

ENERGISING THE NATION: THE HISTORICAL AND CONTEMPORARY FRAMING OF AUSTRALIAN ENERGY POLICY

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ABSTRACT

This paper provides an intervention to the *Energy Policy* debate about the influence of epistemic frames on energy decisions and particularly, the framing of energy problems. We seek to deepen understanding of how and why different energy problem representations can be formed. Drawing on the social constructionist approach of Bacchji (2009, 2012), we explore the framing of energy policy using the empirical lens of the foundation of Australian energy policy since the early 20th century—the three development stages of Australian electricity provisioning. Rather than offering a direct contribution to the debate about the future of the Australian electricity sector or an alternative classification of differing conceptualisations of energy, we ‘drill down’ into one aspect of the Sovacool et al (2016) classification framework—‘the explanation of energy’—by investigating the framing of Australian energy policy from Federation to the contemporary. Using a six-question analytical grid, we examine how debates about energy (aka electricity) have been constructed and reconfigured and represent a key mechanism through which the state has represented, constituted and configured its role in the nation. The paper concludes that the framing and reframing of the problem of ‘energy’ over time reflects broader transformations in the problem of ‘governing’.

KEYWORDS

Affordability, Australia, electricity, energy security, policy, problem representation

1. INTRODUCTION

A recent intervention in the journal *Energy Policy* spotlighted an area common to social policy analysis but rarely discussed area within energy discourse, and policy analysis more generally. Sovacool and Brown (2015) contend that energy decisions—by policymakers, regulators, individuals, households, businesses and investors—are based on assumptions and values (beliefs), not facts, which reflect different epistemic frames. These frames are ideological because they support different conceptions of social reality (worldviews), and “influence how knowledge is shaped, conditioned, and digested” (Sovacool et al., 2016, p. 336). Consequently, frames determine “how energy is conceptualized, what variables of analysis are important, how energy resources are valued, and indeed, *what merits attention as an energy problem*” (Sovacool and Brown, 2015, p. 38, emphasis added). The authors identify eight epistemic frames that, in their view, “sire ... six likely sources of contention” (Sovacool et al., 2016, p. 336) and propose an analytical lens of six ‘maxims’ for people to

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understand their worldviews, those of others and the impact on energy policies (Valentine et al., 2017, p. 629).

To distinguish the eight energy frames, Sovacool and Brown (2015), Sovacool et al. (2016) and Valentine et al. (2017) analyse the opposing positions on 15 'energy questions' and apply the following taxonomy: the representative icon (e.g. LED bulb); the explanation provided of energy (e.g. as a commodity or fundamental human right); the key proponents (e.g. physicists, economists, activists); the central value ascribed to energy resources (e.g. environmental footprint, equity, geopolitical stability); and, the focus of concerns (e.g. inefficiency, cartels, energy poverty) (Sovacool et al., 2016, pp. 333-335). A further taxonomy is applied to classify the causes of disagreement between the frames as: competing interests, rapid technological or data changes, the marginalisation of particular stakeholders, different (conflicting) values, and unbridled hubris.

Felder (2016) seeks to extend Sovacool and Brown's (2015) 'postmodern mush' and, using a cost-benefit analysis case study of energy efficiency programs, suggests that frames may not be easy to identify, analysts may use frames considered appropriate to the task but not necessarily their preference, clarification of terms and concepts is important irrespective of the frame, and perhaps the Sovacool-Brown analytical lens should be extended beyond energy analysts and researchers to the "reviewers and users of such efforts" (Felder 2016, p. 715). In response, Valentine et al. (2017, p. 624, emphasis added) contend that Felder's critique misses the fundamental point of their 'social constructivist framework' and this is not "a mere disagreement between two studies, or disciplinary perspectives ... its cuts to the core about *how energy problems are defined, interpreted, communicated, planned for, and potentially implemented via policy*".

We propose another social constructionist approach, developed by Carol Bacchi (1999, 2009, 2012), to deepen our understanding of 'energy problems'. We do not propose this as an alternative to the Sovacool-Brown-Valentine framework, the purpose of which, as we see it, is to delineate the competing perspectives within energy debates to generate a much wider understanding of the different worldviews informing energy discourse and thus the implications for policy. The different worldviews are assigned to presupposed descriptive categories and high-level key areas of contention are posited.

Bacchi's approach, based on 'policy as discourse', provides a conceptual framework that facilitates the identification of alternative conceptualisations (representations) of policy problems. Its purpose is to probe how and why different problem representations have been formed, not to provide a taxonomy to classify differing conceptualisations. Thus, Bacchi's framework provides an approach to 'drill down' into one aspect within the Sovacool-Brown-Valentine classification framework i.e. 'the explanation of energy'. Several problem representations, predominantly from social policy analysis, have been examined using Bacchi's framework (for example, see: Bacchi 1999, 2009, 2012; Bacchi and Goodwin 2016; Elliot 2011; Goodwin 2011). We are not aware of any previous application of Bacchi's framework to the area of energy policy nor its application to the genealogy of a policy area.²

This is the motivation for this paper—to explore how we may understand the conceptualisations of energy problems, and thus explain the attendant policy implications, using the social constructionist approach of Bacchi (1999, 2009). Any conceptualisation will reflect epistemological and ontological (world) views. In other words, a conceptualisation will

² Bacchi (2009) discusses the genealogy of policies concerning abortion, dependence, equal pay for equal work, and social problems but does not apply the 'policy as discourse' approach to examine genealogy of these policy areas.

be informed by how we view the creation of knowledge (e.g. observation and induction; model building and deduction), and our social ontology which is a view of the nature, character, basic features, structures or constituents of social reality. The Sovacool-Brown-Valentine framework also illuminates the role played by epistemological and ontological views in the different frames informing energy decisions.

The paper is structured as follows. Section 2 presents a case study of the Australian electricity sector's three development stages—the 1880s to 1990s, the late twentieth century transformation, and the contemporary era. This sector has been the foundation of Australian energy policy since the early 20th century. Section 3 provides an overview of Bacchi's 'policy as discourse'—what is the problem represented to be (WPR)—approach. Drawing on a textual corpus of policy documents, legislation, reviews, and media statements, we apply Bacchi's analytical framework to each development stage of the Australian case study and illustrate the changing form of problem representation—by policymakers—from one of economic development to public sector inefficiency to energy security and affordability. Section 4 discusses the usefulness of Bacchi's 'policy as discourse' approach to our understanding of energy issues and policies, and the relevance of explicitly discussing (revealing?) the epistemological and ontological bases—as also articulated by the Sovacool-Brown-Valentine framework—of the representation of energy problems, and policy issues more generally.

2. THE AUSTRALIAN ELECTRICITY SECTOR

As in other advanced economies, electricity plays a significant economic and social role in Australia—for the standard of living of all Australians and as an intermediate input for all 114 industries. Total Australian electricity consumption has increased ten-fold since 1960, reflecting growth in both energy intensive industries and household use. Consumption increased most rapidly after 1990 although it has slowed in recent years coinciding with significant electricity price increases and weakening industrial demand (Department of Industry, Innovation and Science 2016). Of nearly 11 million electricity consumers, 89 per cent are residential. Nearly every Australian household has access to mains electricity (AEC/ENA 2017). However, residential consumers account for only about 27 per cent of all electricity consumed (Department of Industry, Innovation and Science 2016). The biggest consumers are industrial operations like aluminium smelters which use about 15 per cent of all electricity produced in Australia.

Historically, coal has been the dominant fuel for Australian electricity generation although gas-fuelled and renewable energy generation has increased in recent years. In 2016, 83 per cent of Australian electricity was generated from fossil fuels (coal 63 per cent; gas 20 per cent) and renewable energy sources accounted for 15 per cent (Department of Industry, Innovation and Science 2016).

Since Australia's first use of electricity in the late 19th century, the Australian electricity sector has undergone three development stages. The period of these stages has become progressively shorter and the transitioning to a new development stage is signalled by a series of policy decisions significantly impacting the structure, capacity and operations of the sector.

2.1 1880s to the late 20th century: Economic development and fuel independence

The first significant use of electricity in Australia was the lighting of public buildings and streets in the late 1880s. By the 1920's the electrification of trams and trains, in the largest

cities of Sydney and Melbourne, and increasing industrial use, were the fastest growing areas of demand. Within the home, apart from lighting, widespread domestic use did not occur until after World War Two (WW2) with the mass consumption of larger domestic appliances.

Much of the development in the first stage emerges post-Federation (1901). The constitutional arrangements of the new Federation assign electricity as a legislative function of the States rather than the federal government.

The electricity sector was initially owned and controlled by small private companies and local government authorities operating on a small local scale. Australian State governments gradually became more involved as they progressively established government departments and statutory authorities responsible for electricity supply. The general motivation of State governments was to ensure that economic development would not be impeded by the lack of electricity which was threatened in 1916 and just after WW2 by extreme power shortages arising from industrial disputes in the coal fields.

Victoria and South Australia (SA) sought to break their respective heavy reliance on coal imports, and to exploit their own coal reserves; thus, reducing vulnerability to any disruption to imports (Butlin *et al.* 1982; Rosenthal and Russ 1988). After a failed attempt by a private company, the Tasmania government moved to develop that state's hydro-electric capacity. New South Wales (NSW) wanted to ensure security of electricity supply across the state for economic development and to meet the needs of a growing population, as did the more sparsely populated states across the vast geographic areas of Queensland and Western Australia.

The NSW and Victorian State governments also agreed with the federal government, soon after WW2, to build the Snowy Mountains Hydro-Electric Scheme (Snowy Hydro) which contributed to reducing their respective state's reliance on coal imports for electricity generation.

By the mid-1940s, Victoria, Tasmania, SA and WA had each established a single statutory authority to control the generation, transmission and distribution of electricity within each state. In NSW, a single state government authority was responsible for generation and transmission with distribution undertaken by local government authorities. For Queensland, a statutory authority co-ordinated development across the state and regional authorities controlled generation, distribution and expansion. In addition, generation capacity and networks in WA and Queensland include those in isolated locations, many established by mining companies and from which the state government purchases electricity to supply local townships. Apart from these WA and Queensland exceptions, from the end of WW2, each state's electricity assets were government-owned (state or local) and controlled.

State government ownership and involvement resulted in each Australian State virtually achieving 'fuel independence'—for electricity generation—from outside respective geographic borders. Supply from the early electricity providers was limited because it was uneconomic beyond highly populated locations. It was also cheaper to bring fuel to a power station located near industry. Advances in technology lowered capital and operating costs making it more feasible to build larger generation plants—located close to fuel sources like coal mines—and more extensive transmission networks. These developments were critical to 'fuel independence' and drove the development of a larger sector dominated by State government monopolies.

