

# The Public Policy Papers of the Energy Policy Institute of Australia: A Compendium of Key Points

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2016	<b>Cristelle Maurin</b> , University College London	<b><u>The need for an energy vision in New South Wales</u></b>
2016	<b>Professor Chris Greig</b> , UQ Energy Initiative; and <b>Robert Pritchard</b> , Energy Policy Institute of Australia.	<b><u>Accelerating low-emissions energy innovation - an Australian Perspective</u></b>
2016	<b>Tony Wood</b> , Grattan Institute	<b><u>Australian climate change policies in 2016: Finding the best policies to meet the target</u></b>
2014	<b>Peta Ashworth</b> , Technology in Society, CSIRO Energy Flagship	<b><u>Community Engagement in Energy Policy in Australia</u></b>
2014	<b>Jim Snow</b> , Oakley Greenwood	<b><u>The Economic Impact of High Energy Prices in Australia</u></b>
2014	<b>Ian Cronshaw</b> , Office of the Chief Economist, International Energy Agency	<b><u>The Current and Future Importance of Coal in the World Energy Economy</u></b>
2013	<b>Professor Chris Greig</b> , Energy Strategy, University of Queensland; and UQ Energy Initiative	<b><u>Energy Innovation Policy and the Need for a Portfolio Approach</u></b>
2013	<b>Robert Pritchard</b> , Energy Policy Institute of Australia; and <b>Keith Orchison</b> , Coolibah Pty Ltd.	<b><u>Getting gas into a market - any market</u></b>
2013	<b>Malcolm Keay</b> , Oxford Institute for Energy Studies, UK	<b><u>No such thing as the cost of renewables? The significance of system and resource costs</u></b>
2013	<b>Robert Pritchard</b> , Energy Policy Institute of Australia	<b><u>Trust and Energy Governance in Australia</u></b>

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*The Institute advocates that Australia must maintain a secure investment climate and be internationally competitive, whilst moving towards and contributing as much as it can to global efforts to build a low-carbon society.*

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## **#2/2025: Requiem for an Energy Policy Dream: The History of the Energy Policy Institute in Australia 2000-2025**

Author: Robert Pritchard

- In 2000, EPIA was founded by a group of investors from Australia and overseas. Its aims were to encourage investment in all forms of energy production in Australia, to enhance Australia's exports of energy, and to contribute to the articulation of good energy policy in Australia.
- In 2001, after a competitive process, APEC engaged Resources Law International to undertake two major studies on cross-border energy investment, one on Cross-Border Power and another on Cross-Border Gas.
- In 2013, Robert Pritchard became EPIA's executive director. In 2025, he retired from the role, after years of contributing to public understanding of contemporary energy industry issues, in particular the Net Zero Transition, more simply known as the Transition.

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## **#1/2025: Australia's Energy Transition: Policy or Experiment?**

Author: Tom Biegler

- *Australia's clean energy transition involves replacing fossil fuels with clean renewables in electricity supply systems. The aim is to stop using fossil fuels (coal, oil and natural gas) entirely and reduce to zero the emissions of their combustion products, especially carbon dioxide.*
- *State and Commonwealth governments set, regulate and progressively raise "percent renewables" targets for generating clean electricity. Solar and wind energy are the recognised growth sources of clean energy.*
- *These targets have risen from an initial 2% in 2001 to the present 82%, to great public applause. However broader official data sets, give a quite different impression. For example in 2023 renewables comprised just 9.4% of Australia's total energy consumption. And under present policy mechanisms it will take the % renewables metric 58 years to reach 100%. A growth strategy based solely on targets and incentives will be inadequate for eliminating fossil fuels.*
- *Reconciling these apparently contradictory figures is complex but does not affect the broad conclusions of this paper.*
- *"% renewables" is a faulty metric. It exaggerates progress rates. It wrongly implies that "100%" means elimination of fossil fuels from the energy system. It ignores the large fraction, around 60%, of fossil fuels NOT used in power generation. It is cherry picked.*
- *Importantly the slow growth and misleading targets show that Australia's solar/wind renewables-based clean energy policy is an experiment, with major associated risks.*
- *No industrialised economy can operate on a clean solar/wind/storage system alone. Australia will eventually have to add nuclear energy to the mix.*

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## **#2/2024: Major Review of the National Electricity Market**

