 2026



Source: Access Economics

Unlike GDP employment, after the period of adjustment, stays below the reference case. But the increase in real wages over the modelling period suggests an increase in real wages. This suggests the gains to employment are through higher wages and not through increased FTE employment.

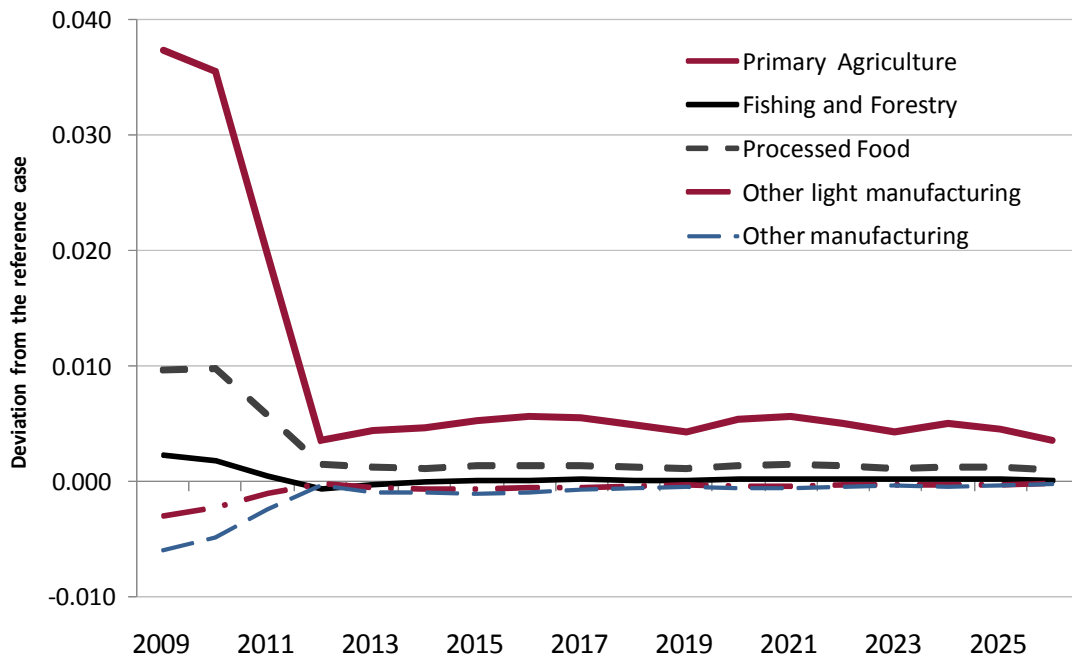
FIGURE 2-2: EMPLOYMENT AND REAL WAGES, DEVIATION FROM THE REFERENCE CASE, PER CENT



Source: Access Economics

As discussed above the policy causes a period of adjustment in economic activity, one representation of this is the change in the sectoral output in the economy. Figure 2-3 represents this change for selected sectors, including agriculture, fishing and forestry and processed foods manufacturing sector.

**FIGURE 2-3: OUTPUT BY SELECTED SECTORS OF THE ECONOMY, 2009 – 2026,
 DEVIATIONS FROM THE REFERENCE CASE**



Source: Access Economics

In the first two years of the policy primary agriculture experiences increased activity of 0.035 per cent above the reference case. The growth in activity in the sector decreases to about 0.005 per cent above the reference case from 2012 to 2026. Similarly the processed foods manufacturing sector also experiences increased activity above the reference case. We would expect this to be the case because there is more food to process; it could also be the case that agricultural inputs are cheaper inducing more activity elsewhere in the economy.

Conversely, other manufacturing sectors – like light and other manufacturing –experience decreases in output in the period 2009 to 2012 with a reversion to the baseline, as represented in Figure 2-3. See Table 2-2, for changes in output by sector for selected years.

