



COAG
Energy Council

ENERGY SECURITY BOARD
**NATIONAL ENERGY
GUARANTEE**

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Contents

EXECUTIVE SUMMARY	5
1. Recommendation.....	10
2. Context.....	11
2.1 Designing the National Energy Guarantee.....	11
2.2 The status quo is not an option	11
2.3 Longer term price signals are at the heart of the Guarantee.....	13
2.4 Reducing electricity prices and improving affordability.....	14
2.5 Managing reliability risks	20
<i>Case study: The closure of the Northern Power station in South Australia ...</i>	<i>21</i>
2.6 Reducing emissions.....	22
2.7 Safeguarding competition	25
3. Emissions Reduction Requirement	26
3.1 Emissions registry	26
3.2 Compliance with the emissions reduction requirement.....	29
4. Reliability Requirement.....	31
4.1 Step 1: Forecasting the reliability requirement	31
4.2 Step 2: Updating the reliability requirement	32
4.3 Step 3: Triggering the reliability obligation	32
4.4 Step 4: Liable Entities	32
4.5 Step 5: Qualifying contracts.....	33
4.6 Step 6: Procurer of Last Resort.....	34
4.7 Step 7: Compliance.....	35
4.8 Step 8: Penalties	35
5. Governance	37

EXECUTIVE SUMMARY

The National Energy Guarantee (the Guarantee) is a mechanism designed to integrate energy and emissions policy in a way that encourages new investment in both low emissions technologies and in dispatchable energy such that the electricity system operates reliably. Providing long-term policy confidence is critical to lowering investment risk in the National Electricity Market (NEM) and bringing down electricity prices.

The Guarantee requires retailers to contract with generation, storage or demand response so that:

- there are contracts in place to support a minimum amount of dispatchable energy to meet consumer and system needs (**reliability requirement**); and
- the average emissions level of the electricity sold to consumers meets the electricity sector's share of Australia's international emissions reduction commitments, as set by the Commonwealth Government (**emissions reduction requirement**).

The emissions reduction and reliability requirements work together so that the market has a fair opportunity to deliver adequate reliability while lowering emissions. The Guarantee is fuel and technology neutral and provides a clear investment signal, so the cleanest, cheapest and most reliable generation (or demand response) gets built in the right place at the right time.

The Guarantee has five key drivers that will work together to lower retail prices:

- policy stability unlocks new investment
- policy stability reduces risk (and therefore cost) of new investments
- increased contracting unlocks new investment
- contract markets become deeper and more liquid and reduce the wholesale spot price and its volatility, and
- increased voluntary demand response.

NEM average wholesale prices are, on average, expected to be over 20 per cent lower over the 2020s under the Guarantee than without it. Lower wholesale prices are expected to translate into lower bills for all consumers. The average NEM-connected household is estimated to save around \$550 dollars a year (real \$2018) on their retail bill over the 2020s relative to 2017-18. Of this, nearly \$150 per year (real \$2018) is forecast additional savings as a result of the Guarantee.

The Guarantee is specifically designed so that it does not undermine, and may indeed boost, competition through measures that enhance market liquidity and pricing transparency in retail and wholesale electricity markets. Under the emissions reduction requirement, smaller retailers are supported through the exemption of the first 50,000 MWh of load and with greater flexibility to carry forward any over-achievement. Under the reliability requirement, when the reliability obligation is triggered, a Market Liquidity Obligation will require the largest participants to offer to buy and sell contracts with all participants.

It is possible that higher emissions reduction targets may be set in the future by the Australian Government. In this case, the Guarantee mechanism and framework will automatically accommodate the new targets. Further, the design of the Guarantee does not limit the ability of States and Territories to set and meet their own emissions reduction or renewable energy targets.

Emissions reduction requirement

The emissions reduction requirement is an annual obligation on market customers in the NEM. Market customers must ensure the average emissions intensity of their load is at or below the prescribed 'electricity emissions intensity target' for the compliance period.

Compliance with the emissions reduction requirement is assessed annually by the Australian Energy Regulator (AER), based on a financial year compliance period. The first compliance year proposed is 2020-21. An emissions registry, administered by the Australian Energy Market Operator (AEMO), will be established to facilitate efficient compliance.