The trend to State government ownership was further assisted by the then tax exemption status of public authorities and their lower financing costs. Hence, State government

electricity companies had a much lower annual cost of capital for investment in a highly capital-intensive sector which was experiencing substantial growth post WW2; the demand for lighting and transport electrification was increasingly overshadowed by a seemingly insatiable demand by households (appliances, heating and cooling), industry (especially large users) and commerce.

Government ownership was initiated by both Conservative and Labor State governments. Capital raised virtually no opposition because, as Saddler (1981: 116) remarks, “state governments were acting not against capital, but for it” by ensuring the availability of supply to meet growing demand through the direct provision of economic infrastructure.

As the 1990s began the Australian electricity sector was fragmented into markets based on state jurisdictions, each dominated by a single vertically-integrated government-owned authority (or, in some cases, multiple authorities). The sector did not operate on an integrated basis, transmission interconnections between states were limited and the footprint of development reflected the concentration of population along the eastern seaboard and in the south-east.³ The generation capacity of each state generally exceeded demand. SA was the only state with capacity constraints requiring imports from Victoria equivalent to about 35 per cent of its total demand. Final end-use prices were set by regulation and State or Territory governments largely determined investment in new generation capacity.⁴ The federal government had a limited role through its ownership share in Snowy Hydro.

2.2 The late twentieth century transformation: Inefficiency and marketisation

A 1990 Special Premiers Conference agreed to assess options for an (interconnected) interstate electricity network.⁵ An Industry Commission (1991) report concluded that electricity sector inefficiencies imposed significant costs, poor investment decisions had led to excess capacity (40 to 70 per cent compared to 20 per cent internationally), overstaffing was prevalent, prices did not reflect the cost of supply, and cross-subsidies between users prevailed. The 1991 Special Premiers Conference agreed to develop an interstate electricity grid. In June 1993, the newly formed Council of Australian Governments (COAG) agreed to establish a national electricity market (NEM).⁶

Most States and Territories did not commence significant changes to their respective electricity sectors until 1995 when the COAG agreed to a series of financial payments subject to ‘competition reforms’ in a range of sectors including electricity. These so-called reforms comprised a program of measures—the National Competition Policy (NCP)—which

³ The land area of Australia is roughly comparable to the US although more than 85 per cent of the population is concentrated in the three eastern states of NSW, Victoria and Queensland which account for around 80 per cent of total electricity consumed.

⁴ The exceptions were private sector decisions to construct generation plants to supply their operations in remote areas of WA and Queensland.

⁵ A Premiers’ Conference was the traditional annual meeting between the federal, state and territory heads of government to agree the Federal-State financial sharing arrangements. Special Premiers’ Conferences were held in 1990 and 1991 when the Federal Labor Government initiated a new era of federalism and sought the cooperation of the state governments ‘to improve our national efficiency and international competitiveness’ (Hawke 1990: 1). The 1990 and 1991 meetings discussed: microeconomic reform, financial relations, the delivery of government services, a national social justice agenda, industrial relations, environmental protection and constitutional reform. The term ‘microeconomic reform’ referred to the need for improvements to ‘the structures which underpin the national economy’ (Hawke, Keating and Button 1991: 4) such as transport, communications and electricity.

⁶ The COAG, the successor to Premiers’ Conferences, agreed that the NEM would encompass the Snowy Hydro and only the southern and eastern States and Territories of Queensland, NSW, ACT, Victoria, Tasmania and SA.

arose from the 1993 Hilmer inquiry into competition and previously agreed commitments to promote competition in the electricity, gas, water and road transport sectors.

Electricity sector restructuring was now integrated into a broader policy framework and one tied to annual 'competition payments'. Progress towards implementation of a 'competitive NEM' was a key criterion to determine the annual payments were determined. A 'fully competitive' market was to be achieved through: the structural separation of generation, transmission and distribution activities; the corporatization of government-owned businesses; giving customers the ability to choose their supplier; the establishment of an interstate transmission network; no entry barriers to generation or retail activities; the adoption of cost reflective pricing for transmission and distribution networks; and, inter-jurisdictional dispatch and sourcing of generation capacity.⁷ The NCP and the proposed electricity sector restructuring shared common frameworks to separate monopoly and competitive activities, corporatize government businesses, regulate pricing for monopoly infrastructure, and provide consumers with supplier choice.

These events led to a range of changes across the government-dominated electricity sector. Some changes were sector-specific although consistent with other changes which formed a much broader transformation of the Australian public sector throughout the 1980s and 1990s. Similar 'reforms' had already occurred in the United Kingdom (UK), the United States, Canada and New Zealand. This international phenomenon has been termed the New Public Management (NPM). The NPM was characterised by the application of private sector practices to the public sector, service delivery using the private and not-for-private sectors, and service provision through market mechanisms governed by contractual arrangements.

The NPM embodied the precepts of neoliberalism which rapidly gained political ascendancy during the 1980s. The relationship of the state to the market is a fundamental tenet of neoliberalism. The market has primacy and virtually all economic and social problems are seen as having a market solution although 'market order requires a particular kind of state to secure it' (Gamble 2006: 22). Neoliberalism has been described as a 'variegated process' (Haselip and Potter 2010: 1169) or as 'hydra-headed' mutating over time (Gamble 2006).

The initial 1980s Australian NPM wave saw the adoption of private sector management practices and financial disciplines—such as an emphasis on management rather than policy, quantifiable outputs and performance targets—and the use of the company form for activities traditionally undertaken by government departments or statutory authorities. A second NPM wave occurred following the endorsement by all Australian governments of the 1993 Hilmer report on competition policy. This latter wave extended earlier managerialist reforms via the widespread grafting of competitive market principles onto public sector management. Key practices to become widespread included the commercialization, corporatization and subsequent privatization of government businesses, and user-pay charging. In addition, new forms of public sector oversight developed, the citizen was 'repackaged' as a customer, and a new range of grievance-handling bodies were created including sector-specific ombudsmen.

Appendix A presents a comparative summary of Australian State and Territory structural changes since 1990.

De-integration, corporatization, the progressive introduction of retail competition, and the creation of state-by-state sector regulators and ombudsmen were changes commonly

⁷ These 'requirements' emulated the recommendations of the earlier Industry Commission (1991) report.

implemented across the electricity operations of all Australian States and Territories during the 1990s.⁸ The annual NCP payments provided a strong stimulus for these changes and accelerated the pace of implementation although the sequence of changes and timing differed between states as did the forms and extent of privatisation.

Privatisation for Victorian and SA owned electricity assets occurred relatively quickly in the mid to late 1990s. Privatization of the NSW electricity businesses was first proposed in 1997 but, due to strong community opposition, did not commence until 2011 and continued over the next six years.

The NEM was a significant structural change that totally reconfigured the trading of Australian electricity. It is a wholesale market for the supply and purchase of electricity from a large, centralized trading pool. In December 1998 the NEM became fully operational and comprised the four interconnected regions of NSW, Victoria, SA and the Snowy Mountains.⁹ Queensland and Tasmania subsequently joined following commissioning of transmission interconnections with NSW and with Victoria respectively.¹⁰

The National Electricity Rules (NER) govern the NEM's day-to-day operation. The National Electricity Market Management Company (NEMMCO) and the National Electricity Code Authority (NECA), both government-owned organisations which took the company form, were established in the late 1990s to manage the NEM's operation and administer the NER respectively.

The *National Electricity (South Australia) Act 1996* establishes the *National Electricity Law* (NEL) which is applied as law in each participating jurisdiction of the NEM.¹¹ The NEL, in turn, establishes the NER's and the NEM's regulatory authorities.¹² The Australian Competition and Consumer Commission (ACCC) was given responsibility for authorising changes to the Code, and regulating the pricing of transmission services. A Reliability Panel was also created to advise on system security and reliability standards. Each State government retained responsibility for the regulation of prices for distribution and retail.

In 2001, the COAG established the Ministerial Council on Energy (MCE) and an energy market review in 2002 which led to changes in the sector's regulatory regime.¹³ Responsibility for transmission planning was ceded by the states, progressive centralization of regulatory responsibilities for distribution and retail activities commenced and two new national regulators were created. The new Australian Energy Market Commission (AEMC) became responsible for rule changes and market development. The new Australian Energy Regulator (AER), a constituent part of the ACCC, absorbed the NECA and became

⁸ There was some consolidation of NSW and Queensland government-owned distributors after initial de-integration.

⁹ The Snowy region of the NEM was abolished in July 2008 and split between NSW and Victoria. The ACT is included within the NSW region for the NEM.

¹⁰ The 'tyranny of distance' means WA and the Northern Territory will not join the NEM. The geographic remoteness of their population and industrial centres from the eastern States make the cost of transmission interconnection to a national grid prohibitive.

¹¹ Under the Australian Constitution, State governments have responsibility for the provision of services such as electricity. Hence, legislative authority for the operation of a national market and regulators with national jurisdiction was required across all participating State and Territory jurisdictions. One parliament, South Australia, passed the creating legislation and all other jurisdictions subsequently adopted identical legislation.

¹² The NER was initially deemed the National Electricity Code which was renamed in 2005.

¹³ All federal, State and Territory government Ministers with responsibility for energy comprised the Ministerial Council on Energy.

responsible for enforcing market rules for the electricity *and* gas sectors, and the regulation of transmission and, from mid-2007, distribution and retail services (except retail pricing).

Further regulatory changes occurred in 2009. The Australian Energy Market Operator (AEMO) commenced—replacing NEMMCO—as the single market operator for electricity *and* gas with responsibilities for transmission planning and demand forecasting. Although membership remained the same, the MCE was renamed the Standing Council on Energy and Resources and from late 2013 became known as the COAG Energy Council.

A 2015 review of the governance arrangements of Australian energy markets did not recommend any substantive regulatory changes. However, in 2017, an additional regulatory authority was established—the Energy Security Board (ESB) (refer Section 4). The composition of the ESB includes the Chairs of the AEMC and AER, and the AEMO’s CEO.

Outcomes of the sector’s second development stage

The Australian electricity sector which existed in 1990 is unrecognisable today: generation and retail functions exposed to competition; the monopoly functions of transmission and distribution regulated to emulate competition; the majority of electricity generated traded through a national market with some albeit limited interconnection capacity and a complex regulatory regime; private ownership of the majority of retail services, 72 per cent of generation capacity, 51 per cent of distribution networks and 57 per cent of transmission networks (AER 2017); and, the centralization of electricity market regulation and operation—merged with gas—within three national authorities (AER, AEMC and AEMO).

In 1990, the Australian electricity sector comprised 34 government-owned companies. This group expanded and contracted to reach a peak of 55 companies by June 1995, the year which broadly denotes when the sector’s restructuring began in earnest. By 2018, 15 fully government-owned companies were operating in the Australian electricity sector—13 of these companies are in the less populated states of Queensland, WA and Tasmania, and the Northern Territory; the remainder are one distribution network for non-metropolitan NSW and the Snowy Hydro.¹⁴ Three distribution businesses (one in the ACT and two in NSW) are in partial (around 50%) state government ownership.

