Succeeding in Asia's energy transition

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As the global climate change summit – COP-26 in Glasgow – draws nearer, a familiar tension is playing out in the media. Energy prices are rising, causing concern about their potential impacts upon vulnerable households and business competitiveness.

The finger of blame is pointed in many directions: trade and geopolitical tensions, the economic re-emergence from COVID-19, the practicalities of energy storage levels, and the onset of tougher climate change policies. This last point caused The Economist (25 September, 2021) to state that "the energy transition must be better managed or environmentalism will become unpopular".

This concern was tackled head-on during the subsequent "Future of Energy Week" discussions (5-7 October) and the Asia Pacific, with its growing and increasingly prosperous populations, was the right place to focus those discussions.

Three key themes stand out. First, the transition needs to be better understood as a sequence of changes rather than a single destination. Second, as many options as possible must be made available to achieve it, recognising that most include trade-offs and few will be considered perfect by everyone. And third, communities need to see more tangible evidence that the transition is viable and compatible with their economic and social expectations.

To better understand the sequential nature of the transition, the concept of "net-zero" needs to be allied with the concept of the "carbon budget". Net zero describes the milestone at which humans stop adding to atmospheric greenhouse gas concentrations. The carbon budget describes how much we emit – and therefore what temperature change arises – in the meantime before we reach net zero.

To limit temperature rise to "well below two degrees" as the Paris Agreement stipulates, we need to conserve the limited remaining carbon budget this target implies. That means acting now to limit interim emissions with the technology available today, not just waiting for the development of the solutions we may need in the future.

As a practical example, motorists who cannot (today) afford a zero-emission battery electric vehicle can still opt for an efficient small engine conventional car over a less efficient heavy one, and in so doing make a contribution to conserving the carbon budget.

A further example affects my own sector, natural gas. Natural gas has three significant roles in the transition: First, it can "firm up" the intermittent supply of power from renewables so they can be used more broadly and reliably. Second, it can substitute directly for coal in power generation, reducing emissions by around a half. And third, it is used in many non-power and hard-to-abate applications (including as a chemical feedstock).

Critics might like to debate whether such uses are likely to be widespread in a net-zero world in 2050, at least without carbon capture and storage. But it would be foolish to forgo the savings that they offer the carbon budget right now and in the decades immediately ahead of us.

This also speaks to the second theme, the need for multiple solutions to be deployed. Carbon pricing is covering more of the economy, but most schemes are incomplete and disconnected.

Progress on developing Article 6 of the Paris Agreement, which would allow international trade in mitigation outcomes and be a step towards an integrated approach, has been painfully slow.

In the absence of an economy-wide carbon price to guide the allocation of resources, policymakers have to make conscious choices instead. The perils of picking winners are well known, but in this context picking losers presents a more immediate threat to the transition. The challenge of the energy transition is hard and uncertain enough, without limiting technology options based on whatever assumptions policymakers make today. Policy measures must be geared towards supporting the broadest range of emissions reduction technologies available.

This leads to the third theme – the need to drive the consumer demand for successful new products that a successful transition needs. This evidence is not entirely absent – Australian homeowners have taken to installing Solar Photovoltaic panels with great enthusiasm, for example – but is insufficiently widespread.

Some technologies – such as hydrogen, and carbon capture with utilisation (CCU) or storage (CCS) – feature heavily in major net-zero aligned climate scenarios. Yet, with some notable CCS exceptions, there is a lack of commercial scale assets that the community can see and have confidence in.

Partly, governments can help address this by aggregating the ample funding that they issue for low emission technologies, so that it supports a few projects at commercial scale rather than lots of projects at research and development scale.

But industry also has a role to play, right across the value chain.

Companies like Woodside have plans to develop green hydrogen export facilities, but need the confidence from customers that there is a long term market to underpin the investment. Conversely potential buyers will be unwilling to convert their own equipment until they are confident in a secure supply.

Building partnerships across the value chain so that producers, users and infrastructure providers collaborate and understand each other’s needs will de-risk investments and does not rely on government fiscal support.

That is why Woodside is participating in the Hynet and HyStation consortia in South Korea to develop light vehicle and public bus fleet refuelling infrastructure respectively, and in a feasibility study on establishing an ammonia supply chain from Australia to Japan.

No one can predict the precise course of the energy transition, and there is much uncertainty ahead. But we can be sure of greater success if we tackle it sequentially, using all the options at our disposal, while working together to accelerate new investment.