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Liquid markets

PROSPECTS FOR INTRODUCING WATER TRADING

The UK Department for Environment, Food and Rural Affairs (DEFRA) recently released its response to the independent Cave review of competition and innovation in the water industry[1]. DEFRA identifies climate change, population growth and tougher environmental standards as long-term challenges facing the water and sewerage sectors. In this bulletin, we consider whether water trading and associated reforms to the water abstraction licensing regime would provide mechanisms for addressing these challenges, drawing on recent experiences from Australia.

Climate change is likely to have a material impact on the UK's water resources. This is particularly true in the south-east of England, where water resources are already considered scarce. Climate change scenarios suggest that winters will become wetter and summers significantly drier. This summer decline lands a "double whammy" on water availability, with reduced rainfall decreasing supply and increasing demand simultaneously. While water can be stored to address this problem, the amount that can be carried over between seasons is limited by the

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size of existing water reservoirs. At the same time, extreme events in winter will increase the risk of flooding as wastewater networks struggle to cope.

These changes mean that the sector's existing infrastructure is unlikely to be fit for purpose. Responding to climate change will require increased investment and innovation in water abstraction, treatment and wastewater disposal.

There are three broad options for preventing over-exploitation of common water resources: central planning; taxing water use (to reduce demand); and "cap and trade" (that is, capping supply and enabling it to be traded between interested parties). Central planning is at the core of the UK's current arrangements. The Environment Agency (EA) issues water companies, primary producers and other users with licences that specify the volume of water that can be abstracted and the conditions on its use.

But trading of these licences is complex and so there has been limited competition to date. Greater use of market solutions has been put forward as a way of accelerating the required investment and also as a way of ensuring the best use of scarce environmental resources. As part of a suite of recommendations, the Cave review considered reforms to the water abstraction licence and discharge consent regimes, designed to facilitate greater trading of environmental permits. Subsequently DEFRA, the EA and the water industry's economic regulator, Ofwat, have all made encouraging noises about the promotion of competition. Experience from other countries suggests that trading can work.

FOLLOW THE LEADER

Water scarcity has been a critical issue in Australia for many years. In the mid-1990s, Australian governments recognised that overuse was causing significant environmental damage to waterways. Water trading was introduced as a way of achieving specific environmental outcomes. The quantity of water for abstraction was fixed, and licence holders allowed to trade licences (in much the same way as carbon credits can be traded in the EU emissions trading scheme). This enabled prices for the available supply to adjust through the market.

Trading was seen as a way of ensuring water resources were put to their best use. It was also considered to be a highly adaptable mechanism: changes in future water availability could easily be managed by reducing the cap. The uncertainty surrounding the impact of climate change makes flexibility important.

Following the capping of licences, a lengthy drought, and reforms to the licence regime that made the abstraction rights more secure and explicit, water trading grew rapidly. Almost two decades on, the market has a value of over 1.68 billion Australian dollars, and in 2007-08 approximately 20% of total water use in Australia's major basin was traded[2]. A report by our independent sister company, Frontier Economics Australia, has indicated that Australian water trading arrangements have improved water use efficiency; allowed agricultural producers to improve their management of the risks associated with highly variable supply; facilitated the restructuring of the irrigation industry; and enabled new developments to augment supply[3]. Most importantly, these arrangements reduced the economic impact of the recent drought, the worst in Australia's history.