When the NEM commenced in late 1998 there were 77 registered participants. By April 2018, there were 319 registered participants of which 114 were listed as generators, 74 as market customers, 54 as network operators and, notably, 29 as traders or reallocators (AEMO 2018).

Privatisation and regulation, as in the UK and the European Union (EU), have been the key policy instruments to effect these changes. Progressive regulatory changes have sought to overcome apparent market weaknesses and further embed the objectives of competition, private ownership and less government involvement.

Market-determined wholesale prices, within the restructured sector, were supposed to signal the need for more electricity generation capacity. Yet NEM price spikes for the first decade from 1998 were observed to be from the exercise of market power by generation companies not demand pressures, and additions to capacity were primarily gas-fuelled peaking plants and minor augmentation to existing plants (Chester 2011). This has contributed to an overall shift in the fuel mix for electricity generation capacity. Gas accounted for eight per cent of the total produced in 1996, 13 per cent in 2006, and 20 per cent by 2016. Renewable energy sources also grew from nine per cent in the mid-2000s to 15 per cent of the total generated

¹⁴ The federal government became its sole owner in 2018.

in 2016, particularly wind and solar PV since 2010 (Department of Industry, Innovation and Science 2016).¹⁵

Since 2006, about a decade after the sector's radical restructuring commenced, Australian household electricity prices have rapidly escalated, and well in excess of general price and wage movements (Chester 2015). These increases have been primarily driven by the regulated charges for the monopoly network services of transmission and distribution (AEMC 2017). The cumulative effect of these price increases, over a sustained period, has been a widespread deleterious impact for around 1.8 million low-income Australian households (Chester 2013). As the impact of significant year-on-year electricity price increases has become more extensive, the affordability of energy is now a major political and public concern (ACCC 2017; Commonwealth of Australia 2017).

Concurrent with generation capacity changes and significant price increases, a noticeable fall in electricity consumption began in 2010, nearly 20 per cent of which was attributed to the response of consumers—especially residential—to higher prices (Saddler 2013). Other contributing factors were: the shutdown of aluminium smelting capacity and a decline in other electricity intensive primary metals; the rapid residential uptake of solar PV encouraged through government feed-in-tariffs and rebates; and, regulated energy efficiency measures applied to new buildings, appliances and equipment.

2.3 The contemporary development stage: Affordability and 'security' of supply

The outcomes of the electricity sector's radical restructuring stage were becoming increasingly evident as public debate started to intensify about climate change, greenhouse gas emissions and Australia's high reliance on carbon-emitting fossil fuels. Three-quarters of Australia's greenhouse gas emissions are from carbon which are at their highest level causing temperatures to be about a degree warmer than a century ago (Australian Government 2016). Electricity generation produces about a third of Australia's greenhouse gas emissions and is the largest single contributor (Australian Government 2018).

Since the mid-2000s, Australia's response to the problem of climate change caused by fossil-fuelled emissions has comprised: multiple inquiries, reviews, hundreds of pages of legislation and White Papers; new regulatory agencies and mandatory reporting requirements; lengthy political negotiations and compromises; and, a range of new policies addressing carbon emissions and encouraging the adoption of renewable energy sources.

In 2007 renewable energy sources generated nine per cent of Australia's electricity consumption (with the major contributor to this capacity from hydro and eight per cent from wind and solar). By 2016, this proportion had shifted to 15 per cent nationally with wind and solar accounting for 50 per cent. SA had the strongest growth with 41 per cent of the state's electricity generated from renewable energy sources in 2016 (with wind contributing more than 80 per cent) compared to 14 per cent some seven years earlier.

Appendix B details, from July 2007 to April 2018, more than 100 policy decisions, inquiries, reviews, announcements and (weather, plant closure and ownership) events impacting upon the fuel mix, capacity, structure and operations of the Australian electricity sector; a quarter of these actions have occurred since early 2017. Many of these actions are amendments to, or abandonment of, policies within a short time indicating a turbulent period of policy uncertainty.

¹⁵ The fuel mix shift has also been driven by renewable energy policies and the closure of larger-scale coal-fired electricity generators (refer Section 4).

Most of the actions listed in the Appendix B fall broadly into three broad categories—encouragement for renewable energy uptake; responses to address or manage carbon emissions; and, statements and decisions about national energy policy.

A few actions sought to encourage less energy use (incorrectly termed ‘energy efficiency’) and thus reduce carbon emissions. Some actions specifically focused on carbon emissions such as the (short-lived) ‘market’ carbon price introduced by the 2007-13 Federal Labor Government and repealed by the Federal Conservative Government in 2014. Other actions reinforced the burning of fossil fuels such as investment in carbon, capture and storage technology whereas actions such as generation plant closures directly reduced coal-fired capacity and emissions from this fuel source.

The majority (40 per cent) of actions listed in Appendix B relate to feed-in-tariffs or measures to reduce the upfront capital cost for renewable energy sources, particularly solar PV for electricity generation by households and small businesses. Australia has been leading the world in household solar adoption with more than 20 per cent of homes estimated to have installations and capacity quadrupling from 2011 to 2016 (Australian PV Institute 2016). The support from the Federal and all State Governments—in conjunction with other actions—has, however, further embedded the electricity sector’s operation, regulation and governance around a centralised grid.

First, solar PV provides the opportunity for electricity generation at different scales—household, community, and regional—and thus to disperse ownership and control over energy sources. However, very few Australian households with solar capacity are independent of the centralised electricity grid. Although needs vary considerably, a household will require—on average—closer to 10kW of solar capacity to be self-sufficient. Average household solar PV capacity is estimated at around 3kW (Australian PV Institute 2018). Although solar PV costs have fallen, the initial capital outlay for sufficient grid-independent capacity is out of reach for most owner-occupier households (while renters and owners without separate rooftop capacity are also precluded). The many significant downward revisions or cessation of different feed-in-tariffs and multiple eligibility changes (based on installation dates and a maximum capacity generally at 5kW or less) have also weakened the incentive for households to reduce their reliance on the existing grid.

Second, all State Government and subsequent retailer (voluntary) feed-in-tariffs have been structured around the export of electricity generated—either all produced or any surplus to need—to the centralised grid.¹⁶ This notion of export to the existing grid has been reinforced by the solar PV uptake business models offered by energy retailers.

Third, electricity generation from renewal sources like solar and wind require dispersed production strategies to manage intermittency and relatively low power densities. Yet, as renewables have become more important as an Australian energy source, wind farms have been connected to the centralised grid. Decentralised micro grids for electricity from renewable energy have not been developed nor have the Australian Federal and State Governments indicated any willingness to do so.

Further actions to ensure ‘centralised grid fortification’ have been:

¹⁶ With the exceptions of the less populated Tasmania and the ACT, all feed-in-tariffs have been a net tariff where only surplus is purchased from the household generator.

- 195 AEMC-approved NEM rule changes since mid-2007 all based on a centralised grid and no scope for decentralised grids;¹⁷
- the Finkel Review’s (Commonwealth of Australia 2017a: 28) recommendation for “an integrated grid plan to facilitate the efficient development and connection of renewable energy zones [REZs]” to the NEM;
- the AEMC’s (2018) expressed view about how REZs could connect to the existing grid;
- the AEMO’s (2017b) integrated system planning which is identifying transmission routes to connect REZs with the existing grid and potential REZ locations aligned with projects being considered to extend the existing grid; and
- the ESB’s (2018) proposed reliability part of the National Energy Guarantee which is framed around dispatchable energy from the centralised electricity grid.

Rapid technological change means that renewable energy sources have become feasible fuels for electricity generation. Australian government policies have encouraged small-scale solar uptake although this support has progressively waned. However, concurrent policies and actions have effectively worked against the establishment of micro decentralised distribution solutions for renewable energy by entrenching the existing centralised electricity dispatch-grid market system dominated by a handful of very large energy companies. While the household as a producer and consumer (prosumer) has been promoted there have not been institutional or political alignments supporting distributed electricity generation.

Similar ‘counteracting’ policies are evident for carbon emissions. The 2008 proposed Carbon Pollution Reduction Scheme was structured around weak carbon emission mitigation targets and the issue of free permits to the biggest emitters—the coal-fired electricity generators—to continue their emissions over 10 years. The 2012-14 carbon pricing mechanism provided free permits and cash payments (as compensation for the carbon price impact) to the coal-fired electricity generators, and companies in the transport and agriculture sectors were exempt. Following the abolition of the carbon price, the Federal Conservative Government announced a significant downward revision to the Renewable Energy Target (RET) for electricity generation by 2020, and multiple Federal Government energy efficiency programs ceased. The current Emissions Reduction Fund does not include the energy sector, and the 2017 review of climate change policies proposes loosening compliance obligations for emissions-intensive industries. The extent of exemptions, ‘compensation’ and revisions mean that these policies ostensibly to manage and reduce emissions have been ineffective. In 2017, Australia’s total annual emissions rose for the third consecutive year and electricity emissions remain above three years ago despite coal’s declining contribution to electricity generation (Commonwealth of Australia 2017b).

The third dominant area of actions and events in Appendix B relate to national energy policy. The 2012 and 2015 Energy White Papers, issued by Federal Labor and Conservative Governments, strongly support market/price mechanisms to deliver Australia’s electricity supply, from the existing centralised regime, and both envisage low-cost coal remaining the dominant generation fuel for some time. In 2015 the Federal Conservative Government and the COAG Energy Council initiated ACCC and AEMC reviews into the east coast gas markets following reported difficulties by industrial users to negotiate supply contracts and

¹⁷ This is the number of implemented rule changes—from 16 August 2007 to 10 April 2018—listed on the AEMC’s website.

rapid escalation in wholesale gas prices. By this time, gas is generating 26 per cent of Australian electricity.