Author: Cameron O'Reilly

- *In November 2024, the Federal Minister for Energy and Climate Change, Chris Bowen, announced an expert review of the National Electricity Market (NEM) settings, ostensibly to support ongoing investment in firmed renewable energy and storage after the existing Capacity Investment Scheme (CIS) winds down in 2027.*
- *The review is called the Nelson Review, after its chairman Tim Nelson. The review is likely to take at least a year. It seems likely that some form of capacity mechanism within the NEM will be considered.*
- *Post 2030 this may supplant current measures like the CIS as the driver of the future system. The least likely outcome from the review is business as usual.*
- *Whatever the final recommendations, implementation will take some time as the NEM requires mirror legislation in all participating jurisdictions*

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## **#1/2024: Implications of AUKUS for the Australian Energy Transition. March 2024**

Author: Christopher Skinner

- *The AUKUS agreement is well under way for Australia to acquire nuclear-powered submarines.*
- *This requires Australia to demonstrate competence in nuclear safety, security and environmental protection.*
- *Nuclear suitably qualified and experienced personnel will form a significant part of the workforce to be established for AUKUS submarines.*
- *AUKUS provides a strong case for introduction of nuclear power for electric power generation in Australia.*

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## **#2/2023: Investing in Energy Markets with Major Government Policy Interventions. August 2023**

Author: Jim Snow, Oakley Greenwood

- *Nine years ago, energy market professional Jim Snow warned of the economic risks of high energy prices in Australia caused by policymakers "picking winners".*
- *The recent "Net Zero" policy interventions in Australian energy markets exemplify this risk for energy markets and smack of electoral anxiety.*
- *To reduce emissions, Australia should return to being confident in implementing well designed market mechanisms and use tradeable instruments that are fuel and technology agnostic, are based on sound economic principles and will give out investment signals to attract investors.*
- *The policy and stakeholder focus needs to be on the design of these markets and instruments for the transition. There is a high level of flexibility available still to do this by various market sectors (e.g., difficult and expensive to abate sectors), but not by favoring one fuel or technology over another – let the market deliver as it is ready to do so quickly and at their own risk – they just need the right settings.*

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## **#1/2023: Transitioning to Net Zero: Can Australia Become a Renewable Superpower? July 2023**

Author: Robert Pritchard, EPIA

- Australia has often boasted of its potential as a 'renewable superpower'. In a new book, Australia's former chief scientist suggested that Australia could become the world's 'electro-state superhero', although this would require the scaling up of clean technologies by a factor of twenty.
- The Australian government has adopted a 'net zero' emissions policy. It has set a 2030 emissions reduction target of 43% below 2005 levels and a 2050 target of 'net zero'.
- The government has also established a Net Zero Authority to foster the economic transformation opportunities of making the transition to 'net zero'.
- This paper postulates that all energy technologies should remain open for domestic use, that they should continue to compete with each other, and that reliability of supply should remain Australia's all-pervasive energy policy priority. It is still much too early for Australia to claim the status of a potential 'renewable superpower'.

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#### **#4/2022: The Wooden Spoon Award: The Nuclear Energy Prohibitions in Australia, December 2022**

Author: Robert Pritchard, EPIA

- The Australian Senate is considering a minority member's bill to remove the longstanding prohibitions on nuclear installations under Australian legislation. The bill is not supported by the current government but been referred to a Senate Committee to report in early 2023.
- The Energy Policy Institute of Australia has always opposed legislation that discriminates against particular energy forms. The current prohibitions are highly discriminatory, they are damaging to the economy as a whole and are likely to become more damaging the longer they remain in place.
- The current prohibitions should therefore be removed. Alternatively, they should be tailored to apply to individual Australia states by leaving it to each state to regulate nuclear installations within its own borders.
- Potential hubs for nuclear energy innovation and development should be identified through community engagement and developed with community, federal and state government and trade union support.

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#### **#3/2022: Future Australian Electricity Generation Costs – A Review of CSIRO's GenCost 2021-22 Report, Sept 2022**

Author: David Carland, Australian Resources Development Pty Ltd

- This Paper contradicts the findings of CSIRO that integrated wind and solar are the 'cheapest' new generation technologies in Australia.
- Australian policy makers and stakeholders need to be fully informed of the likely future costs of the energy transition.
- An urgent, in-depth review of the CSIRO's findings is recommended.

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#### **#2/2022: Our Power System Imbalance, July 2022**

Author: Robert Pritchard, EPIA

- Power system reliability is being diminished by the increasing entry of variable renewables, requiring greater intervention in electricity markets.
- Many politicians and climate activists cling to the hope that increasing renewables, accompanied by 'firming technologies' and additional transmission, will bring a high level of reliable, affordable and clean energy to the power system.
- This hope is largely misplaced – without maintaining a high level of dispatchable generation, from coal, gas, hydropower or nuclear, our power system will increasingly be unbalanced. Put another way, the higher we go with renewables, the more unreliable our power system may become.

