level, in private industry, in Australian households, and in the financial sector, to electrify (almost) everything and achieve zero emissions. On top of the facts and data, Griffith appeals to the Australian culture of solidarity and mateship to co-operate in a wartime-style effort to end our reliance on fossil fuels.

This book is an essential roadmap to Australia's electric future. It should be read by every politician, policymaker, and climate-conscious citizen. Griffith notes that by going hard and fast on cutting emissions, Australia has everything to win, while if we don't, we have everything to lose.

Kate McCallum is an environmental lawyer with a special interest in natural resources and energy law.

THE AUTOMATED STATE: Implications, challenges and opportunities for public law Janina Boughey and Katie Miller (eds); Federation Press, 2021; 296 pages; $120 (paperback)

We live in a time that has been variously described as 'a brave new world' or 'the fourth industrial revolution', in response to the profound and systemic transformation of society effected by digital technologies and manifested through automation (that is, simply put, the use of an algorithm by a computer to make a decision without – or with reduced – human input). Yet while the term 'revolution' denotes abrupt and radical change, when we come to consider the role of automation in governance and bureaucracy, we find that it is not new or sudden but rather incremental, increasing, burgeoning over time. Therein lies the risk (to which the Honourable Justice Duncan Kerr posits that we have already succumbed) that we may come to accept such change gradually and without great reflection.

This collection of deeply thoughtful essays is the antidote to this quandary.

Justice Melissa Perry's essay, in Chapter 1, provides a useful glimpse into the implications of automation for migration law, in particular the ambiguity of the authority to use such systems and the extent to which the algorithms used in automated systems are susceptible to bias.

In Chapter 2, Matthew Groves considers what these changes might mean for the rules of fairness, which have been calibrated to the expansion of government services, including the subtle right of being listened to and the ability to participate fully in the process of review. Ultimately, Groves questions whether the courts are better placed than parliament to reform automated processes by adjusting existing legal principles to eventually yield wider principles and recognise a larger class of rights.

Nevertheless, Darren O'Donovan identifies gaps in the current federal regulatory framework with respect to freedom of information exceptions in Chapter 3, and then illustrates that the courts have shown a strong predisposition towards using these exceptions against disclosure of algorithms used in automated processes. Indeed, the very meaning of disclosure in the context of automated processes is fraught with technical challenges, as Marc Cheong and Kobi Leins show in Chapter 10. The right to explanation of automated decision making is a contested concept and its ambit is ambiguous in scope, which potentially limits the protection that the right affords to people affected by automated processes.

O'Donovan also considers the difficulties of balancing private interests against the public interest in transparency in automated processes. This issue is picked up again in Chapter 8 by Janina Boughey who writes of the outsourcing of automation and the intersection between the private sector and government automation, and in Chapter 9 by Sarah Crossman and Rachel Dixon, who consider whether finance and procurement can lessen or exacerbate the challenges of automated decision making.

In Chapter 4, Joel Townsend argues that merits review was unsuccessful in the case of Centrelink's automated debt-recovery process, as it was unable to provide a normative check on high volume automated government decision making.

The essay by Maria O'Sullivan in Chapter 5 responds to these concerns by suggesting that we may prevent system errors in automated decision making by undertaking a formal human rights assessment process prior to the implementation of the automated processes, and by reforming procedures that the Administrative Appeals Tribunal currently has in place to enable that body to undertake collective or group-based claims.

In Chapter 6 Joe McIntyre and Anna Olijnyk question whether online courts are compatible with the Australian constitutional context and the principles of open justice and procedural fairness, noting that automation largely relies on systems that are poorly adapted to such openness and the transparency required by these principles. These principles are also invoked by Sarah Moulds in Chapter 7 in the context of parliamentary committees, in which she argues that these committees may bring strengths to the scrutiny and oversight of automated government decision making in their deliberative and authoritative capacity.

In Chapter 11, Katie Miller considers the ways in which digital technologies affect citizen knowledge of the law, government policy and administrative law, by conducting a historical overview of government technology and citizen interaction.

In Chapter 12, Guzyal Hill focuses on untapped opportunities for automation in the context of legislative drafting of national uniform legislation, arguing that artificial intelligence should be used to this end.

Finally, in Chapter 13 Lyria Bennett Moses, Janina Boughey and Lisa Burton Crawford explore the emerging technologies and reconceptualise the process of creating legislation and the use of machines in legislative drafting.