A series of events then quickly unfold:

- **September 2016:** storm damage to the transmission network leads to state-wide electricity loss in SA which has more than 41 per cent of electricity generated from renewable energy (mostly wind) encouraged by a strong State Labor Government RET;
- **October 2016:** a robust political debate ensues about the security risks from renewable energy leading to the COAG Energy Council's establishment of a review—led by Australia's Chief Scientist, Dr Alan Finkel—of the NEM's security and reliability;
- **February 2017:** during record high temperatures, SA experiences electricity loss (up to an hour); NSW and Queensland consumers are warned they may experience the same;
- **March 2017:** AEMO (2017a) concludes the 2016 blackout was caused by wind farm (disturbance) settings leading to generation loss as transmission network faults occurred;
- **March 2017:** the SA State Labor Government announces an energy plan to increase the state's energy self-sufficiency;
- **March 2017:** the Conservative Coalition Prime Minister announces a proposed 50 per cent expansion of the Snowy Hydro's capacity;
- **March 2017:** the Federal Conservative Government initiates an ACCC inquiry into retail electricity prices;
- **June 2017:** the Finkel Review recommends a Clean Energy Target (CET), integrated system planning and new governance arrangements for the NEM;
- **June 2017:** the Federal Conservative Government announces a limit on LNG exports to ensure domestic gas supply and reduce price pressures;
- **August 2017:** the Federal Conservative Government establishes the ESB to implement the Finkel Review recommendations, and oversight overall system security/reliability;
- **September 2017:** a political debate erupts over the planned 2022 closure of Australia's largest coal-fired generation plant (Liddell owned by AGL Energy);
- **September 2017:** the ACCC reports there is a severe electricity affordability problem, insufficient competition, and consumers cannot exit an exceptionally complex market;
- **October 2017:** the ESB proposes a National Energy Guarantee (instead of the Finkel Review's CET) obliging retailers to ensure supply reliability and emissions reduction;
- **December 2017:** the world's largest battery storage plant commences in SA; and
- **December 2017:** the ESB's 'Health of the NEM Report' concludes electricity is unaffordable, renewable energy poses reliability risks, and emissions policy is uncertain.

These events portend a number of issues apart from the tension between the former SA State Labor Government's renewable energy support and the Federal Conservative Government's (explicit and tacit) support for coal to remain a key electricity generating fuel. The rhetoric of the Federal Conservative Government—the COAG Energy Council, the ESB and other regulatory institutions—shifts to expressing energy policy in terms of affordability, security (reliability) and sustainability, electricity and gas are treated somewhat

synonymously although their respective roles differ considerably for business and household consumers, and energy policy is presented as aligned with the environmental policy domain notwithstanding the tepid or non-existent points of policy connection (for example, see Commonwealth of Australia 2017c).

The ‘unreliability’ of renewable energy has also become a strident claim within the public debate, a claim underpinned by the notion of only a centralised fossil-fuelled grid managing Australia’s electricity supply. The NEM’s vast grid was built around synchronised generation from coal and gas (i.e. generation that can be run at one synchronous frequency) which has capability to ride-through disturbances and automatically regulate voltage. Wind and solar are non-synchronous because the electricity generated varies with wind speed and the level of solar irradiation. These energy sources have control settings to manage system disturbances and thus maintain supply. It was the wind turbine control settings—not wind intermittency (AEMO 2017a: 47)—that led to the 2016 SA loss of power when the transmission network became storm-damaged. Nevertheless, the use of renewable energy is portrayed by some politicians and commentators as threatening the security (stability and reliability) of Australia’s capacity to supply electricity to meet demand.

This characterisation further illustrates how resistance is framed against a greater transition to renewable energy and effective emissions reduction. The NEM is treated as sacrosanct and immutable. Consequently, matters like climate change policies, the use of renewable energy, or management of extreme weather occurrences, are treated as not germane to the provision of Australian electricity and thus must be designed to ‘fit’ the structure, rules and governance of the NEM; not the NEM adjusting to, for example, the technical challenges of a changing fuel mix, or more radically, how decentralised systems may achieve a safe, secure, affordable supply to consumers.

3. POLICY AS DISCOURSE: WHAT IS THE PROBLEM REPRESENTED TO BE?

Policies are enacted by government programs and, as such, reflect how *governing* takes place. The actions (and inactions) of government are the conventional focus of policy analysis and the objects of policy analysis may include policy statements (e.g. Green and White Papers), legislation, budget and program documents, performance reports, audits and evaluations, and speeches and media statements. Analysis is undertaken of institutions and institutional processes, texts and other recordings, the behaviour and interaction of policy participants, and outcomes, as well as the objectives, principles and values embodied in policies.

Four broad conceptual schemas are evident across the field of policy analysis (Goodwin 2011). First, the dominant rationalist approaches presume that ‘properly trained’ experts can systematically analyse the component parts of policies, policy stages or the policy cycle, to form ‘objective’ conclusions to solve problems. A second approach—critical policy analysis—views policy as the outcome of contestation between stakeholders with unequal power, and thus focuses on the different interests participating in policy processes. Interpretive policy analysis, in contrast, seeks to reveal the meanings, values and beliefs expressed by policy within an historical and political context, the processes to communicate these meanings to different audiences, and thus the multiple ways in which issues can be framed.

The analytical approach applied in this paper draws upon a fourth schema, one informed by newer post-structuralist and social-constructionist approaches which view discourses as shaping our knowledge and shared understandings, and thus policies, describing policy as discourse. Inspired by Foucault, discourses are conceived as capable of achieving things:

“they make things happen, most often through their truth status” (Bacchi, 2009, p. 35), and as such are much more than language or its usage. “Rather, discourses are socially produced forms of knowledge that set limits upon what it is possible to think, write or speak about a ‘given social object or practice’ ” (ibid).

This conceptualisation of discourse ... captures the ways in which policy shapes the world through the framing of social ‘problems’ and government ‘solutions’ and the construction of concepts, categories, distinctions and subject positions ... policy as discourse analysis involves exploring the processes of meaning construction, of ‘truths’. Policy as discourse analysis requires policy analysts to uncover the normative nature of statements that appear to be obvious, inevitable or natural, to test judgements about truth claims, and to *consider or imagine alternative ways of developing policy and practice* (Goodwin, 2011, p. 170, emphasis added).

This means that the focus of policy analysis is the *role* of policy in ‘making’ problems standing in juxtaposition to conventional policy analysis which seeks to understand how policy reacts to an identifiable problem and thus the specification of the problem is not examined.

The social constructivist approach which we apply here is derived from Bacchi’s (1999, 2009) approach to policy analysis (see also Bacchi and Goodwin, 2016). Bacchi contends that policy problems are not exogenous to the policy process but rather are constructed, defined and framed within it. Drawing on Foucault’s concept of problematization, Bacchi (2009) argues that rather than identifying the ‘objective’ problem or uncovering the ‘correct’ solution, the critical task for policy scholars is to examine the conditions in which, and the purposes for which, policy problems emerge in order to understand the processes and problematisations through which we are *governed*. Central to this approach is the idea that government action is itself constrained by the capacity to problematise. As Bacchi and Goodwin (2016, p.16, emphasis added) argue “to intervene, *to institute a policy, ‘government’* including but beyond the state, *has to target something as a ‘problem’ that needs fixing*”.

Bacchi’s ‘what’s the problem represented to be’ (WPR approach) argues that policy—broadly defined and including but not limited to activities, documents, policy instruments and laws, and also including state institutions as well as other agents and actors—reflects specific problematizations, or what she refers to as ‘problem representations’. Within this approach, policy is an entry point to understanding the way specific policy problems and thus their solutions are delineated and ‘naturalised’. Importantly, this approach enables us to examine the contingent nature of such problematisations, to ‘disrupt’ taken-for-granted assumptions and provide the space for thinking differently about policy problems and their solutions. More broadly, such analysis offers the scope to identify *the patterning of problematisations over time* and offer insight into the “modes or styles of governing that shape lives and subjectivities” (Bacchi, 2012, p. 5).

A distinctive feature of Bacchi’s (1999, 2009) WPR approach is that it offers researchers a clear method for interrogation and analysis by posing a series of concrete questions with which to examine problem representations. Interrogating policy through these questions enables researchers to uncover how policies are constitutive of both problems and solutions and to place these problematisations within broader socio-historical contexts (Elliot, 2011). These six concrete questions focus on:

- (1) the articulated representations of policy problems within policies;
- (2) the assumptions that inform those representations;

- (3) the processes and practices which have led to the dominance of the problem representation;
- (4) the silences within the dominant representation of the policy problem;
- (5) the effects of this representation of the problem; and
- (6) the processes and practices by which this representation of the problem is disseminated.¹⁸

Bacchi (1999, p. 207; 2009, p. 19) also 'directs' that these questions should be applied to the researcher's own problem representations.

We interrogated each of the Australian electricity sector's three development stages—from Federation to the contemporary period—using these questions, the results of which are presented in Table 1. In doing so we highlight that Australian energy policy, rather than solving 'pre-existing' problems, defines the limits of policy action and thus what is considered rational and possible. The analysis also identifies the pattern of Australian energy problemisation over time and how the state has represented, constituted and configured its role over time.

The first stage of development—1880s to the late twentieth century—was the period in which the Australian electricity sector emerges and becomes institutionalised. Development really starts post-Federation (1901) and sees early private company and local authority small scale electricity provision progressively taken over by State governments. Under the constitutional arrangements of the Australian Federation, electricity is a legislative function of the States which means that State governments, seeking to delineate their core responsibilities as well as promote economic and social development, were central to the development of the sector. The concentration in government ownership—and concomitant development of state-by-state coal fields to fuel local electricity generation—was to create 'fuel independence' from interstate coal imports so that economic development, particularly post WW2, was not impeded due to a lack of electricity. The objective of economic development across the federation propelled a State government-owned electricity sector with independent state-by-state operations. The problem representation is one of **economic development and fuel independence** with government seen as the best provider.

The second stage of development—from the early 1990s and predicated on a large-scale centralised grid—was a more radical (and rapid) sector restructuring underpinned by three core objectives: to increase competition; to reduce government involvement in electricity provisioning; and, to place a high reliance on the 'market' determining prices and investment outcomes. Lower prices for all consumers, more efficient operations through lower costs, the elimination of cross-subsidies, and far more productive investment were the proclaimed benefits (Joskow 2003; Newbery 2002). This restructuring was undertaken through sector-specific changes, policies applied to the operations of the public sector, and a concurrent set of policies which transformed Australia's industrial paradigm (Chester 2007).¹⁹ This stage of development leads to an Australian electricity sector of high private ownership and a centralised (interconnected) grid embedded within a complex governance and regulatory regime. The problem representation is one of **inefficiency and competition** with government ownership and control seen as generating problems not solutions.

¹⁸ The questions are somewhat overlapping and repetitive. Hence, Bacchi and Goodwin's (2016, p. 19) view that listing as separate questions "serves a heuristic function".

¹⁹ The latter set of policies encompassed industrial relations, finance, industry, taxation, government expenditure and international trade.