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#### **#1/2022: Geopolitics of The Energy Transition After The Ukraine Crisis, March 2022**

Author: Robert Pritchard, EPIA

- The Energy Transition entails the decarbonisation of the global economy by mid-century to achieve Net Zero emissions and reduce the pace of global warming. The Energy Transition picked up momentum with the 2021 Glasgow climate change conference but geopolitical events such as the 2022 Russian invasion of Ukraine may test the resolve of policymakers to pursue it.
- Energy trade in the Indo-Pacific region could be affected, for better or worse, as Australia and its energy partners work their way through contemporary geopolitical issues.
- Australia's main policy goal for the foreseeable future must surely be to maintain its own energy security. For this, it needs to present itself as a safe place to invest and as an even-handed collaborator with its energy partners in the development and export of a diversified range of low-emissions energy forms and energy technologies.

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#### **#3/2021: Electricity generation and emissions reduction in Australia: we need a coherent policy to foster technology development and investment, August 2021**

Author: Stephen Anthony, Macroeconomics Advisory

- Science and public opinion is forcing governments around the world to commit to major reductions in emissions over the next several decades. This creates a problem for Australia: we lack a credible national policy for energy and lack a national technology-based energy plan to guide investment in electricity generation and emissions reduction.
- Current policy settings are a mixture of technological choices based on political expediency, defending existing rent seekers, opportunistic market intervention and poor to non-existent economic analysis.
- Current policy settings can be summed up as a complicated way of trying to make solar and wind work and result in fragmented oversight and planning.



- *Much more attention needs to be paid to overall grid stability and the destabilising impacts of asynchronous generation.*
- *A blind preferential approach may not deliver for Australia. Indeed it may also lead to huge fail as it embraces massive uncertainty. Either way, we need to thoroughly examining all of our options.*
- *Without a serious and properly analysed national policy based on technical realities as well as market needs, institutional investors will be reluctant to support the needed infrastructural investment.*
- *Underpinning national policy must be fundamental economic analysis of all technologies.*
- *A serious energy and emissions reduction policy should follow basic economic principles and use whatever technologies are best suited to solving the problem.*
- *It would be possible for government to substantially reduce costs by leveraging the large holdings of funds held in institutions and unlocking a stream of appropriately priced equity and debt funding.*
- *A single agency needs to be responsible for the broad sweep of progress towards targets and making revisions to market mechanisms and ensuring infrastructure requirements are met.*

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#### **#2/2021: The Shell Decision: An International Legal Nightmare for the Energy Industry, August 2021**

Author: Robert Pritchard, EPIA

- *The decision of The Hague District Court against the Royal Dutch Shell Group, Milieudefensie et al v Royal Dutch Shell in May 2021 ('the Shell decision') has dramatically increased the risk of investing in greenhouse gas-emitting energy projects and transactions around the world. This requires a legislative solution.*
- *The Shell decision, coming in the same year as the 26th UN Climate Change Conference of the Parties (COP26), has signalled the start of a legal nightmare for policymakers and investors not just in the Netherlands but around the world.*
- *A process of decarbonisation is underway globally. It needs to be managed both domestically and internationally. At the same time, investments in carbon-intensive industries that are valuable to society and to the economies of many countries need to be protected. Investors cannot possibly rely on the uncertainty of judicial decision-making to provide them with investment guidance and investment protection. In any case, no government wants to be dictated to by foreign courts.*

- *A possible way forward for Australia would be to establish a licensing facility to authorise the discharge of greenhouse gas emissions by 'qualifying investments'. What investments might qualify, and what price and terms the government might require for use of a licensing facility, would need to be carefully weighed up and would take some time. In the meantime, the government, in the global climate negotiations, will need to take care not to expose its energy industries to unmanageable legal liability.*
- *An Australian licensing facility could channel its revenue into a Future Energy Fund, not unlike a sovereign wealth fund, which could in turn direct its capital to investment in low-emissions energy technologies.*

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#### **#1/2021: Diversity Indispensable for Net Zero, March 2021**

Author: Robert Pritchard, EPIA

- *Until recently in Australia, there had been little public concern about our national defence, our energy security, and the strength of our export earnings from resources such as coal, natural gas and uranium. However, these issues are being impacted by the global crusade to achieve 'net zero emissions' by 2050.*
- *Impacts in Australia include the substitution of weather-dependent renewables for fossil fuels, the electrification of transport, the promotion of hydrogen as an alternative energy carrier, and the possible impairment of our defence and space industry capabilities.*
- *These impacts pose a systemic challenge that cannot be addressed by a narrow policy response – nor by a range of narrow responses, nor especially by politically contrived solutions.*
- *To achieve net zero, diversity is more than ever indispensable – a change agent is required and communities need to be involved.*

