Droplet No. 21 **21st May 2017**
Droplets explore ideas and propositions that, if developed further, can be expected to improve resource use and community prosperity. They search for fundamental concepts and building blocks that one might consider if not constrained by prior decisions. Mike Young

Climate Sharing: A powerful option

"…if you had $2bn, would you invest it in Australia's east coast electricity generation market? … Could you convince your financiers, shareholders and customers that it's a good long-term investment?" Jennifer Westacott (The Australian, 10 April 2017).

Arguably, Australia leads the world in water and fisheries management. This success has, to a considerable extent, flowed from the robustness of the sharing systems used and the depth of the bi-partisan support for this approach. When it comes to power generation, we don't have the same world-leading status. As many have observed, the lack of a clear bi-partisan climate policy is hindering progress – so much so that our newspapers are now writing about eastern Australia's "power crisis." This droplet sets out a framework for the adaptation of Australia's water and fishery sharing experience to climate policy.

Would a climate sharing system help to bring an end to investment uncertainty in the power sector? What would a robust climate sharing system look like?

Sharing frameworks

The first step in setting up a climate sharing system would be to prepare a bill that, when passed by the House of Representatives and Senate, would commit the nation to the use of a climate sharing system as the prime means of ensuring that we remain within nationally and internationally agreed greenhouse gas emission limits.

Assuming that there is likely to be a need to limit greenhouse gas emissions forever, climate shares would be issued in perpetuity.

Generally, a Board of people knowledgeable about different aspects of the system would be appointed to prepare and periodically revise the plan used to determine how many allocations per share should be made in each year. The plan would include a clear schedule for the reduction of emissions through to 2030 and rules for dealing with future commitments. For the foreseeable future, the annual number of allocations per share would be reduced.

At the start of each year, allocations would be distributed in proportion to the number of shares on issue – just as we do for many of our fish and water resources. Every shareholder and every significant emitter would be given a bank-like "carbon" account that records how many allocations have been used and keeps track of how many of their allocations remain unused.

Sharing systems, like these, bring certainty and confidence to industry. They expedite change and encourage innovation. There is a simple rule. If someone wants a larger share, they have to find someone who is prepared to accept a smaller share. Value is created by recording shares in a Torrens-Title like register and making it possible to mortgage these shares at low cost. Industry works out how much a share and an allocation is worth.

Implementation

In the case of water and as with many transformational changes, initially implementation was viewed with caution. The visionaries associated with these reforms, however, including several current members of parliament, can take credit for the effectiveness of the sharing systems now in place. These systems are not yet perfect but, on a global scale, their framework is considered to be world leading.

If Australia set up a climate sharing system, within a short period of time, two markets would soon emerge – one for shares that reflects the industry's collective assessment of the long-term cost of meeting the agreed target and one for allocations that reflects the short-run marginal cost of compliance with the current limit.

Shareholders would discover they could pay for emission reductions by mortgaging their shares and, once they have reduced emissions, sell off surplus shares. In the water sector, these features have made us one of the world's best water managers.

When water shares were introduced in the Southern Connected River Murray system, the annual return on investment for the first decade was always more than 15% pa. Before anyone in industry says "no" to climate sharing, those involved in emitting greenhouse gases need to consider whether or not they would like to own an asset whose value might increase at a rate like this. In business, opportunities to secure such investments are few.

Imagine what would happen if each power company was given a similar opportunity. Investment partnerships among greenhouse gas emitting businesses, the renewable energy sector and the power storage sector would emerge. The need for government involvement and expenditure in this sector would be much less. Note that if the national limit on emissions is reduced at a rate greater than the rate of innovation adjusted for changes in demand reduction and investment in low-carbon technologies, then the value of shares goes up.

Enforcement

The trick here is to build trust in and respect for the integrity of the system. The system has to be bankable!

As is currently the case for water, the Authority responsible for managing this system would require every significant emitter to have a carbon account. Pragmatically, every emitter would be required to keep their account in the black. No borrowing against future allocations would be allowed. Pragmatically and because accidents can happen, an emitter would be given 30 days to bring their account back into balance or pay a penalty equal to three times the cost of bringing an account back into balance.

Share allocation

One of the most difficult issues to resolve is the question of how many shares to issue and who to issue them to. Australia is fortunate, we already have a robust carbon accounting system. Last year, Australia's greenhouse gas emissions amounted to a bit under 540 million tonnes of CO_2-e. One third of these emissions came from electricity generation (see Fig.1). By way of example, let's decide to set the total number of shares at one share per tonne of current emissions.