Table 1: INCOMPLETE Dissecting the dimensions, practices and effects of Australian electricity sector ‘problem representation’

THE QUESTIONS POSED IN BACCHI'S WPR ANALYTICAL FRAMEWORK ²⁰	THE PROBLEM REPRESENTATION IN EACH TRANSFORMATION STAGE OF THE AUSTRALIAN ELECTRICITY SECTOR
<p>1. What's the problem represented to be? - As it is expressed in policy</p>	<p>STAGE ONE: Economic development and fuel independence</p> <p>The new federalism was underpinned by the idea that the States would be independent of one another in several matters and electricity is one over which States have constitutional authority. In relation to electricity generation and supply, this concern with independence was fuelled by the shortages that arose from the industrial disputes in the coal fields during WWI and until the late 1940s. While this had varying impact across the States, policies concerned with electricity generation and supply emerged that framed the problem of electricity as one of (1) supplying electricity for economic development and (2) minimising the impact of industrial disputes on supply. Electricity comes to be defined as an essential service, or utility, for which State Governments must take responsibility rather than the private sector. High capital costs of provision and tax-exempt status of State government owned authorities facilitate this.</p> <p>STAGE TWO: Inefficiency and competition</p> <p>In the early 1990s a new form of Australian federalism took hold, with a strong focus on ‘micro-economic reform’. These ‘reforms’, framed in terms of competition and marketization, emerged in the context of a broader social and economic restructuring driven by a federal government who framed itself as ‘reforming’. State government involvement in electricity provisioning was re-framed, moving from a solution to meet the needs of capital and society to one of a problem for them (inefficiency, high costs). Despite an increasing fiscal imbalance between the State and federal governments, the early concerns of the newly federated States (of domination by other States and/or by the federal government) had eroded over the 20th Century, and by the 1990s the possibility of developing a ‘national’ electricity system became imaginable. The ‘problem’ of energy was re-problematized to reflect the broader re-problematisation of what was conceptualised as the next phase of nation building—the promotion of competition and efficiency. Rather than government ownership and control being a solution to the problem, as is the case in Stage One, it is now seen as generating problems of inefficiency (cross-subsidisation, poor investment decisions leading to excess capacity, prices not reflecting supply costs). The existence of vertically-integrated government businesses, and markets ‘siloes’ within each State, are seen as contributing to these problems and a series of solutions are proposed that include:</p> <ul style="list-style-type: none"> • Breaking-up of government monopolies into competitive and regulated businesses; • The promotion of private ownership and competition between generators and retailers;

²⁰ Bacchi (2009: 48).

THE QUESTIONS POSED IN BACCHI'S WPR ANALYTICAL FRAMEWORK ²⁰	THE PROBLEM REPRESENTATION IN EACH TRANSFORMATION STAGE OF THE AUSTRALIAN ELECTRICITY SECTOR
	<ul style="list-style-type: none"> • The development of a large-scale centralised (interconnected) electricity grid across the nation as a mechanism for promoting competition; • The development of a national electricity market, dominated by private sector participants but operated by federal regulatory agencies, as the best form of electricity provisioning. <p>STAGE THREE: Affordability and 'security' of supply</p> <p>By the mid-2000s, the challenges posed by climate change and carbon emissions provide the context for the politicisation of energy policy in Australia. This politicisation coalesces as the limits of the reforms introduced in the preceding decades were becoming apparent (particularly the promise of a more efficient sector and cheaper electricity prices) and households and businesses begin to express significant discontent with escalating prices.</p> <p>Policies concerned with energy begin to be reframed around three key 'problems'. First, the problem of the sustainability of a coal-based industry becomes a central problem in the face of both technological innovation and growing scientific evidence about the relationship between fossil fuel use and climate change. Second, while the reforms of the 1990s had opened the 'energy market' to new producers and sellers, businesses and households faced electricity costs that were being driven by charges to meet investment in the regulated monopoly network businesses, and the price paid for electricity emerged in public debate as a core problem. The issue of energy affordability becomes politicised in ways that had hitherto been absent from Australian energy debates. Third, the problem of the closure of coal-fired generation assets not replaced with like, the problem of the increased generation capacity from 'unstable' renewable sources and the centralised grid is structured around synchronised generation from 'stable' fossil fuels, means that questions of supply become increasingly salient. These three issues feed into a broader problematisation of energy as one of 'energy security', in which 'sustainability', 'reliability of supply' and 'affordability' are subsumed.</p> <p><i>Renewable energy sources create instabilities for the centralised electricity grid.</i></p> <p><i>Unnecessary investment (gold-plating) by transmission and distribution networks has increased prices significantly and created the problem of energy affordability.</i></p> <p><i>Government policies are addressing the problem of carbon emissions.</i></p> <p><i>Australia faces an energy trilemma of 'sustainability', affordability and security (reliability) of supply.</i></p>
<p>2. What presuppositions or assumptions underlie this representation of the problem?</p> <p>- Identify key concepts, binaries and categories.</p>	<p>STAGE ONE: Economic development and fuel independence</p> <p>The representation of the problem of energy for Australian governments as one of economic development and fuel independence is underpinned by broader assumptions about the role of the state and the relationship between states and markets. These assumptions, in turn, reflect the broader Australian political</p>

THE QUESTIONS POSED IN BACCHI'S WPR ANALYTICAL FRAMEWORK ²⁰	THE PROBLEM REPRESENTATION IN EACH TRANSFORMATION STAGE OF THE AUSTRALIAN ELECTRICITY SECTOR
	<p>economy and the history of state involvement in infrastructure development. These assumptions, applied in the context of energy, can be understood as follows:</p> <ul style="list-style-type: none"> • That electricity was essential to the economic development of the nation and should be cheaply available; • That because electricity is a public utility, State governments should have a monopoly ownership and control of operations, to guarantee the provision of cheap electricity to their respective populations; and • That the supply of electricity by each State was best achieved by fuel independence from other States (through exploitation of coal reserves or the development of alternative generation like hydro) <p>STAGE TWO: Inefficiency and competition</p> <p>Under this stage, changes in the problem representation of energy reflect broader transformations in the 'problem' of government. From the 1970s the post-war settlement had become increasingly challenged by the promulgation of arguments that governments were inefficient, limiting private enterprise and competition. In Australia, as elsewhere, these ideas gained in prominence and by the 1990s had come to dominate the representation of policy problems across social, economic and other public policy fields. In relation to energy policy, these ideas rest on a series of assumptions, including:</p> <ul style="list-style-type: none"> • That public-sector values and practices limited the efficient operation of government services and thus private sector management and financial practices should apply to public sector operations in order to maximise efficiency and decrease prices; • That privately-owned businesses are more efficient and government utilities should be privatised; and • That 'the market' rather than governments should determine prices and capital investments. <p>STAGE THREE: Affordability and 'security' of supply</p> <p><i>The functioning of the national electricity market can be improved.</i></p> <p><i>If the market settings are 'right' then consumers will benefit.</i></p> <p><i>Energy security will be delivered by 'market adjustments' driven by government actions.</i></p> <p><i>Changes to the economic regulatory regime and regulatory push-back on network price increases will improve the affordability of energy.</i></p> <p><i>Greater consumer awareness of price alternatives will allow better management and improve affordability.</i></p> <p><i>Renewable energy resources are unreliable due to weather-dependence.</i></p> <p><i>Coal will continue to be a key generation fuel for the foreseeable future.</i></p> <p><i>The centralised electricity grid will ensure energy security.</i></p> <p><i>Decentralised distributed energy sources will not enhance energy security.</i></p>

THE QUESTIONS POSED IN BACCHI'S WPR ANALYTICAL FRAMEWORK ²⁰	THE PROBLEM REPRESENTATION IN EACH TRANSFORMATION STAGE OF THE AUSTRALIAN ELECTRICITY SECTOR
	<p><i>Electricity supply reliability and emissions reduction can be achieved through retailer compliance with the National Energy Guarantee.</i></p> <p>The introduction and use of the concept of 'energy security' within debates about energy policy in Australia marks a key policy shift that reflects a broader transformation in both the role of the state and the relationships between citizens, the state and the market. Here the concept of security is given specific meaning in the context of energy: reliability of supply, 'sustainability' of the existing centralised electricity grid, and affordability.</p> <p>The framing of contemporary energy policy in Australia in terms of 'security' acts to limit debates about renewable energy sources and broader environmental concerns about coal-based energy production. Such concerns can be simultaneously acknowledged and subsequently relegated as secondary to the primary goal of ensuring an 'affordable' supply of energy to industry and households.</p>
<p>3. How has this representation of the problem come about?</p> <p>- What are the practices and processes that led to the dominance of the problem representation?</p>	<p>STAGE ONE: Economic development and fuel independence</p> <p>Through most of the 20th Century the development and maintenance of an electricity sector was represented as a key pathway to modernisation and nation building that was reliant on state intervention. Within the context of the Federation and the technological limits of production and supply, this problem was represented as a site of sub-national action, with State governments across the country taking responsibility for the development and supply of energy to industry and households. The representation of the problem of energy in stage one is driven by multiple practices and processes, including:</p> <ul style="list-style-type: none"> • Nation building through economic development; • Constitutional arrangements and concern by the States about the nature of the Federation, particularly the possibility of individual States being dominated by the federal government and/or other States; • Technological advances that support the construction of large generation plants located close to coal mines, and more extensive transmission networks; • Institutional arrangements that ensure government owned enterprises have lower capital costs (tax exempt and cheaper financing charges) and this in turn limits the number of actors in the sector and helps to ensure there are constraints on politicisation; • The growing national and international acceptance of the concept of 'essential services' and public utilities as being a responsibility of government; • With the creation of the ACT as the site for the national capital, Canberra, NSW had ceded entitlement to the waters of the Snowy River to the federal government. In the 1940s the federal government came to an agreement with Victoria and NSW and the Snowy Hydro scheme began. However, the Snowy Hydro-electric scheme was envisioned as more than energy generation, it was at the heart of Australia's approach to post-war reconstruction and population growth—it justified and absorbed high numbers of

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	<p>skilled and unskilled migrants and was a major infrastructure project that came to be seen as a national, and thus unifying, project. Thus, the Snowy scheme was to prove important firstly because it provided a pathway for federal involvement in the electricity sector and secondly, because it provided an early framework for national partnerships in the sector and finally it solidified the idea that electricity generation and distribution was a matter for all levels of government.</p> <p>STAGE TWO: Inefficiency and competition <i>Australia adopts the UK electricity sector restructuring model as early 1990s Premiers Conferences (supported by an Industry Commission report) and the subsequent COAG agree to establish an interconnected grid and a mandatory national electricity (wholesale trading) market and promote electricity sector competition by breaking up state government-owned electricity monopolies.</i> <i>The sector's restructuring is integrated with the National Competition Policy and tied to financial payments to the states.</i> <i>Each participating jurisdiction of the national electricity market applies the National Electricity Law.</i> <i>New Public Management policies are implemented (e.g. de-integration of monopolies, sector ombudsman and sector regulator established, privatisation).</i></p> <p>STAGE THREE: Affordability and 'security' of supply <i>Support for solar PV is limited and progressively scaled back so independence from the centralised grid is not possible for nearly all installations.</i> <i>State government feed-in tariffs are structured to support export to the centralised grid.</i> <i>No policy support for decentralised microgrids.</i> <i>September 2016 loss of SA power is blamed on the state's high reliance on renewable (wind) energy.</i> <i>The COAG Energy Council establishes a review of the national electricity market's security and reliability (Finkel Review) which recommends an integrated national electricity grid connected to renewable energy zones.</i> <i>The Federal Government proposes a 50% expansion of Snowy Hydro, initiates an inquiry into retail electricity prices, opposes closure of Australia's largest coal-fired generation plant and establishes the Energy Security Board.</i> <i>The Energy Security Board proposes that retailers meet a National Energy Guarantee to ensure supply reliability and emissions reduction.</i></p>
<p>4. What is left unproblematic in this problem representation? - Where are the silences?</p>	<p>STAGE ONE: Economic development and fuel independence <i>Coal is the only envisaged electricity generation fuel source.</i> <i>Planning to meet future demand is on a state-by-state government basis, and prices are regulated.</i></p>