The registry allows market customers to be allocated a share of a generator's output and its associated emissions, for which they have obtained the rights. The registry automatically matches emissions to each market customer based on the generation allocated against their load. Market customers that do not have generation allocated for some or all their load will be assigned the average emissions intensity of all unallocated generation in the registry, to cover their unallocated load.

The AER will compare each market customer's average emissions intensity against the electricity emissions intensity target to assess compliance. To provide flexibility, market customers can carry forward a limited amount of over-achievement for use in the next compliance year. Similarly, limited deferral is allowed.

Some elements of the final design have been revised from the draft detailed design of 15 June 2018, based on stakeholder feedback through the consultation process. These are:

- The emissions reduction requirement has been designed as a whole-of-market mechanism, in that every megawatt-hour (MWh) of generation that occurs in a compliance year will be recorded in the registry for allocation against every MWh of market customer load in that compliance year. This includes pre-1997 renewable generation (such as Snowy Hydro and Hydro Tasmania).
- The approach to over-allocations of generation has been revised. Market customers have an incentive to reallocate generation in advance of the reporting deadline. Over-allocation will not attract a civil penalty.
- The carry forward limit increases, to up to 10 per cent of the first year's electricity emissions intensity target per MWh of load plus a fixed amount of 60,000 tCO₂-e.
- In the first year, market customers can defer their full compliance obligation, but any deferral must be made up in the following years.

The Energy Security Board (ESB) reconsidered the need for a requirement that generators allocate all generation and associated emissions, a requirement against unreasonably withholding allocations, and a general anti-avoidance regime. These elements are not included in the final design. The AER will actively monitor the behaviour of registry participants and, if required, the ESB will reconsider the need for a general anti-avoidance regime and/or unreasonable withholding provision.

Reliability requirement

The reliability requirement is designed to incentivise retailers and other market customers (liable entities) to support the reliability of the NEM through their contracting and investment in resources.

AEMO will forecast annually whether the reliability standard is likely to be met (or not) in each NEM region¹ over a 10-year period. Where a reliability gap is identified, the market will have the opportunity to invest to close that gap. However, if a material gap persists or emerges three years from the period in question, then AEMO will apply to the AER to trigger the reliability obligation.

If the reliability obligation is triggered, liable entities must demonstrate future compliance by entering into sufficient qualifying contracts for dispatchable capacity (including demand response) to cover their share of a one in two-year system peak demand at the time of the gap.

One year from the forecast reliability gap, if the AER confirms a material gap in resources remains, AEMO will use its safety-net procurer of last resort to close the remaining gap. At this point, liable entities must disclose their contract positions to the AER. If actual system peak demand in the compliance year exceeds that which would be expected to occur one in every two years, then the AER will assess the compliance of liable entities. Those whose required share of load is not covered by qualifying contracts for the specified period are non-compliant.

Some elements of the final design have been revised from the draft detailed design of 15 June 2018, based on stakeholder feedback through the consultation process. These are:

- Large customers will be provided the flexibility to 'opt-in' to manage their own reliability obligation, if they consider this is the most cost-effective and efficient approach.
- Retailers can adjust their contract position within the compliance year when they take on new commercial and industrial customer sites with historic peak load less than 30 MW.
- Large vertically integrated retailers will be covered by a Market Liquidity Obligation when the reliability obligation is triggered. Obligated entities will be determined based on a size threshold and required to perform a market making function for the duration of the gap period. Qualifying contracts will not be

¹ The regions of the National Electricity Market include Queensland, New South Wales, Victoria, Tasmania and South Australia.

required to be recorded in a trade repository with associated trade reporting for the purposes of the Guarantee.

- Liable entities found to be non-compliant with their contracting obligations will be charged an amount that contributes to the costs of AEMO exercising its Procurer of Last Resort function. This will be a proportionate cost contribution commensurate with the non-compliance, determined after the event and capped at \$100 million.