The subject matter of the collection is intrinsically forward-looking and a number of regulatory intervention and reform measures are proposed with the intent to take effect across the life cycle of automated processes (by which I mean, at the design, maintenance and auditing stages, with both ex ante and post ante forms of accountability and review). Many authors stressed the importance of early intervention and transparency of algorithm development to avoid possible systemic errors. Nevertheless, due consideration is given to the diachronic

nature of automation and several essays trace its development across public and private sectors and in the context of the 2004 report of the Administrative Review Council (see in this respect Chapter 10). In this regard, the essays are concerned with questions of a temporal as well as methodological nature.

A resounding theme of the essays in this collection is the need for consideration of administrative law principles and human rights obligations in automated decision making. As various authors point out, this need is often already recognised in guidelines and policy documents, however corresponding reforms and actions to ensure that the incorporation of these principles to the process of decision making – the design and implementation of the algorithms, rather than the legislation – is often lacking. Taken as a whole, this collection may be seen to provide a framework in which automated processes can be deployed and used efficiently for socially valuable purposes.

This is not to say however that all authors embrace automation. While the Honourable Justice Melissa Perry suggests automated process could promote consistency, accuracy, cost-effectiveness and timeliness, Joe McIntyre and Anna Olijnyk consider that 'the further automation is from the core evaluative act of judicial decision-making, the more appropriate it is'.

This collection will be of particular interest to students and practitioners of administrative law, however I commend it to a wider readership due to the broader questions raised about our relationship with government, legislation and bureaucracy and the nature of justice and our role as citizens in the context of emerging technology.

Serena May is currently a Tipstaff in the Court of Appeal of the Supreme Court of New South Wales.

SOLD DOWN THE RIVER: How robber barons and Wall Street traders cornered Australia's water market
Scott Hamilton and Stuart Kells; Text Publishing, 2021; 336 pages; $34.99 (paperback)

Hamilton and Kells have deconstructed the Murray Darling Basin water market and concluded that 'trading' water in the driest continent on earth has been an uncontrolled and unaccountable catastrophe.

Their book is a very sobering read. The Barmah 'choke' midway along the Victorian and New South Wales border provides a graphic metaphor.

They begin with a discussion of the origins of water management. From there they launch into how the water market was made and how it was played and cornered. They tentatively suggest solutions.

Hamilton and Kells describe a complex geographical, hydrological and human system. They briefly explore First Nations knowledge over deep time and the highly localised information systems developed by non-Aboriginal people. They argue water trading began to emerge formally in the early 1990s when the privatisation cohort of 'bankers and consultants' which had arrived in response to the Kennett government's assets selloff in Victoria started to look around for new opportunities.

Interests in water and land were separated or 'unbundled' creating new ways of managing water. It made the system more complex with entitlements like temporary, permanent, 'used' or 'delivered' water. 'Carryover' water – unused in one year – could be 'held' for the next. Caps on how much water could be traded produced some level of control but the task of managing the market was left to the ACCC. That body allowed external participants to bid for, buy and trade water as an asset unrelated to its agricultural utility. A competition for water was the outcome. Farmers realised the value of water as an asset and began to trade their entitlements. The previously integrated system was disaggregating, uncontrollably. Water brokers emerged. Water prices fluctuated and farmers had to develop digital literacy skills when attempting to trade their water in a seriously unbalanced system.

Deregulated, the water market became vulnerable to being played by banks and quasi-banks. Derivatives, under-the-counter deals, swaps, hybrid security arrangements were all part of the new deal. The strategic techniques of hedge fund managers and investment bankers came with the territory. Trading rooms were established; dealers, modelers and accountants staffed them. The recruits were IT experts and players. They ran low profile operations to avoid spooking the farming community. They bought low and sold high and they manipulated the market. Hamilton and Kells talk about a market for Australian water opening up in places as diverse as Frankfurt and New York.

Transactions could be effected without ABNs, or tax file numbers, traders were not required to have an Australian Financial Services Licence and they were not subject to ASCI oversight in situations. Water register entries were fudged. There was no clarity or visibility in the market.

The employment of 'bots' and microsecond trading advantages benefited the trading rooms where there was real expertise in digital technologies. Hamilton and Kells estimate that, in 2019 alone, farmers paid $400 million more for water than they needed to as direct result of the non-farming traders and speculators.

In Hamilton and Kells' assessment the water market disturbingly mirrors the type of excesses exposed in the Hayne banking Royal Commission.

Finally, Hamilton and Kells suggest some solutions to the 'epic fail' of our water market including addressing the skills imbalance between farmers and traders; reducing the power of the trading rooms; adopting a system like Bush Tender; establishing a National Cabinet; and including First Nations people in the conversation.

Climate change, the potential for crushing drought, the need for an orderly system to manage water for the environment, agriculture and all the attendant interests make fixing the system imperative.

Kate Auty is a Professorial Fellow at the University of Melbourne.