<p align="center">THE QUESTIONS POSED IN BACCHI'S WPR ANALYTICAL FRAMEWORK²⁰</p>	<p align="center">THE PROBLEM REPRESENTATION IN EACH TRANSFORMATION STAGE OF THE AUSTRALIAN ELECTRICITY SECTOR</p>
<p>- Can the 'problem' be thought about differently e.g. cross-cultural, historical and cross-national comparisons to provide examples of alternative representations?</p>	<p><i>Historically, US electricity provision has been by privately-owned companies subject to price regulation.</i></p> <p>STAGE TWO: Inefficiency and competition</p> <p><i>A centralised grid is considered the only effective solution if competition is to deliver lower consumer prices. Centralisation of electricity market governance arrangements virtually eliminates the role of state-based electricity regulation.</i></p> <p><i>There are no policy responses as the sector's restructuring outcomes begin to emerge (e.g. escalating prices, no new investment in baseload capacity).</i></p> <p><i>The UK's abandonment of a mandatory wholesale electricity trading market suggests there are alternative market structures.</i></p> <p><i>EU electricity restructuring places greater emphasis on increasing interconnection capacity (for trading) across geographic borders, consumer rights and the interaction of energy and environmental policies.</i></p> <p>STAGE THREE: Affordability and 'security' of supply</p> <p><i>The 'trickle-down' notion for consumers becomes further entrenched as 'market adjustments' are made following the 2017 Finkel Review recommendations and subsequent establishment of the Energy Security Board.</i></p> <p><i>'Market adjustments' are promoted as delivering reliable supply and lower prices.</i></p> <p><i>Consumers are expected to actively manage their own energy affordability issues through price comparisons and electricity retailer switching.</i></p> <p><i>Limited incentives for small-scale renewal energy adoption further embed the centralised electricity grid.</i></p> <p><i>There are no institutional or political alignments supporting distributed electricity generation.</i></p> <p><i>Carbon lock-in is an alternative representation of the problem i.e. the conjunction of technologies, institutions and behavioural norms constrain carbon emissions reductions and 'lock-in' a carbon-intensive coal-fired electricity generation system.</i></p>
<p>5. What effects are produced by this representation of the problem?</p> <p>- What is likely to change with this representation of the 'problem'?</p> <p>- What is likely to stay the same?</p> <p>- Who is likely to benefit from this representation of the 'problem'?</p> <p>- Who is likely to be harmed?</p>	<p>STAGE ONE: Economic development and fuel independence</p> <p><i>Coal is embedded as the dominant fuel for electricity generation which benefits resource extraction companies and rail transport.</i></p> <p><i>State governments become the dominant owners and operators of electricity assets.</i></p> <p>STAGE TWO: Inefficiency and competition</p> <p><i>Coal is reinforced as the dominant generation fuel.</i></p> <p><i>State governments benefit from dividends, tax equivalent payments and equity repayments from their respective electricity companies, and privatisation proceeds.</i></p>

THE QUESTIONS POSED IN BACCHI'S WPR ANALYTICAL FRAMEWORK ²⁰	THE PROBLEM REPRESENTATION IN EACH TRANSFORMATION STAGE OF THE AUSTRALIAN ELECTRICITY SECTOR
	<p><i>Transnational energy companies become significant owners of transmission and distribution networks, and some generation capacity.</i></p> <p><i>Households experience escalating price increases well above general price and wage movements.</i></p> <p><i>Carbon emissions from electricity coal-fired generation increase.</i></p> <p>STAGE THREE: Affordability and 'security' of supply</p> <p><i>Coal remains the dominant generation fuel although the contribution of gas and renewal energy sources increases.</i></p> <p><i>State governments benefit from privatisation proceeds.</i></p> <p><i>Government decisions reinforce a centralised electricity grid.</i></p> <p><i>The notion of renewable energy sources as threatening energy security enters public debate.</i></p> <p><i>The problem is represented as one of market functioning so requires market adjustments constructed to 'fit' the structure, rules and governance of the national electricity market.</i></p> <p><i>Significant electricity price rises continue.</i></p> <p><i>Energy affordability is a matter for individuals and households to manage.</i></p>
<p>6. How/where is this representation of the 'problem' produced, disseminated and defended?</p> <ul style="list-style-type: none"> - How could it be questioned, disputed and disrupted? - Identify institutions, individuals and agencies involved in sustaining the problem representation. 	<p>STAGE ONE: Economic development and fuel independence</p> <p><i>State governments advocate the need for 'fuel (coal-import) independence' for economic development to occur and establish electricity supply monopolies.</i></p> <p>STAGE TWO: Inefficiency and competition</p> <p><i>Vertical and horizontal de-integration of government-owned electricity companies into competitive businesses (generation and retail) and regulated monopolies (transmission and distribution).</i></p> <p><i>Commercialisation, corporatisation and subsequent privatisation of government-owned electricity companies.</i></p> <p><i>The creation of a mandatory national wholesale electricity trading market initially managed by the NECA and NEMMCO and subsequently by the AER, AEMC and AEMO.</i></p> <p><i>The progressive introduction of retail competition.</i></p> <p><i>State-based regulation of retail prices subsequently removed and consumers 'encouraged' to shop around for 'best market price contracts'.</i></p> <p>STAGE THREE: Affordability and 'security' of supply</p> <p><i>All Australian governments, The COAG Energy Council, the federal economic regulators responsible for energy (AER, AEMC, AEMO, ESB), the Australian Competition and Consumer Commission.</i></p>

The third stage of transformation emerges in the mid-2000s with the confluence of four issues. First, it becomes increasingly evident that the outcomes of the radical restructuring stage are contrary to its asserted benefits—a rapid escalation in household electricity prices; baseload generation capacity is not growing to meet demand forecasts; and, wholesale price spikes reflect the exercise of market power not demand pressures. Second, public concerns are growing about the carbon emissions impact on climate change from the high reliance on coal for electricity generation. Third, the dominant coal-fired generation plants are all approaching the end of their asset lives over the next 20 years or so, requiring replacement with the same or alternative technology to ensure sufficient capacity is available to meet demand. Fourth, the cost of renewable energy, battery storage and distributed technologies begin to markedly fall leading to a marked uptake, particularly of solar photovoltaic (PV).

We now see policies directed at carbon emissions (euphemistically termed ‘climate change’) and renewable energy sources focused on Australia’s electricity regime. This intersection of policy domains, previously quite independent of each other, explicitly concedes the constitutive relationship between fossil-fuelled electricity and emissions despite the contestable effectiveness of many emission-related policies. A critical policy paradox also becomes apparent. Transitioning to far greater decentralised (distributed) generation from renewable energy sources, such as wind and solar, and the use of battery storage is actively constrained by policies which further entrench the electricity sector’s existing regime of an interconnected grid and centralised dispatch of electricity.

More recent extreme temperature and weather events, as weather-dependent energy sources continue to grow in use, lead to sudden unexpected outages from coal and gas plants, and a widespread loss of supply in SA for some days in 2016. These events, the cessation of coal-fired operations in SA and Victoria and an announced NSW closure, and concerns about the adequacy of gas supply for the domestic market, spark a debate about the security of Australia’s electricity supply generally, and from renewable sources particularly, and the need for investment in (or retention of existing) centrally dispatched generation to prevent blackouts. The SA State government also acts to increase the state’s energy self-sufficiency.

Overall, the electricity sector’s third—and contemporary—development stage is denoted by: renewable energy and emission-reduction policies impacting the sector’s structure and operations; closure of larger-scale coal-fired generation plants in three states; policy rhetoric framed around an ‘energy trilemma’ of sustainability, affordability and security (reliability) of supply; and, a nascent shift back to greater state-based provisioning away from reliance on a centralised market. This ‘renewable energy-energy security’ stage leads to an Australian electricity sector further embedded around a centralised system—policies promote, to a limited extent, an increased capacity for renewable energy sources to displace coal-fuelled electricity while other policies strongly reinforce the centralised interconnected grid, dispatch and regulation. The problem representation is one of **affordability and ‘security’ of supply** with ‘market adjustments’ by government seen as the solution.

4. THE NATURE OF FACTS AND PROBLEMATISATIONS

Drawing on Bacchi’s (1999, 2009) social constructionist conceptual schema we have analysed the three stages through which the Australian electricity sector—the cornerstone of Australian energy policy—has developed. The purpose of this analysis was not to find ‘facts’, or the ‘triggers’ for policy changes, “but rather with the nature of facts and how they are brought into being” (Goodwin 2011, p. 178) to understand the problematisation of energy i.e.

how different energy problem representations can be formed. Nor have we sought to identify the 'real' problem or take a specific position on an issue.

Our analysis found that problematisation in Australian energy policy has shifted from one of 'economic development and fuel independence' (1880s to early 1990s) to become 'inefficiency and competition' (late 20th century to mid-2000s) and then transcend to 'affordability and 'security' of supply' (contemporary era).

Perhaps more importantly, the analysis is a direct demonstration of Bacchi's (2009, p. xi) argument that "we are governed through problematisations rather than through policies". Our analysis illuminates the patterns of successive Australian energy problematisation (through the lens of the electricity sector) and showcases a particular state (and governing) role. In the first stage of the electricity sector's development (economic development and fuel independence), the state is viewed as the solution to the problem—through Australian State government ownership and control of operations within respective geographic boundaries. In the second development stage, the state is seen as the source of the problem through 'inefficient' government-owned electricity supply authorities and market competition is projected as the panacea. In the third development stage—the contemporary era—the state is envisaged as the solution to the problem through its capacity to make 'market adjustments'.

Consequently, we conclude that our analysis supports the argument for critical scholarship to spotlight the nature (shape and character) of problematisations rather than the focus of conventional policy analysis on problem-solving which does not question the boundaries or articulation of the assumed problems to be 'fixed'. We also conclude that the framing and reframing of the problem of 'energy' over time reflects broader transformations in the problem of 'governing'.