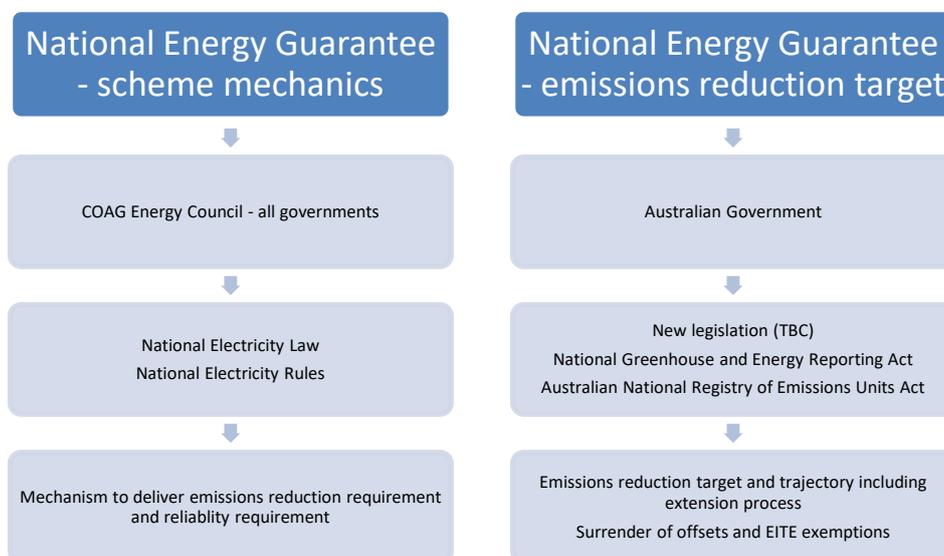
Governance

The Guarantee is to be implemented through two legislative routes. The first route is through the existing governance arrangements for the NEM, agreed by all the Governments that are party to the NEM in the Council of Australian Governments. The majority of the Guarantee mechanism is implemented through amendments to the National Electricity Law (NEL) and the National Electricity Rules (Rules).

- The NEL will set out who is liable under the emissions reduction and reliability obligations, the key aspects of those obligations, and the compliance and penalty framework. It will also include a new emissions objective to guide rule-making in relation to Rule changes relevant to the emissions reduction requirement.
- Detailed aspects of the mechanism (as set out in the final detailed design document) will be included in the Rules.

The second route of legislation is by the Australian Government. Australian Government legislation sets the intensity targets, provisions for Emissions Intensive Trade Exposed (EITE) exemptions, the use of offsets, and emissions reporting and related information sharing and gathering powers.

The responsibilities of the COAG Energy Council (Energy Council) and the Australian Government, as they relate to the Guarantee, are set out in the diagram below.



If the Energy Council approves the final design of the Guarantee at its 10 August 2018 meeting, there will be a period of public consultation on the draft NEL legislation, which is anticipated to occur from around mid-August to around mid-September. It is expected that the draft NEL legislation will then be finalised for introduction to the South Australian Parliament by the end of 2018.

The necessary Rules to implement the Guarantee will be made by the South Australian Energy Minister in mid-2019.

Limited aspects of the operation and implementation of the Guarantee will be reviewed after three years to ensure that it is working smoothly.

After the initial package of changes to the Rules are made, the Australian Energy Market Commission (AEMC) is the rule-maker in response to Rule change proposals and in accordance with its current functions under the NEL.

Using an established framework, with clear accountabilities and change processes, will give businesses and investors the confidence and certainty they need to invest in the long-term and deliver cheaper, cleaner and more reliable electricity for Australian consumers.

1. Recommendation

The ESB recommends that the Energy Council agrees to implement the Guarantee mechanism which includes both an emissions reduction requirement and a reliability requirement on market customers (mostly retailers) in the NEM. If agreed, the Guarantee mechanism will be established under the NEL and Rules.

The electricity emissions reduction target, trajectory and its subsequent review is the responsibility of the Australian Government. The Australian Government is also responsible for whether external offsets may be used, and whether EITE load is exempt.

Support by the Energy Council for the detailed design of the Guarantee mechanism, as summarised in this paper, does not constitute approval, agreement or endorsement of the elements of the emissions reduction requirement that are the responsibility of the Australian Government.

2. Context

Fifteen years of climate policy instability has impeded long-term investments in the NEM and this has compromised system security and reliability. It has also impacted electricity prices and added to affordability problems for consumers. As the Finkel Review noted, our energy system has been vulnerable to escalating prices while being both less reliable and secure. Increased market intervention has been necessary to maintain the security and reliability of the system and this has further distorted price signals to producers and consumers. In short, the uncertainty about climate change policy has severely damaged the electricity industry and its household and business consumers. This cannot continue.

