How to achieve the climate target

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The Hon Matt Kean

Chair - Climate Change Authority

Opinion article

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Picture 2035, a decade hence, and our nation of 31 million Australians is taking pride in the progress we've made to tackle climate change.

Our homes and offices have become hyper-efficient and cozy, with many generating and storing the energy they need. Sleek electric vehicles occupy our garages, charging wirelessly before humming us to our destinations in near sweet silence.

Outside the cities, our regions thrum thanks to abundant renewable resources, from the sunshine and wind to the soils, fueling and feeding populations near and far. Nature is on the rebound too, with native forests no longer logged at a loss, their carbon sinks intact.

Ships queue up outside ports, waiting to be loaded up with lucrative metals instead of the raw rocks of various hues that depart our shores now. Our resource export revenues from critical minerals, including rare earths, now rival the returns from fossil fuel shipments.

Australia's economic diversification didn't just happen. We identified the hubs where coal-fired power plants were edging, sometimes fitfully, to the end of their operational lives. And the fossil fuel exporting sites that we knew had their own use-by dates.

Coordinated policies at all levels of government aided workers to retool and companies to pivot. They were now catching the shifting tides of technology and commerce that will carry us towards a clean energy and green manufacturing future.

Of course, the transformation hadn't been solely for economic reasons.

Communities and companies had heeded the ill-tidings of climate change. "Business as usual" didn't work when "climate like usual" was relegated to our history books.

As it happens, we're in the process of writing some of that history right now.

As you'll have read elsewhere in this edition, the Government began the week with the release of Australia's first National Climate Risk Assessment and a companion National Adaptation Plan – both compelling and sobering reading.

By week's end, Prime Minister Anthony Albanese announced that the Government had accepted the emissions target advice from the Climate Change Authority that I chair. That advice recommended Australia reduce its 2005-level emissions by 62%-70% by 2035.

The range we recommended was achievable, in the national interest, aligned with the science, and among the most ambitious globally, particularly on a per-capita basis.

Targets, of course, are important for setting a course. Whether we achieve them or not will depend on the policies the Government implements and those that it helps coordinate with the states and territories. Local and international investors will act on those cues.

Whether Australia realises the promise and potential I outlined at the start of this article hinges heavily on how determined we are to stay the course - and insist our politicians do likewise.

Certainly, the technologies required to achieve our target are already here or on the way.

In energy, global research and development is overwhelmingly directed at devices like EVs or solar PV, rather than finding new ways to extract coal or methane gas.

The International Energy Agency, not known for making outlandish claims about clean tech, forecast global renewable energy rollouts during the six years to 2030 to be 2.6 times more than in the previous six years. Almost 80% of that growth will be solar PV in plants and on rooftops, with capacity more than tripling.

The IEA recently noted that almost 90% of upstream oil and gas investment since 1990 has been to offset production declines as fields deplete. Hardly helpful when it comes to fueling growing economies.

Famously, the rooftops of more than a third of Australian homes are adorned with solar PV. When the industry started taking off about 15 years ago, the average system was about 2kW in size. This year, average units will be nudging 10kW.

The exciting new kid on almost every block, though, is storage.

The Government's small-scale battery program has rocketed at a rate that would have surprised even the most bullish forecasters. Last year's total addition of 75,000 household batteries will be exceeded this quarter alone.

Tellingly, those households haven't merely pocketed the subsidy but rather have used it to install bigger batteries. Industry analysts, Green Energy Markets, say historical averages of 10-14kW-hour per unit are heading north of 20kWh instead during this demand spike.

GEM wasn't expecting the present rate of battery installations until 2035. The daily addition of almost 15 megawatt-hours far exceeds the 11.8MWh pace they'd penciled in for a decade's time.

The Government will turn off the subsidy tap eventually (although there is not yet a public cap). History tells us, though, that costs have fallen steadily with each doubling of solar PV – and now battery – production, and we can expect more to come.

These remarkable advances have helped inform key elements of our emissions advice. Saul Griffith, the Wollongong-based whiz behind the "electrify everything" mantra, is right.

Whether we achieve the 2030 target of cutting 2005-level emissions by 2030 - and our new 2035 target – will likely be determined by how fast we can decarbonise electricity generation.

Over the coming decade and beyond, electricity won't only need to serve existing customers. Rather, we will be adding load as we replace our gas appliances with more efficient electric equivalents, our industry upgrades to minimise gas usage, and EVs become the vehicle of choice for the majority of new car buyers.

Industry, transport and agriculture will all have to contribute more emissions reductions.

The leap in solar and batteries will help spread that extra load during periods of peak demand. The storage will also curb exports of excessive solar power to the grid from household. In turn, the "spills" from solar and wind farms when they generate more than the grid needs will be less common, improving their finances.

The distribution of supply would help take some of the strain off the rollout requirements for new large-scale renewables and extra transmission lines to link them.

For those querying the ambition of the 2035 targets should consider we have energised just 1000 kilometers or so of new transmission since 2022. We will require five times that length under the Australian Energy Market Operator's "most-likely" Step Change scenario by 2035. And that's just for the main east Australian grid, the National Electricity Market.

That same projection, which informs the Authority's targets advice, also requires a quadrupling of wind capacity to 56GW, a tripling of solar farm capacity to 26GW and a doubling of small-scale solar to 48GW.

The six-fold expansion of utility storage to 22GW in the NEM over the next decade is the largest increase in absolute terms but may be the easiest to achieve given price trends, relative ease of approval and quick construction times.

Importantly, the Australian Energy Market Commission forecasts average household energy costs will fall by about 20% or $1000 a year over the next decade under a coordinated renewables rollout. Fully electric households deploying solar and storage could slash costs by as much as 70%.

Energy efficiency, though, should not be left out of any calculus. Australians haven't excelled in this space – despite the prominence of energy debates and stellar returns on investment. (The Energy Efficiency Council has lately argued a fifth of our emissions reductions to 2035 could be sourced from cutting energy wastage.)

If energy supplies will increasingly be weather-dependent, we can't finish up without noting that a warming world will have its say on demand too. Unseasonably warm summers in parts of the northern hemisphere have recently sent power demand soaring along with the mercury, a glimpse of a trend that is not going to be a friend.

Some sections of the media have sought to downplay the National Climate Risk Assessment and National Adaptation Plan as "exaggerated" or even "Doomsday". That approach is unwise, and it would be a pity if it deterred public debate over findings like these:

- Increasing humidity across Northen Australia will make life even harder, particularly for remote First Nations communities.
- Insurance costs will soar yet higher as weather becomes wilder, straining the ability for many to secure loans for mortgages or businesses.
- Risks to ecosystems are already rated as "very high" (think, algal blooms). By 2050, at about 2 degrees of warming, 40%-70% of our native plant species will be trying to survive in changed climatic conditions beyond their original range.
- Water security, already deemed at "high" risk will be further undermined by decreased water flow, reduced groundwater recharge and water quality issues.

And, by way, the assessment report devotes its final chapter to governance risks. Maintaining social cohesion and coping with "resource shortfall" are just two of the challenges that will test the talents of those hired or elected to serve the public.

In summary, then, when it comes to climate action, we must be bold, be hopeful, and be demanding. That way, the future can be more glowing and less grim.

I know how I want history to record this moment - and what we achieved next.