**TABLE 2-2: OUTPUT BY SECTOR, SELECTED YEARS,
PER CENT DEVIATION FROM THE REFERENCE CASE**

	2009	2010	2011	2015	2026
Primary Agriculture	0.0374	0.0356	0.0197	0.0053	0.0036
Fishing and Forestry	0.0022	0.0017	0.0004	0.0000	0.0001
Coal	-0.0001	-0.0012	-0.0012	0.0000	0.0000
Oil	-0.0086	-0.0054	-0.0008	-0.0009	-0.0005
Gas	-0.0007	-0.0012	-0.0011	-0.0003	-0.0001
Other minerals	-0.0010	-0.0014	-0.0012	-0.0002	-0.0001
Processed Food	0.0097	0.0098	0.0058	0.0013	0.0010
Other light manufacturing	-0.0030	-0.0022	-0.0010	-0.0006	-0.0002
Petroleum and coal products	0.0014	0.0011	0.0002	0.0000	0.0000
Chemicals rubber and plastics	-0.0049	-0.0032	-0.0006	-0.0006	-0.0001
Non metallic mineral products	0.0004	-0.0005	-0.0016	-0.0005	-0.0002
Iron and Steel	-0.0049	-0.0047	-0.0027	-0.0008	-0.0003
Non Ferrous Metals	-0.0071	-0.0062	-0.0028	-0.0006	-0.0002
Other manufacturing	-0.0059	-0.0049	-0.0024	-0.0010	-0.0002
Electricity	-0.0008	-0.0008	-0.0007	-0.0002	0.0000
Water	0.0025	0.0017	0.0001	0.0000	0.0000
Construction	0.0068	0.0039	-0.0012	-0.0001	-0.0001
Trade	0.0032	0.0021	-0.0002	-0.0001	0.0000
Transport	0.0013	0.0007	-0.0003	0.0000	0.0001
Communications	0.0013	0.0008	-0.0002	-0.0001	0.0000
Financial services nec	0.0025	0.0017	-0.0001	-0.0001	0.0000
Insurance	0.0016	0.0007	-0.0005	-0.0001	0.0000
Business services nec	0.0021	0.0011	-0.0006	-0.0002	0.0000
Recreational and other services	0.0022	0.0014	-0.0003	-0.0001	0.0000
Public admin. and defence, education, health	0.0019	0.0010	-0.0007	-0.0002	-0.0001
Ownership of dwellings	0.0022	0.0018	0.0003	0.0000	0.0000

Source: Access Economics

APPENDIX 1: SOME DETAIL ABOUT AE-RGEM

AE-RGEM is a large scale, dynamic, multi-region, multi-commodity computable general equilibrium model of the world economy. The model allows policy analysis in a single, robust, integrated economic framework. This model projects changes in macroeconomic aggregates such as GDP (or GSP at the state level), employment, export volumes, investment and private consumption. At the sectoral level, detailed results such as output, exports, imports and employment are also produced.

The model is based upon a set of key underlying relationships between the various *components* of the model, each which represent a different group of agents in the economy. These relationships are solved simultaneously, and so there is no logical start or end point for describing how the model actually works. Figure 2-4 shows the key components of the model for an individual region (say, Queensland). The components include a representative household, producers, investors and international (or linkages with the other regions in the model, including other Australian States and foreign regions). Below is a description of each component of the model and key linkages between components. Some additional, somewhat technical, detail is also provided.

AE-RGEM is based on a substantial body of accepted microeconomic theory. Key assumptions underpinning the model are:

- ❑ The model contains a 'regional consumer' that receives all income from factor payments (labour, capital, land and natural resources), taxes and net foreign income from borrowing (lending).
- ❑ Income is allocated across household consumption, government consumption and savings so as to maximise a Cobb-Douglas (C-D) utility function.
- ❑ Household consumption for composite goods is determined by minimising expenditure via a CDE (Constant Differences of Elasticities) expenditure function. For most regions, households can source consumption goods only from domestic and imported sources. In the Australian regions, households can also source goods from interstate. In all cases, the choice of commodities by source is determined by a CRESH (Constant Ratios of Elasticities Substitution, Homothetic) utility function.
- ❑ Government consumption for composite goods, and goods from different sources (domestic, imported and interstate), is determined by maximising utility via a C-D utility function.
- ❑ All savings generated in each region are used to purchase bonds whose price movements reflect movements in the price of creating capital.
- ❑ Producers supply goods by combining aggregate intermediate inputs and primary factors in fixed proportions (the Leontief assumption). Composite intermediate inputs are also combined in fixed proportions, whereas individual primary factors are combined using a CES production function.
- ❑ Producers are cost minimisers, and in doing so choose between domestic, imported and interstate intermediate inputs via a CRESH production function.