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#### **#2/2020: Nuclear power through the lens of an Australian Trade Union, July 2020**

Author: Geoff Dyke, Mining and Energy Union

- *The CFMMEU Mining & Energy Division of Victoria (the Union) supports Victoria's transition to low-carbon power generation sources. It urges that energy decisions be made with system reliability, economic viability, and Victorians' jobs in mind.*
- *The Union is concerned by the approach of using only non-dispatchable renewable energy sources, supplemented by hydro and battery storage, for Victoria's energy transition. It believes that this will lead to major blackouts, unaffordable electricity and the future economic shutdown of Victoria's industry, resulting in massive job losses and a decline in citizen wealth.*
- *Coal plant workers and their communities demand a 'Just Transition' of their industry, a transition where their livelihoods are not unwittingly destroyed by the rush to reduce emissions.*
- *Nuclear power is a proven choice of a dispatchable and economically viable, zero greenhouse gas emission power generation technology, that is available today. The nuclear prohibition in Victoria*

should be lifted to allow sufficient time to replace existing generation with nuclear reactors.

- The guarantee of a Just Transition should also provide the essential social licence to satisfy any concerns in local communities about the safe operation of the nuclear industry.

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### **#1/2020: The Gaping Hole: The Absence of an Energy Vision in Australia, Its Consequences and an Alternative Way Forward, February 2020**

Author: Robert Pritchard, EPIA

- The absence of a truly technology-neutral energy vision has left a gaping hole in the electricity sector in Australia. The Australian electricity market is failing to attract substantial investment from corporate and institutional investors, the money is lying idle and climate risk is not being addressed.
- There have been calls to impose a domestic emissions price. However, no-one can explain how payments that disappear into general revenue will reduce climate risk.
- There are lots of alternatives. One would be to establish an innovation fund, exclusive to the electricity sector and largely directed by industry. Levies could be based either on turnover or on emissions, with the proceeds being recycled into technology-neutral, emissions-mitigation initiatives, instead of disappearing into general revenue.
- The Federal government is starting work on an “emissions reduction technology roadmap”. It remains to be seen whether this will be genuinely technology-neutral. An innovation fund would help align this work with the global “net zero by 2050” emissions target.

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### **#3/2019: Finding the right balance: Power System Flexibility in an Era of Decarbonisation: An Annotated Bibliography, April 2019**

Author: Robert Pritchard, EPIA

- This short annotated bibliography is aimed at facilitating community understanding of the range of economic and technical risks that climate policies can pose for the reliable, flexible operation of power systems.
- Excerpts from a cross-section of published materials have been included. Some materials contradict others. They have been selected, not because they are right or wrong, appropriate or inappropriate, but because the Energy Policy Institute of Australia believes they may influence future policymaking and ought therefore to be taken into account.
- In compiling this bibliography, the Institute has taken a technology-neutral approach.
- Depending on responses to the publication of this bibliography, it could be the first of a number of future editions.

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### **#2/2019: One judgment brings upheaval for energy and climate policy in Australia, February 2019**

Author: Robert Pritchard, EPIA

- An environmental court in New South Wales has found that the greenhouse gas emissions of a new coal mining project, even the future emissions from

offshore combustion of the coal that is exported by the project, constitute a valid ground for refusing development consent because they will cause the climate to change.

- The finding is illusory, if not false.
- The finding poses an obstacle to all future coal mining projects and all other projects in NSW that may directly or indirectly give rise to significant emissions.
- The finding is likely to encourage opponents of climate change in other countries to consider legal action as a tool in the global campaign against climate change beyond whatever commitments their government may have made under the Paris Agreement.
- The finding brings upheaval to domestic energy and climate policy in Australia. It may warrant a re-examination by all governments of their energy and climate policies in the context of their bilateral and multilateral commitments.

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### **#1/2019: Why no energy policy?, February 2019**

Author: John McDonnell, McDonnell Policy Analysis

- Populist policy interventions have destroyed political consensus and given rise to unsustainable energy policy in Australia.
- At the present time, neither of the major Australian political parties has an energy policy that can last past one electoral cycle.
- Politicians have to make difficult choices between the destruction of sectors of the Australian economy and minimising the risk from climate change. They need reliable evidence about costs to enable them to make these choices without causing unnecessary harm. They need to know the least-cost way of achieving the agreed level of emission reduction while producing reliable and stable energy flows.