With respect to methodology, we conclude that Bacchi's analytical framework has applicability to all areas of policy analysis. To date, this analytical framework has predominantly informed analysis of 'events' within the domain of social policy. Bacchi and Goodwin (2016) applied this framework to specific Australian education, health, immigration, economic, transport/environment, disability/equality and family policies. Our analysis has been applied to the genealogy of Australian energy policy. This analytical framework, in our view, is not restricted to policy or geographic boundaries, nor to specific policies and can be usefully applied to policy genealogy.

This analytical framework "organises, what is, in effect, an epistemology into a set of questions and associated strategies" (Goodwin 2011, p. 172) and, as such, allows the abstract to become concretised without presupposed classification categories or any other taxonomy. Bacchi's (1999, 2009) WPR framework provides, we consider, a useful heuristic—through a grid of questions—to guide analysis which allows the probing of the conceptual underpinnings of (energy) problem representations. This also reveals the epistemological and ontological bases—as also articulated by Sovacool et al (2016)—of the representation of energy 'problems', and policy issues more generally.

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Appendix A. Key Australian electricity sector structural changes since 1990

Structural change	Source of change	Australian States and Territories							
		NSW	VIC	QLD	SA	ACT	TAS	WA	NT
<i>Vertical de-integration of monopolies: Generation, transmission and distribution</i>	Sector & NPM	Yes 1991-95	Yes 1993-95	Yes 1995-97	Yes 1998	n.a.*	Yes 1998~	Yes 2006	Yes 2014
<i>Vertical de-integration: Distribution and retail</i>	Sector	Yes#	No#	Yes#	Yes	Yes	Yes	No	Yes
<i>Horizontal de-integration: Generation and distribution</i>	Sector	Yes	Yes	Yes	Generation only	n.a.	No	No	No
Corporatization	NPM	1996-2000	1994	1997	1995-98	1995	1995	1995	2002
Privatization	NPM	Yes<	Yes	Yes<	Yes	Yes<	No	No	No
Sector regulator	NPM	1992	1994	1998	1999	1996	1995	2004	2000
Sector ombudsman	NPM	1998	1996	2007	1999	1997^	1998	2005	2000
Increased transmission Interconnection	Sector	Yes	Yes	Yes	Yes	No	Yes	No	No
Retail competition	Sector	1996 to 2002	1994 to 2000	1998 to 2007	1999 to 2003	1997 to 2003	2006 to 2014	Started 1997	2000 to 2010
Retail price de-regulation	Sector	2014	2009	2016+	2013	No	No	No	No
NEM participant	Sector	Yes	Yes	Yes (from 2001)	Yes	Yes	Yes (from 2005)	No	No

n.a. = not applicable

* No generation or transmission capacity.

~ The transmission and distribution businesses were re-integrated in July 2014 at the time full retail competition commenced.

De-integration of retail and distribution did not occur until the privatization of the Queensland retail businesses in 2006-07 and those for NSW in 2011. The Victorian businesses were not de-integrated prior to sale.

< All NSW generation, transmission, retail and 50.4% of two (out of 3) distribution businesses. Only retail in Queensland. In the ACT, there has been a 50 per cent sale each of the distribution and retail businesses

^ The Federal Government Ombudsman performs the role of ACT ombudsman.

+ South-east Queensland only.

APPENDIX B: Significant decisions, inquiries, reviews and events since 2007 impacting the Australian electricity sector

DATE	SIGNIFICANT DECISION, INQUIRY, REVIEW or EVENT
July 2007	The Federal Conservative Government announces its intention to establish an emissions trading system (ETS).
September 2007	The National Greenhouse and Energy Reporting (NGER) Scheme commences which requires companies above certain thresholds to annually report their emissions including the electricity sector, Australia's largest emitting industry.
December 2007	The incoming Federal Labor Government ratifies the Kyoto Protocol, appoints a Minister for Climate Change and the Photovoltaic Rebate Program—providing a rebate for households and community-use buildings installing solar PV—is rebranded the Solar Homes and Communities Program.
July 2008	The Federal Labor Government releases a Green Paper for a Carbon Pollution Reduction Scheme (CPRS), a proposed cap-and-trade market-based ETS.
July 2008	The Federal Labor Government implements the 7-year Solar Schools Program to provide grants towards the cost of a solar PV installation for a school.
July 2008	The SA State Labor Government feed-in-tariff (FiT) scheme for solar PV commences for a proposed 20 years.
July 2008	The Queensland State Labor Government Solar Bonus (FiT) scheme for solar PV commences.
September 2008	The Garnaut Climate Change Review, commissioned by the Federal Labor Government, is released and recommends <i>inter alia</i> the integration of national climate change policy with global policy, and strong market-based mitigation policies including an ETS.
December 2008	The Federal Labor Government releases a White Paper for the CPRS and the Garnaut Climate Change Review.
March 2009	The ACT Labor Government FiT scheme for solar PV commences for a proposed 20 years.
May 2009	The Federal Labor Government establishes the Carbon Capture and Storage (CCS) Flagships Program to support the construction of large-scale demonstration Australian CCS projects.
June 2009	The Federal Labor Government terminates the Solar Homes and Communities Program and introduces the Solar Credits scheme to provide credits (Renewable Energy Certificates) for solar energy produced by households and small businesses and acting as an upfront subsidy for the capital cost of a solar PV installation.
July 2009	The Federal Labor Government launches the Green Loans Program for free household energy efficiency audits and interest-free loans to make home improvements.
August 2009	The Federal Labor Government establishes the Australian Solar Institute (ASI) to support solar thermal and solar PV research and development, and provide consumer advice on technical matters relating to solar PV.
September 2009	A Renewable Energy Target (RET) of 20 per cent (45,000 Gwh) of electricity generated from renewable sources by 2020 commences.
October 2009	The Federal Labor Government establishes the Australian Centre for Renewable Energy (ACRE) to promote the commercialization of renewable energy technologies.

DATE	SIGNIFICANT DECISION, INQUIRY, REVIEW or EVENT
November 2009	The Victorian State Labor Government FiT scheme for solar PV commences.
December 2009	The Federal Labor Government establishes the Solar Flagships Program to support the construction of large-scale grid-connected Australian solar power stations.
January 2010	The NSW State Labor Government solar FiT scheme—the Solar Bonus Scheme—commences for an intended seven years.
February 2010	The proposed CPRS is abandoned after legislation fails twice to pass the Senate.
July 2010	The Federal Labor Government amends the guidelines for the Solar Schools Program.
July 2010	The Federal Labor Government replaces the Green Loans Scheme with a grants-based scheme.
August 2010	The WA State Conservative Government FiT scheme for solar PV commences.
December 2010	The Federal Labor Government announces that, commencing from July 2011, the Solar Credits scheme will be phased out by mid-2014.
December 2010	The Federal Labor Government closes the Green Loans Program.
January 2011	The RET is amended to operate in two parts: 41,000 Gwh for the Large-Scale Renewable Energy Target (LRET) and 4,000 Gwh for the Small-scale Renewable Energy Scheme (SRES) which issues 'upfront' tradeable Small-scale Technology Certificates (STCs) for the expected output of a system less than 100kW over 15 years which can be assigned to reduce the purchase price.
April 2011	The NSW State Government's Solar Bonus (FiT) Scheme closes to new applicants, the FiT is reduced and electricity retailers commence to offer voluntary FiTs for non-scheme households and small businesses.
May 2011	An update of the Garnaut Climate Change Review is released and advocates, amongst other things, a three-year fixed carbon price followed by a carbon trading scheme with a floating price.
May 2011	The Federal Labor Government announces that the Schools Solar Program will cease end June 2013, two years earlier than originally planned.
May 2011	The Queensland State Government reduces the solar system capacity eligible for the FiT scheme.
July 2011	The Federal Labor Government announces the Clean Energy Future (CEF) Plan including new regulatory institutions, a carbon pricing mechanism from mid-2012 to be replaced by an ETS in 2015, tax cuts and cash payments for low and middle-income households to compensate for electricity price impacts, a Clean Energy Finance Corporation to commercialise renewable and low-emission technologies, free carbon permits and cash payments (as compensation for the carbon price impact) to coal-fired electricity generators, purchase of 2000 megawatts of high emissions intensive electricity generation capacity for closure by 2020 ('Contracts for Closure'), the Community Energy Efficiency (CEEf) Program grants program for local government and non-profit organisations, the Energy Efficiency Information Grants (EEIG) Program to provide information to small and medium enterprises and community organisations, the Local Government Energy Efficiency (LGEE) Program providing financial assistance to local

DATE	SIGNIFICANT DECISION, INQUIRY, REVIEW or EVENT
	government for the installation of solar and heat pump hot water systems, and the Low Income Energy Efficiency (LIEE) Program grant program to government and community organisations to trial energy efficiency improvements for low-income households. ²¹
July 2011	The WA State Government's FiT scheme is amended to a lower rate and the scheme is closed to new installations from August 2011.
September 2011	The SA State Government's FiT scheme is amended to provide a lower rate for new solar PV connections.
December 2011	The Victorian State Government FiT scheme is closed to new applicants and a lower rate applies to installations during 2012 until December 2016.
April 2012	The Federal Labor Government establishes the Clean Energy Authority to measure, manage, reduce or offset Australia's carbon emissions including the NGER and the RET.
June 2012	The Queensland State Government FiT scheme is amended to a lower rate for applications after July 2012 until June 2014.
July 2012	The carbon price commences and applies to companies emitting annually more than 25,000 tonnes of carbon equivalent greenhouse gases, and electricity generation companies are issued free permits as a form of industry assistance. ²²
July 2012	The Federal Labor Government establishes the Australian Renewable Energy Agency (incorporating ACRE, ASI and the Solar Flagships Program) to support—through funding, networks and shared knowledge—the development of local renewable energy technology.
August 2012	The Federal Labor Government establishes the Clean Energy Finance Corporation (CEFC) to facilitate funding for the commercialisation and deployment of Australian-based renewable energy, energy efficiency and low-emissions technologies.
September 2012	The Federal Labor Government abandons its 'Contracts for Closure' program announced as part of the CEF Package.
October 2012	The Federal Labor Government releases an Energy White Paper which incorporates the previously announced CEF Plan and encompasses the exploitation of Australia's energy resources as well as domestic energy consumption. ²³
November 2012	The Senate Select Committee on Electricity Prices releases its report 'Reducing Energy Bills and Improving Efficiency' and recommends cost-reflective electricity pricing, the roll-out of smart meters, consumer education and information, regulatory changes to encourage the connection of embedded generation to the grid, and adoption of the National Energy Customer Framework to better protect consumers.

²¹ The carbon pricing mechanism was commonly referred to by critics as a 'carbon tax'. All companies annually emitting more than 25,000 of carbon equivalent greenhouse gas emissions (except those in the transport and agriculture sectors) were required to obtain emissions permits through purchase or free issue. Permits equivalent to the reported emissions of liable companies were surrendered or charges incurred.