The Guarantee brings together climate and energy policy for the first time in Australia. It ensures we can meet the electricity sector's share of our international obligation to reduce emissions, while supporting the reliability of our electricity system. Providing long-term policy confidence will lower investment risk in the NEM and bring down electricity prices.

2.1 Designing the National Energy Guarantee

The ESB's high-level design for the Guarantee was presented to the 20 April 2018 Energy Council meeting. It was agreed that the ESB would progress development of the detailed design of the Guarantee, for determination at the Energy Council's 10 August 2018 meeting. This work is now complete.

If the Energy Council agrees to the final design of the Guarantee mechanism at its 10 August 2018 meeting, then draft legislative amendments to the NEL will be released in the week following the meeting and will be finalised for introduction to the South Australian Parliament during 2018. Rule changes will be presented to Energy Council at its April 2019 meeting.

The Guarantee comprises changes to the NEM and its legislative framework which seek to:

- maintain the reliability of the system
- achieve the emissions reductions required from the electricity sector to meet Australia's overall international commitments, and
- meet the above objectives at the lowest overall costs.

Designing the Guarantee has been an iterative and inclusive process. Inception to final design has taken almost a year with input through multiple consultation processes.

2.2 The status quo is not an option

Until recently, almost all of the NEM's generation was supplied by large thermal generators (coal or gas), or from hydro. Other forms of generation, such as solar or wind power, were not economic without significant subsidies. This is no longer the case. Substantial cost reductions in wind and solar generation have occurred. These cost reductions have been technology driven and have improved with manufacturing scale.

Customer preferences have also changed and encouraged increased deployment of wind and solar PV. Many large-scale solar and wind projects are underpinned by power purchase agreements from Australian businesses – reflecting the attractive electricity costs these agreements can now offer and a preference from some businesses for low-emissions electricity. Voluntary action schemes such as GreenPower and State based renewable schemes add to this demand.

Nationally, more than 17 per cent of households have solar PV and/or solar hot water, with almost 1.9 million small-scale solar PV systems now installed.²

Recent increases in export coal and gas prices have added to the challenges for thermal generators making it more difficult for these technologies to compete. In the last two years thermal coal export prices, for example, have increased from around \$73 per tonne to around \$115 per tonne,³ and between 2015 and 2018 gas generators' fuel costs have risen from almost \$5/GJ to around \$8/GJ.⁴

These developments have encouraged deployment of renewable generation in the NEM and these trends are expected to continue.

The introduction of solar and wind into the NEM at this scale is a challenge that will require adaptations to the existing framework. The variable nature of wind and solar PV means it cannot be dispatched on demand. This requires complementary capacity that is capable of rapidly increasing or decreasing output in response to changes in system demand or output from wind and solar PV.

Developments in behind-the-meter technologies including rooftop solar, battery storage and electric vehicle charging are changing the shape of daily demand, resulting in sharper peaks and shallower troughs in average time-of-day demand. This means much sharper increases in output from the grid will be required in the afternoon as demand increases and output from solar PV drops. Over the period to 2030, flexible generation resources that can rapidly ramp up to the evening peak will be critical.

These changes underway in the NEM cannot be reversed. They are now more market driven than policy driven. The operating procedures and rules governing the NEM must also adapt and do so in a coordinated way that supports the transition while ensuring electricity is affordable. An unstable and uncoordinated policy environment exacerbates these issues.