- The model contains a more detailed treatment of the electricity sector that is based on the ‘technology bundle’ approach for general equilibrium modelling developed by ABARE (1996).¹
- ❑ The supply of labour is positively influenced by movements in the real wage rate governed by an elasticity of supply.
- ❑ Investment takes place in a global market and allows for different regions to have different rates of return that reflect different risk profiles and policy impediments to investment. A global investor ranks countries as investment destinations based on two factors: global investment and rates of return in a given region compared with global rates of return. Once the aggregate investment has been determined for Australia, aggregate investment in each Australian sub-region is determined by an Australian investor based on: Australian investment and rates of return in a given sub-region compared with the national rate of return.
- ❑ Once aggregate investment is determined in each region, the regional investor constructs capital goods by combining composite investment goods in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these goods via a CRESH production function.
- ❑ Prices are determined via market-clearing conditions that require sectoral output (supply) to equal the amount sold (demand) to final users (households and government), intermediate users (firms and investors), foreigners (international exports), and other Australian regions (interstate exports).
- ❑ For internationally-traded goods (imports and exports), the Armington assumption is applied whereby the same goods produced in different countries are treated as imperfect substitutes. But in relative terms imported goods from different regions are treated as closer substitutes than domestically-produced goods and imported composites. Goods traded interstate within the Australian regions are assumed to be closer substitutes again.
- ❑ The model accounts for greenhouse gas emissions from fossil fuel combustion. Taxes can be applied to emissions, which are converted to good-specific sales taxes that impact on demand. Emission quotas can be set by region and these can be traded, at a value equal to the carbon tax avoided, where a region’s emissions fall below or exceed their quota.

THE REPRESENTATIVE HOUSEHOLD

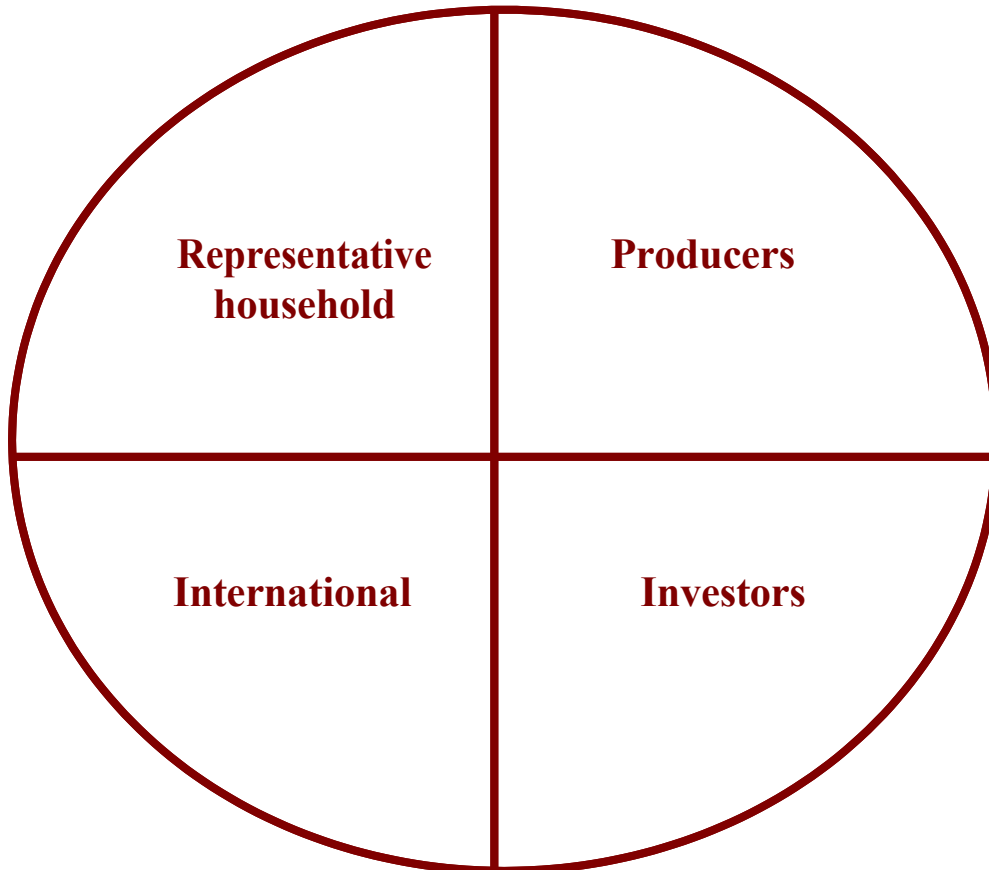
Each region in the model has a so-called *representative household* that receives and spends all income. The *representative household* allocates income across three different *expenditure* areas: private household consumption; government consumption; and savings.