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### **#3/2018: The Climate Driver: What the Global Clean Energy Goal means for Nuclear Energy and Energy-dependent Industries, December 2018**

Author: Robert Pritchard, EPIA

- The climate has become the main driver of change in the energy industry.
- In many countries, this has led to renewable energy becoming the fastest-growing form of low-carbon energy. However, power systems were never designed for renewable energy. Intermittency poses a challenge to power systems that is growing faster than the share of renewables.
- Modern nuclear energy is becoming recognised as an essential technology in future low-carbon energy systems.
- Nine countries that are members of the Clean Energy Ministerial forum have already signed on to the Nuclear Innovation: Clean Energy Future (‘NICE Future’) initiative, with Canada positioning itself to play a prominent part.
- Nuclear energy is not only a low-carbon response to climate change but it represents a market opportunity to supply 20% of the world’s electricity by 2050.
- Australia has much to gain by joining the international NICE Future initiative and tracking and

*pursuing industrial-scale, fit-for-purpose, low-carbon energy solutions.*

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## **#2/2018: Nuclear Power and its Potential Role in Economic Development in Australia. May 2018**

Author: Robert Pritchard, EPIA

- *By its 20-year ban on nuclear power generation, Australia has lost considerable ground. The ban has:*
  - contributed to the destabilisation of Australia's power supply system*
  - disregarded a means of significantly reducing greenhouse gas emissions*
  - failed to enhance Australia's scientific and engineering skills*
  - failed to optimise the development of the Australian economy and*
  - turned a blind eye to Australia's national security.*
- *Over the next decade, Australia could regain some of its lost ground by lifting its nuclear ban and allowing energy innovation to flourish under appropriate regulation.*
- *Australia should capitalise on its small but world-class base that has been built up from 60 years' successful and incident-free experience in operating nuclear research reactors and producing nuclear medicine.*
- *A strategic initiative for any Australian state or territory would be to sponsor the development of a model town, or hub, for energy innovation and economic development, which could be in an inland location. Any such hub should be anchored to safe, complementary, zero-emissions technologies, including modern nuclear technology, and be connected to the transmission grid to enhance system optimisation at least cost. Potential sites should be identified through community engagement and developed with community support.*

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## **#1/2018: Reliable Electricity Supply in Australia – at Least Cost. April 2018**

Author: Robert Pritchard, EPIA

- *Reliability of supply is what matters for the electricity industry – not the debate over the cost of renewables versus coal.*
- *In power system planning, the risk of early closure of ageing generation capacity must be countered by the timely procurement and installation of all necessary elements of replacement infrastructure of the required scale. The aim must be to provide whole-of-system optimisation in a timely manner at the least cost.*
- *Every power system needs its own system-specific planner. Greater interconnection with adjacent systems will increase reliability of supply but does not obviate the need for system planning. In Australia, the planning function should not be entirely delegated or subjugated to a body concerned with the 'national interest', given the changing features of the*

*interconnected NEM, and given the yet-to-be-settled National Energy Guarantee (NEG) scheme.*

- *Each Australian state may need an independent strategic planning and system planning facility, working transparently and constructively with COAG and the NEM institutions, but focussing on state system-specific needs.*

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## **#4/2017: Future Energy Policy, October 2017**

Author: Robert Pritchard, EPIA

- *Australia is presently on track to meet its emissions reduction commitments but it has destabilised its power system and created an insidious problem of power unreliability and unaffordability. This is threatening its energy-dependent industries and its national prosperity.*
- *There has been a tendency by governments to intervene in energy markets. However, competitive markets must continue to play the central role in energy policy.*
- *There has been too much short-term policy thinking. To counter this, a strategic energy plan, albeit focussed on the electricity sector, is to be developed by a new Energy Security Board (ESB).*
- *All technologies need to be on the table for consideration by the ESB.*
- *Solutions should be commensurate with the scale of the task and the time required for their installation, as well as on the combination of technologies that will deliver whole-of-system optimisation at the least cost.*
- *Solutions should also be matched to Australia's energy resource endowments - in order to provide a firmer foundation for the nation's future prosperity.*
- *Beyond the ESB's strategic plan for the electricity sector, there remains a need for a bolder, more innovative, more collaborative and community-focussed energy policy. This will light the way for future investment across the entire energy sector – and will provide a common point of reference for community education.*
- *Consideration still needs to be given to a national energy commission to replace the present suboptimal governance structure.*

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## **#3/2017: What are the full system costs of renewable energy? May 2017**

Author: Stephen Wilson, Cape Otway Associates

- *Australia faces the replacement of more than two thirds of its power generation capacity over the next three decades.*
- *It is believed by many renewable energy advocates that variable renewable energy (VRE) options could replace coal- and gas-fired capacity without compromising the reliability of the power system. However, there is little understanding of the likely costs of doing so.*
- *Most models of future full system costs are based on unrealistic assumptions. This paper outlines an approach to future costs that is based on a more realistic understanding of the technologies involved.*
- *To be deployed at system-wide scale in the future generation mix, wind and solar need backup or storage. This paper provides an indication of the cost*



level of technology pairs that is more realistically comparable with traditional dispatchable generation.