²² The top 20 payers of the carbon price, which included 15 electricity generation companies, contributed more than 60 per cent of the total amount paid in 2013-14 (Australian Government 2014).

²³ Drafting of a Green Paper was suspended in 2010 pending resolution of the Federal Labor Government's carbon pricing policy and the outcome of the federal election. In late 2010 the Federal Labor Government decided to proceed directly to a White Paper.

DATE	SIGNIFICANT DECISION, INQUIRY, REVIEW or EVENT
December 2012	The Climate Change Authority releases its review of the RET and recommends <i>inter alia</i> policy stability to promote investment in renewables, the RET be reviewed every 4 years, the RET target should remain to provide investor confidence and no changes are required to the LRET.
January 2013	The Victorian State Government FiT scheme applies a lower rate to installations from January 2013 until December 2015.
June 2013	The Federal Labor Government ceases the Solar Cities Program—introduced in 2004 by the previous Conservative Coalition Government—which trialed new models for electricity supply (including solar) in seven cities.
June 2013	The Productivity Commission releases its Inquiry Report ‘Electricity Network Regulatory Frameworks’ and recommends accelerated decision-making and NEM rule change processes, long-term consumer interests should be integral to regulatory decisions, reliability standards should reflect consumers valuations, demand management options needed to reduce investment to meet 40 hours of annual peak demand, state government-owned electricity businesses should be privatized, reform to current incentive regulation, more transparent AER governance and all NEM institutions to be regularly reviewed, improved benchmarking of regulated electricity companies, and reform to generator bidding behaviour and payment to the transmission network.
July 2013	The ACT Government’s FiT scheme is amended to provide a lower rate.
August 2013	The Tasmanian State Labor Government FiT scheme for solar PV commences.
October 2013	The SA State Government solar FiT scheme closes to new installations and electricity retailers commence to offer voluntary FiTs.
December 2013	The Federal Conservative Government releases a Green Paper on the Emissions Reduction Fund (ERF)—the centrepiece of its Direct Action climate change policy—whereby the government will pay for projects to reduce carbon emissions through a reverse auction although the highest emitter, the energy sector, is not included. ²⁴
March 2014	The Federal Conservative Government responds to the 2013 Climate Change Authority’s RET review and essentially agrees with all recommendations concerning the LRET.
April 2014	The Federal Conservative Government releases a White Paper on the ERF.
May 2014	The Federal Conservative Government significantly reduces funding for the CCS Flagships Program.
June 2014	The Federal Government’s LGEE Program closes.
July 2014	The carbon price is repealed by the Federal Conservative Government.
August 2014	An Expert Panel Review of the RET—initiated by the Federal Conservative Government and led by a climate change sceptic—concludes that the cost of the RET outweighed its benefits and recommends that the LRET is either closed to new entrants or modified, and the SRES be either terminated immediately or phased out more rapidly.

²⁴ The Direct Action climate change policy was announced in 2010 when the Conservative Coalition Parties were in opposition.

DATE	SIGNIFICANT DECISION, INQUIRY, REVIEW or EVENT
September 2014	The Federal Conservative Government releases an Energy Green Paper focused on increasing investment in the energy resources sector, further privatization of electricity assets, increasing domestic gas supply and the development of gas trading markets, and enhanced energy productivity.
September 2014	The SA Labor Government announces an increase to its RET from 33 per cent by 2020 to 50 per cent by 2025.
December 2014	The Climate Change Authority's review of the RET is released and recommends the LRET should not be reduced but slightly re-phased to increase the probability that it will be met by 2020.
April 2015	The Federal Conservative Government releases an Energy White Paper confirming the 2014 Green Paper's emphases on competition, privatization, domestic gas supply and energy productivity.
April 2015	The first auction is held for the Federal Government's ERF.
June 2015	The Federal Conservative Government announces a downward revision of the LRET from 41,000 to 33,000 Gwh of renewable electricity generation by 2020.
June 2015	The Federal Government's EEIG program closes.
July 2015	The Conservative Coalition Prime Minister, Tony Abbott, announces a ban on the CEFC investing in wind power and solar PV.
August 2015	The Federal Conservative Government notes the 2014 Climate Change Authority's RET review and refers to the June 2015 legislative changes to the LRET.
November 2015	The NSW Conservative Government announces the sale of 100 per cent (through a 99-year lease) of the its electricity transmission company (Transgrid).
December 2015	The Conservative Coalition Prime Minister, Malcolm Turnbull, lifts the July 2015 ban on the CEFC and directs it to focus on innovative and emerging technologies.
December 2015	The 350km sub-sea Basslink interconnection cable between Tasmania and Victoria is disconnected, due to a faulty interconnector, until June 2016.
January 2016	The Victorian State Government FiT scheme applies a lower rate to installations from January 2016 until June 2017.
May 2016	The remaining SA coal-fired generation plants (Northern and Playford B) close.
May 2016	The Clean Energy Regulator announces that the deeming period for STCs will reduce by one year every year until 2030.
June 2016	The Federal Government's CEEF, CEE and LIEE programs close.
September 2016	The SA State Government's FiT scheme ceases for installations from 1 October 2011 to 30 September 2013.
September 2016	Widespread electricity loss in South Australia caused by storm damage to the transmission network generates a robust political debate about the energy security risks from reliance on renewable energy sources.
October 2016	The NSW State Conservative Government announces the sale of 50.4 per cent (through a 99-year lease) of one of its three electricity distribution companies (AusGrid).

DATE	SIGNIFICANT DECISION, INQUIRY, REVIEW or EVENT
October 2016	The COAG Energy Council establishes the Finkel Review to determine the current state of security and reliability of the national electricity market.
November 2016	The Federal Conservative Government ratifies Australia's commitment to comply with the Paris Agreement on Climate Change with a 2030 emissions target of 26-28 per cent below 2005 levels.
December 2016	The NSW State Government's Solar Bonus (FiT) scheme ceases.
March 2017	The Hazelwood coal-fired generation plant, meeting about 5 per cent of national electricity consumption, closes.
March 2017	The Conservative Coalition Prime Minister announces a proposed expansion of Snowy Hydro to increase its generation capacity by 50 per cent which may take up to 10 years to construct.
March 2017	The SA State Labor Government announces a \$550 million energy plan to increase the state's energy self-sufficiency through large-scale battery storage, a new government-owned gas stand-by plant, legislative change for the SA Minister to direct the market if a shortfall occurs, and incentives to source more gas for SA use, and an energy security target for local generation.
March 2017	The Federal Treasurer directs the Australian Competition and Consumer Commission (ACCC) to inquire into retail electricity pricing in the NEM.
March 2017	The AEMO completes its final report on the September 2016 SA blackout and concludes that wind generation control settings caused the loss of supply when the transmission network became storm-damaged.
May 2017	As part of the annual budget, the Federal Conservative Coalition Government announces the cessation of the CCS Flagships Program in 2019.
May 2017	The NSW State Conservative Government announces the sale of 50.4 per cent (through a 99-year lease) of its second of three electricity distribution companies (Endeavour Energy).
May 2017	The Queensland State Government removes the cost of the FiT scheme from all electricity bills from July 2017 for three years.
June 2017	The final report of the Finkel Review is released and contains 50 recommendations directed at the electricity sector—for transition to a Clean Energy Target, integrated system planning and new governance arrangements.
June 2017	The Federal Conservative Government announces a new regulatory limit to LNG exports in response to business concerns that exports were constraining the supply of gas to the domestic market and causing a surge in gas prices.
July 2017	The Victorian State Government FiT scheme applies a higher rate to installations from July 2017 but lower than 2009 to 2012 installations.
August 2017	The COAG Energy Council announces the establishment of the Energy Security Board (ESB) to coordinate implementation of the Finkel Review's recommendations and provide whole-of-system oversight for energy security and reliability.
September 2017	AGL Energy confirms the intended closure of Australia's largest coal-fired generation plant (Liddell in NSW) in 2022 sparking a political debate about whether AGL Energy should maintain the plant beyond 2022, sell it to another company or replace it with equivalent capacity.

DATE	SIGNIFICANT DECISION, INQUIRY, REVIEW or EVENT
September 2017	The ACCC releases a preliminary report on retail electricity prices which finds there is a severe affordability problem, insufficient competition in generation and retailing, the market is exceptionally complex and consumers are unable to exit the market.
October 2017	The Federal Conservative Government supports the ESB's proposal for a National Energy Guarantee (NEG)—instead of the Finkel Review's recommended Clean Energy Target— which places two obligations on electricity retailers: to ensure the availability of enough electricity generation to meet demand (the reliability guarantee) and to reduce the electricity sector's greenhouse gas emissions (the emissions guarantee).
October 2017	On 3 October 2017, the Federal Conservative Government and Queensland's three LNG producers sign an agreement whereby the producers commit to offer sufficient gas on reasonable terms to meet any domestic market shortfalls in 2018 and 2019. The Prime Minister announces that this commitment means that no export restrictions will be required.
November 2017	The installation of the largest (lithium ion) battery storage plant in the world is completed and tested in South Australia for operation from 1 December 2017.
December 2017	The ESB releases its first 'Health of the NEM Report' and concludes electricity bills—for households and business—are unaffordable, system reliability risks are increasing due to the growth in intermittent renewable energy from wind and solar, and future carbon emissions policy is uncertain.
December 2017	The Federal Conservative Government releases a review of its climate change policies with plans to loosen compliance obligations for emissions-intensive companies, re-introduce international carbon offsets, and implement the proposed NEG.
January 2018	Summer temperatures soar in Victoria and South Australia, and the AEMO 'encourages' large-scale electricity users to 'power down' and thus reduce pressure on electricity supply.
February 2018	The Tasmanian Conservative Opposition announces that it plans to leave the NEM pricing mechanisms if re-elected (which it was) although it intends to continue to export and import electricity over the Basslink cable.
February 2018	The SA Labor Premier announces a 75 per cent RET by 2025, a Renewable Storage Target of 750 MGW by 2025 and installation of solar PV and battery storage to 50,000 low-income households including public housing tenants.
March 2018	The Federal Conservative Government acquires full ownership of Snowy Hydro.
March 2018	The Basslink interconnection cable between Tasmania and Victoria is damaged during maintenance work and expected to be disabled for at least a month.
March 2018	The incoming SA Conservative Government proposes more interconnection capacity with NSW, more battery storage, abolition of the state's RET and not to proceed with the planned installation of solar and battery storage to 50,000 low-income households.
April 2018	The COAG Energy Council agrees to progress the NEG's development and design for final decision in August 2018

Source: Various websites, reports and media statements of the Prime Minister, Federal and State government Ministers and departments, AEMO, AGL Energy, Alinta Energy, Australian National Audit Office, Climate Change Authority, COAG Energy Council, Engie, ESB, Garnaut Climate Change Review, Productivity Commission, and the Senate Select Committee on Electricity Prices.