Around one third of these shares could then be allocated to power stations in proportion to, say, their last three years of greenhouse gas emissions. Other formulas are possible.

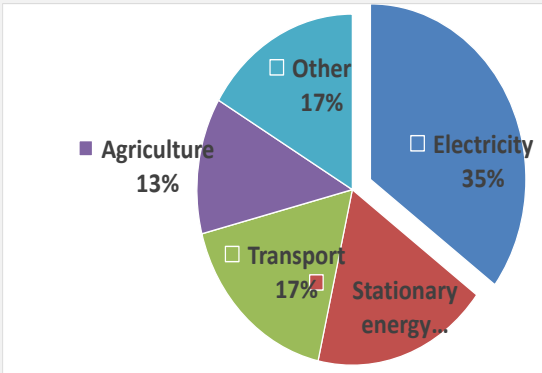

Fig 1 Aust. greenhouse gas emissions by sector, 2016

A community return

Many people object to grandfathering polluters into a regime like this. Somehow, it seems wrong to reward those that created the problem – even though they acted in good faith. The good news is that there is a solution to this problem. The solution is to include a "return to the community" in the sharing regime.

"Community return" arrangements work by requiring the annual sale of a proportion of every shareholding. One can argue over the percentage but, for the time being, think of a community return of around 1%, 2% or 3%.

To ensure Community, State and Federal Government support, one third of the revenue from this community return could be returned to Local Governments, one third to State Governments and one third to the Federal Government. Each of these Governments would then have an ongoing interest in ensuring that the system works well and is trusted. Pragmatically, distribution among States and local communities could be in proportion to population. Fairness could be enhanced by distributing a larger proportion of the return to coal-mining and gas-producing districts.

The value of a community return, by the way, is equivalent to giving a large proportion of the shares to the community – as has been proposed by others. The initial allocation of shares to emitters, however, rewards those who move quickly to lower emissions. As a result, the impact of a climate sharing system on electricity prices is less than all other systems that have been proposed. Remember, shares are mortgagable at low cost.

Expanding to include other sectors

In practice, it is simpler to begin with one sector and expand the system to include other sectors at a later stage. To facilitate this, the legislation would lock in the total number of shares to be issued and arrange for them to be held by the Federal Government until expansion becomes possible. Arguably, it is easiest to start with the electricity sector. Extension to include the stationary energy sector could follow quickly or even be done at the same time. Rather than issuing the shares to every car and truck owner, however, it would be simpler to allocate shares to the companies who supply fuel in proportion to the volume of their sales over, say, the last three years.

Inclusion of agriculture in the proposed system is possible but, among other things, would require State Government control of land clearing. Expansion to include fugitive emissions is possible but, as with agriculture, may be best left to regulation.

Innovation and investment

Unlike conventional emissions trading schemes, offset schemes, renewable energy targets, carbon taxes, etc., a climate sharing system would encourage continuous industry re-assessment of the long-run cost of reducing greenhouse gas emissions across all industries. Double market and bankable asset dimensions increase efficiency and stimulate investment. Imagine a board room discussion about what to do about the community return – should the Board let 1% of its shares go or pay the market price and buy them back?

Where to from here?

This droplet suggests that Australia's Federal Government could decide to establish a climate sharing system in partnership with State and Local Governments. Sharing systems, especially when combined with a community return, bring together the best features of robust cap and trade and carbon tax regimes:

1. Long-term and short-term price signals are sent separately.
2. Grandfathering protects the interests of existing users and local communities.
3. Permit trading encourages efficient use of the resource.
4. Sharing and the necessary commitment to a perpetual limit on emissions coupled with options to bank, trade and mortgage catalyses the investment needed to drive innovation and fund investment.
5. The community return produces the revenue needed to off-set local impacts.
6. The statutory nature of the plan and status of the perpetual shares issued increases confidence by locking in the nation's emission reduction pathway.

Conceptually, the introduction of climate sharing could bring similar wins for business, the finance sector, communities and for the environment. As we have found with water and fisheries, bi-partisan commitment to a climate sharing scheme would do much to bring confidence back to the energy sector.

As confidence grows, the case for government subsidies, renewable energy targets, emissions intensity schemes, etc. would reduce. If Australia adopted a climate sharing system, it would soon become a world leader in the supply of low-carbon technology across all sectors.

If there is interest, especially if there is sufficient interest from business to secure bi-partisan support, then the next step is to work on the legislative detail necessary to allow implementation.

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For information on sharing regimes see Young (2014). On rates of return in the water sector, see Bjornlund et al. (2013). On the design of transformational natural resource and environmental policies, see Young and Esau (2016).

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