- The results imply that at current costs VRE options are unaffordable at scale. The costs of the VRE options considered by this paper vary from an estimated \$125/MWh in the case of the wind/gas option to \$1,200/MWh in the case of the rooftop solar/battery option at household level.
- The Levelised Cost of Energy (LCoE) approach does not provide an adequate foundation either for formulation of sound energy policy or for system planning.

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#### **#2/2017: Time to Throw off the Chains, March 2017**

Author: Robert Pritchard, Energy Policy Institute of Australia

- Australia has an energy crisis on its hands – with the continued forcing of renewable energy into the National Electricity Market (NEM), closures of power stations and concerns over the security and affordability of both electricity and gas.
- In October 2016, following a blackout and load shedding in South Australia, the nine-member Coalition of Australian Governments (COAG) agreed to appoint an independent panel to develop by mid-2017 a national reform blueprint to maintain energy security in the NEM.
- In March 2017, the government of South Australia announced that, whilst it would remain in the NEM, it would, for the security of the SA system, build a state-owned gas-fired generator and legislate to give itself powers to direct the NEM in the event of a shortfall or a failure of ‘market forces.’
- Disharmony amongst the Commonwealth and the States over the causes of the energy crisis or its solutions has raised a question of central importance: Is it time for Australia to throw off the chains of ‘cooperative’ energy governance?
- The door is open for a National Energy Commission to be established under Commonwealth law.

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#### **#1/2017: How to reform the electricity market before we reach the top of a cliff, February 2017**

Author: Stephen Wilson, Cape Otway Associates

- The Australian National Electricity Market (NEM), burdened by the effect of the Renewable Energy Target (RET) schemes, is no longer capable of delivering a reliable, affordable and sustainable electricity supply. The NEM, or the RET schemes, or both, will need to be changed to avoid serious failure of the power system in the future.
- This paper sets out in plain English a statement of the problem, a diagnosis of the underlying causes at the root of the problem, remedies that have been proposed to solve it, and a vision for reform that would require minimal design changes to create the next generation electricity market.
- Six symptoms of the problem evident in the NEM have been identified, which adversely affect power companies, as well as business and household consumers. The root causes are found in conflicts between the design principles on which the NEM is based and those of the RET schemes.
- Seven possible responses have been identified, which are considered remedies rather than options, as some

of them are potentially complementary. Some remedies would involve retreating from the competitive electricity market reforms of the 1990s, while others would take the reforms to a more mature stage.

- The paper makes recommendations that could redress the root causes of the problem, with a minimum of disruption to consumers, the electricity system and the market, and reduce rather than escalate government intervention.

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#### **#7/2016: Investing in Electricity Infrastructure in a Low-Carbon Era, December 2016**

Author: Robert Pritchard, Energy Policy Institute of Australia

- The increasing penetration of variable renewable energy (VRE) in the National Energy Market (NEM) is causing the closure of coal- and gas-fired power stations, threatening power system security and creating unmanageable risks for investors. This is giving rise to social effects for which the community is not prepared and is occurring during a period of heightened community dissatisfaction with traditional political processes.
- The contemporary investment risk profile of each of the three main components of the power system: generation, networks and downstream supply, could not be more different.
- There is plenty of money available for investment but electricity generation has become a ‘no-go zone’ unless it is supported by government subsidies or by power purchase agreements (PPAs).
- Investment in electricity networks is almost the opposite - institutional investors are queuing to invest because independent economic regulation provides them with predictable long-term revenues.
- The NEM is in need of fundamental redesign.
- Sound economic and scientific information on energy, as well as new processes of end-user and community consultation, will be required to gain community support for the necessary reforms but the focus of reforms should be the formulation of a truly national energy vision.