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MAKING MARKETS

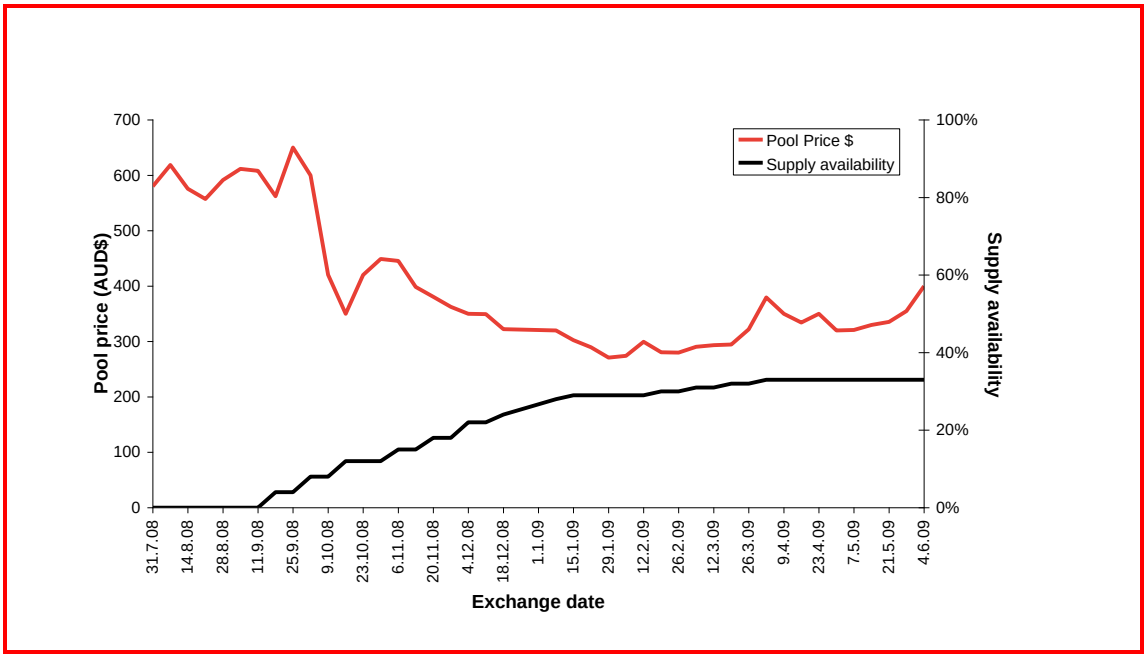
In the light of Australian experience, the Cave review's recommendation that water abstraction licences in the UK should be made fully tradable is welcome. However, the review also suggested that the EA should, in certain circumstances, consider reallocating licences, and that further thought should be given to time-limiting licences. These recommendations work against the creation of clearly-defined, secure water property rights — a necessary precursor to developing an efficient trading regime.

In any market, participants need to be certain of exactly what it is that they are trading. Time-limiting licences, or enabling their reallocation at the discretion of a government agency, is likely to discourage market participation. Well-defined property rights were a precondition to water trading developments in Australia.

Australian abstraction licences are "unbundled" into three separate rights:

- an entitlement, which is a perpetual share of a water resource;
- an allocation, which is a specific volume of water for use in any one year (based on the size the entitlement held and a determination of the water available from the relevant resource); and
- a use licence, which sets out specific conditions relating the use of water.

Businesses or individuals holding these rights may also need to set up a water supply contract in order to get their rights delivered.



Water allocation market pool price and supply availability in Greater Goulburn Zone, Australia

Source: www.watermove.com.au

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Both the entitlement and allocation are tradeable and, since all conditions relating to use and abstraction are contained in a separate licence, trades are only subject to minimal approval processes. These streamlined approvals have spurred on development of the now commonplace online water exchanges. The chart on the previous page shows allocation price movements on one Australian online exchange. As might be expected, the price declines in response to increasing supply availability (shown as a percentage of total potential yearly supply).

These arrangements differ from those in the UK, where the abstraction licences contain conditions relating to both volumes and use. This means the licence itself has to be reassessed and reissued at the point of trade, making trading complex. Such complexity acts as a barrier to the development of water markets.

Furthermore, well-defined water rights (and the means to trade these rights) facilitate investment by increasing certainty. Investment in alternative supply sources is encouraged when suppliers can easily compare and value the price of their product. Analysis by Frontier Economics Australia highlighted that reform to water abstraction rights had provided certainty and security of access (including for third parties); factors that are crucial in ensuring there are no barriers to investment in new and alternative sources of urban water supply[4].

CONCLUSION

The Australian experience shows the importance of secure property rights to the efficient allocation of scarce resources, and of competition for water resources to the drive for innovation and investment. A clearer definition of property rights will therefore be required to support the development of efficient water markets in the UK. Wider reforms might also be needed; while the Australian water markets are generally competitive, in the UK the regional monopoly water companies may have a large share of local water markets.

DEFRA is currently consulting on potential reforms to water abstraction licences and the EA is also currently considering future changes to the water licensing and trading regime. Moves by policy-makers to reappraise water property rights are welcomed as the sector prepares to meet its future challenges.

Frontier is an advisor to the Australian Government, the National Water Commission (responsible for championing national water reform) and water sector and market regulators.

NOTES

1 *DEFRA (2009), "Consultation on the Cave Review of competition and innovation in water markets", September 2009.*

2 *National Water Commission (2008), "Australian Water Markets Report 2008-2009".*

3 *Frontier Economics et al (2007), "The economic and social impact of water trading" Report for the RIRDC, National Water Commission and Murray–Darling Basin Commission.*

4 *Frontier Economics (2008), "Review of urban water entitlements in Australia: a report prepared for the Joint Steering Committee for Water Sensitive Cities (JSCWSC)".*

CONTACT	**Rob Francis** rob.francis@frontier-economics.com
	Anna Wilson anna.wilson@frontier-economics.com
	Frontier Economics Ltd
	FRONTIER ECONOMICS EUROPE BRUSSELS | COLOGNE | LONDON | MADRID
	www.frontier-economics.com