Going clockwise around Figure 2-4, the representative household interacts with producers in two ways. First, in allocating expenditure across household and government consumption, this sustains demand for production. Second, the representative household owns and receives all income from factor payments (labour, capital, land and natural resources) as well as net taxes. Factors of production are used by producers as *inputs into production* along

¹ Australian Bureau of Agricultural and Resource Economics (ABARE), 1996, *MEGABARE: Interim Documentation*, Canberra.

with intermediate inputs. The level of production, as well as supply of factors, determines the amount of income generated in each region.

FIGURE 2-4: KEY COMPONENTS OF AE-RGEM



The *representative household's* relationship with investors is through the supply of investable funds – savings. The relationship between the *representative household* and the international sector is twofold. First, importers compete with domestic producers in consumption markets. Second, other regions in the model can lend (borrow) money from each other.

Some detail

- ❑ The representative household allocates income across three different expenditure areas – private household consumption; government consumption; and savings – to maximise a Cobb-Douglas utility function.
- ❑ Private household consumption on composite goods is determined by minimising a CDE (Constant Differences of Elasticities) expenditure function. Private household consumption on composite goods from different sources is determined by a CRESH (Constant Ratios of Elasticities Substitution, Homothetic) utility function.
- ❑ Government consumption on composite goods, and composite goods from different sources, is determined by maximising a Cobb-Douglas utility function.

- ❑ All savings generated in each region is used to purchase bonds whose price movements reflect movements in the price of generating capital.

PRODUCERS

Apart from selling goods and services to households and government, producers sell products to each other (intermediate usage) and to investors. Intermediate usage is where one producer supplies inputs to another's production. For example, coal producers supply inputs to the electricity sector.

Capital is an input into production. Investors react to the conditions facing producers in a region to determine the amount of investment. Generally, increases in production are accompanied by increased investment. In addition, the production of machinery, construction of buildings and the like that forms the basis of a region's capital stock, is undertaken by producers. In other words, investment demand adds to household and government expenditure from the representative household, to determine the demand for goods and services in a region.

Producers interact with international markets in two main ways. First they compete with producers in overseas regions for export markets, as well as in their own region. Second, they use inputs from overseas in their production.

Some detail on production

- ❑ Sectoral output equals the amount demanded by consumers (households and government) and intermediate users (firms and investors) as well as exports.
- ❑ Intermediate inputs are assumed to be combined in fixed proportions at the composite level. As mentioned above, the exception to this is the electricity sector that is able to substitute different technologies (brown coal, black coal, oil, gas, hydropower and other renewables) using the 'technology bundle' approach developed by ABARE (1996).
- ❑ To minimise costs, producers substitute between domestic and imported intermediate inputs is governed by the Armington assumption as well as between primary factors of production (through a CES aggregator). Substitution between skilled and unskilled labour is also allowed (again via a CES function).
- ❑ The supply of labour is positively influenced by movements in the wage rate governed by an elasticity of supply. This implies that changes influencing the demand for labour, positively or negatively, will impact both the level of employment and the wage rate. This is a typical labour market specification for a dynamic model such as AE-RGEM. There are other labour market 'settings' that can be used. First, the labour market could take on long-run characteristics with aggregate employment being fixed and any changes to labour demand changes being absorbed through movements in the wage rate. Second, the labour market could take on short-run characteristics with fixed wages and flexible employment levels.

INVESTORS

Investment takes place in a global market and allows for different regions to have different rates of return that reflect different risk profiles and policy impediments to investment. The global investor ranks countries as investment destination based on two factors: current economic growth and rates of return in a given region compared with global rates of return.

Some detail

- Once aggregate investment is determined in each region, the regional investor is constructs capital goods by combining composite investment goods in fixed proportions, and minimises costs by choosing between domestic, imported and interstate sources for these goods via a CRESH production function.

INTERNATIONAL

Each of the components outlined above operate, simultaneously, in each region of the model. That is, for any simulation the model forecasts changes to trade and investment flows within, and between, regions subject to optimising behaviour by producers, consumers and investors. Of course, this implies some global conditions must be met such as global exports and global imports are the same and that global debt repayments equals global debt receipts each year.