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#### **#6/2016: The “Pressure Cooker” effect of intermittent renewable generation in power systems, September 2016**

Author: Professor Simon Bartlett AM

- Power systems have fundamental needs: load following, flexibility and dynamic response
- Increasing intermittent renewable generation in a power system has a “pressure cooker” effect and can involve an unaffordably high level of integration costs
- Every power system is different but, in most systems, the practical upper limit for renewables is around 40% of total electricity generated. This may be exceeded but it is likely to require a greater level of interconnection with adjoining power systems, more energy storage, increased recourse to demand-side management and regulatory changes.
- The scale-up of intermittent renewables not only diminishes the robustness of a particular power system but can also magnify the short and long-term risk of investing in non-renewable generation assets and the power grid itself.



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#### **#5/2016: East coast gas pipelines - Is price control warranted? August 2016**

Author: Dr George Raitt, Piper Alderman

- *After a year-long inquiry, the Australian Competition and Consumer Commission concluded that east coast gas markets are competitive, but that pipeline operators are exercising market power.*
- *During the period of the inquiry, east coast gas prices have been affected (and continue to be affected) by growth in demand for export LNG, volatility in oil prices (against which export LNG prices are pegged), and static domestic demand for gas, leading to shortages and higher prices for domestic users.*
- *The ACCC conclusion is based on anecdotal evidence, and the inquiry did not conduct a forensic investigation into prices, costs and profits, leading some industry participants to contest the findings that pipeline charges (rather than other market forces) have adversely affected household gas prices.*
- *The ACCC considers that current competition law does not address the inefficiencies they perceive, since they have concluded that east coast gas markets are competitive. The ACCC has proposed changes to the gas pipeline access regime because the ACCC considers that the regime does not adequately control what it considers to be excessive pipeline charges.*
- *In questioning the ACCC's conclusions and recommendations, this paper advocates three points.*

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#### **#4/2016: Cyber Security Policy in the Energy Sector, April 2016**

Authors: Gary Waters and Luigi Sorbello, Jacobs Australia

- *National economies and infrastructures are heavily dependent on the energy sector, which itself is increasingly dependent on Information Technology (IT) systems.*
- *Ensuring security of supply is an urgent priority in the face of the increasing need for diversity of renewable and clean energy supply, evolving standards, and the escalating sophistication of the cyber security challenges.*
- *The solution requires an effective energy and climate policy framework, strong industry leadership, and a pro-active bias for collaboration in the energy sector ecosystem to address security of supply and the cyber security challenges.*
- *A disciplined "Systems Engineering" approach, that considers all facets of the complex energy system, including policy, regulation, technology, supply chain, standards, processes, people, detection, protection and defence, remediation, and compliance, can provide the framework to more effectively manage the cyber security challenges and provide a more holistic, coordinated and increased cyber-readiness capability for the Australian energy sector.*

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#### **#3/2016: The Need for an Energy Vision in New South Wales, April 2016**

Author: Cristelle Maurin, University College London

- *The Government of New South Wales seems to have only recently realised the full significance of community engagement in relation to energy resource development.*
- *The overhaul of the New South Wales resource exploration regime is a positive step in providing more control to Government over the development of the State's onshore natural gas resources.*
- *An energy vision would provide a greater sense of legitimacy for resource development and contribute to policy certainty that highly capital-intensive investments in the energy sector require.*
- *An energy vision should enable consideration and integration of multiple perspectives and objectives and ensure social values and environmental objectives are placed at the core of future energy policies.*

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#### **#2/2016: Accelerating Low-Emissions Energy Innovation – An Australian Perspective, January 2016**

Authors: Chris Greig, University of Queensland, and Robert Pritchard, Energy Policy Institute of Australia

- *Addressing climate change at the same time as meeting the world's need for energy obviously requires very deep reductions in global greenhouse emissions. This cannot be achieved without massive transformation of the entire energy economy and new technological advances, for which innovation is essential.*
- *The task for the 20 countries that signed on to the Mission Innovation initiative at COP21 in Paris is to accelerate collaboration between the public and private sectors, not only in domestic economies but internationally.*
- *This will not simply happen by itself. It requires that the public and private sectors should work very differently. It will entail the establishment of a formal mechanism to orchestrate collaboration between the public and private sectors, a mechanism that is driven and resourced by both sectors and that is itself innovative in its design and modus operandi.*

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#### **#1/2016: Australian Climate Change Policies in 2016: Finding the Best Policies to Meet the Target, January 2016**

Author: Tony Wood, Grattan Institute

- *For Australian domestic policy, the critical outcome of the COP21 Paris Conference was that the Government set a post-2020 emissions reduction target: 26-28 per cent below 2005 levels by 2030.*
- *The Coalition Government's policies, even if on track to achieve the 2020 target, will need more work to achieve the post-2020 target and the Labor Opposition has yet to formulate its position.*
- *When political viability and public acceptability are added to criteria of credibility, flexibility, adaptability and low cost, none of the policy options as currently configured fulfils all the criteria.*
- *The task for government is to address the limitations or individual policies or find a combination that works.*

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#### **#3/2014: Community Engagement in Energy Policy in Australia, April 2014**

Author: Peta Ashworth, CSIRO

- *A large proportion of the Australian public has a low level of energy literacy and appears increasingly to be confused and concerned about energy and climate change policies.*
- *Resources, including time and money, are required to ensure adequate opportunity for a wider cross section of the community to engage with policy issues.*
- *Engagement processes provide the opportunity for policymakers to hear from a broader cross section of the community to generate energy policy outcomes that transcend individual political stances.*
- *Independent information, drawing from beyond the vested interests of individual groups and organisations, is critical for these processes and to build trust and legitimacy in the outcomes.*

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#### **#2/2014: The Economic Impact of High Energy Prices, February 2014**

Author: Jim Snow, Oakley Greenwood

- *The Australian energy supply industry has found itself in free-fall as demand has declined.*
- *Higher energy prices are forcing the restructuring of many energy-intensive or energy cost-exposed businesses, driving production abroad.*
- *Many businesses cannot manage multiple changes in costs and have lost the edge that low-cost energy gave them to remain competitive.*
- *Many Australians on low or fixed incomes are being propelled into energy poverty – which may lead to a restructuring of welfare benefits and the way people accommodate themselves.*

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#### **#1/2014: The Current and Future Importance of Coal in the Global Energy Economy, January 2014**

Author: Ian Cronshaw, International Energy Agency

- *Coal is the most important source of power generation globally, accounting for some 41% of global power generation in 2011.*
- *In non-OECD countries, it accounts for almost half of power output.*
- *The role of coal in the future will be largely determined by energy policy developments in non-OECD countries.*
- *Despite all endeavours to diversify energy sources, coal will remain the dominant power sector fuel for at least the next quarter century, as coal fired power generation is projected to increase by more than 70%.*
- *Increasing the efficiency of coal-fired power plants and the development and gradual utilisation of CCS technology will be essential to reconcile the ongoing importance of coal fired power with the global environmental objectives.*

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#### **#4/2013: Energy Innovation Policy, November 2013**

Author: Professor Chris Greig, University of Queensland

- *Innovation is critical to a low-carbon energy future but it is not adequately valued or incentivised in Australia.*
- *There is a need to pursue a portfolio approach to energy innovation.*

- *Collaboration, including international collaboration, is also essential.*
- *Public and stakeholder engagement is necessary to build confidence.*

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#### **T#3/2013: Getting Gas into a Market – Any Market, June 2013**

Authors: Robert Pritchard, Energy Policy Institute of Australia and Keith Orchison, Coolibah Consulting

- *Eastern Australia, mainly New South Wales, faces a potential gas supply crisis.*
- *There is plenty of gas in the ground in eastern and central Australia but it is too often blocked from getting into any market by a combination of regulatory, environmental and social constraints that have created an investment imbroglio.*
- *Some elements of the gas industry contributed to the problem in the early days by not fully appreciating and not adequately responding to community concerns.*
- *The root cause is nonetheless policy failure in New South Wales, the remedy for which is to immediately establish a well-resourced task force with all affected stakeholders to proactively eliminate the blockages.*

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#### **#2/2013: No Such Thing as the Cost of Renewables? The Significance of System and Resource Costs, June 2013**

Author: Malcolm Keay, Oxford Institute of Energy Studies

- *Governments across the world are supporting renewable energy but the programmes are often controversial.*
- *In particular, the costs are contentious, with advocates arguing that renewables are competitive; opponents arguing that support for renewables is increasingly expensive.*
- *One reason for the differing views is that the cost structure of most renewable electricity sources is very different from that of conventional generation.*
- *The cost depends on the amount and type of renewable energy in a system as well as on the technology used.*
- *The level and form of government support for renewables should be based on a robust understanding of these costs and the implications for the wider electricity system.*
- *Where the costs are uncertain, the emphasis should be on limiting total costs, providing incentives for innovation and cost reduction, and removing market barriers.*

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#### **#1/2013: Trust and Energy Governance in Australia, May 2013**

Author: Robert Pritchard, Energy Policy Institute of Australia

- *Public mistrust is deeply affecting the energy industry.*
- *Outbreaks of political activism in Australia, with inadequate responses by government, could become an insuperable obstacle to the entire process of economic development.*

- *The energy industry has good cause to be alarmed.*
- *Consultative processes have been inadequate.*

- *There is a need to provide for genuine participation by stakeholders in an independent energy institution.*

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