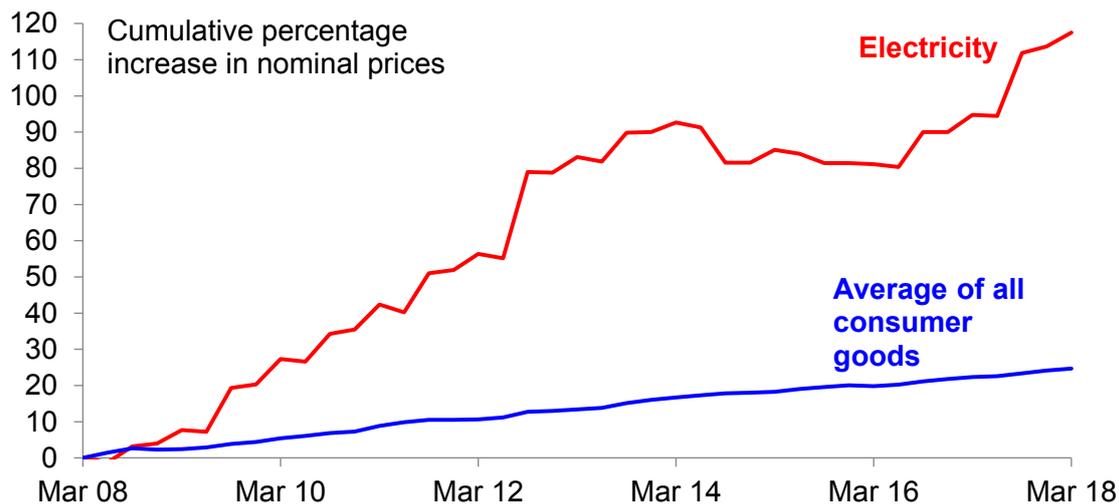
National electricity prices have more than doubled over the past decade – growing much more rapidly than general inflation and lowering the purchasing power of all Australian households, especially the most vulnerable (Chart 1). While much of the price increase over the past 10 years has been caused by network or retail pricing, the more recent increases have been largely attributable to increased wholesale prices. These price increases have also been an impost on Australian businesses, potentially undermining their international competitiveness and weighing on economic growth.

² Clean Energy Regulator Postcode data for small-scale installations and ABS 6523.0 - Household Income and Wealth, Australia, 2015-16.

³ *Resources and Energy Quarterly* – June 2018, Department of Industry, Innovation and Science.

⁴ *ACCC Retail Electricity Pricing Inquiry* (2018).

Chart 1: Cumulative increase in the price of Australian consumer goods



Source: Australian Bureau of Statistics, Catalogue Number 6401.07

The Australian Competition and Consumer Commission’s recently released *Retail Electricity Pricing Inquiry Final Report*⁵ is a comprehensive study into the drivers of retail electricity prices with a wide-ranging package of recommendations to reduce prices. The ESB welcomes this report and looks forward to working with the Energy Council to consider how these recommendations are best responded to and implemented. A cornerstone of the ACCC’s recommendations to reduce wholesale electricity prices is the adoption and implementation of the Guarantee.

Lowest cost outcomes for consumers will be achieved by creating a stable policy environment which appropriately values an optimal mix of capacity and creates clear incentives for the private sector to deliver it.

2.3 Longer term price signals are at the heart of the Guarantee

Spot market prices for electricity are for the very near term, that is, the next 30 minutes. Whereas the agreements struck between retailers and generators in the contract market have a much longer-time horizon – from days, to years.

The Guarantee addresses the market for wholesale electricity contracts. Derived from market expectations of future spot prices, these contract markets focus on the longer term and deliver key signals for new investment.

The NEM is designed so that price signals provide the necessary information for market participants to make investment or retirement decisions concerning their physical assets and their efficient operation. These price signals are borne out in wholesale spot market outcomes and financial contract markets, both of which provide participants with strong incentives to deliver electricity when it is needed. If participants fail to manage their financial exposure to either low or high spot prices or make a poor investment decision (for example, in a new generator that is under-utilised), they alone face the financial consequences, not consumers or taxpayers.

⁵ Available at <https://www.accc.gov.au/regulated-infrastructure/energy/electricity-supply-prices-inquiry/final-report>.

The Guarantee builds on the existing pricing and risk management frameworks used in the NEM to signal the need for investment in new sources of generation.

Market participants are expected to contract in a variety of ways to meet both the emissions reduction and reliability requirements. Through their contracting retailers will support a range of different generation and demand-side technologies. This will result in increased contracting levels, which in turn will create deeper and more liquid contract markets. Increased contracting in deeper and more liquid contract markets is expected to reduce the level and volatility of spot prices.

The Guarantee has been specifically designed to ensure it does not undermine but rather enhances the liquidity, transparency and the level of competition in the retail and wholesale electricity markets.

2.4 Reducing electricity prices and improving affordability

In the advice presented to the Energy Council in November 2017, the ESB included initial estimates of the effects of the Guarantee based on detailed market modelling.

This section presents updated estimates of the effects of the Guarantee, reflecting the final policy design as well as developments in the NEM over the past nine months. The analysis and modelling that underpin these estimates has been led by the ESB in partnership with the AEMC and draws heavily on the expert advice and modelling capabilities of ACIL Allen consulting.⁶

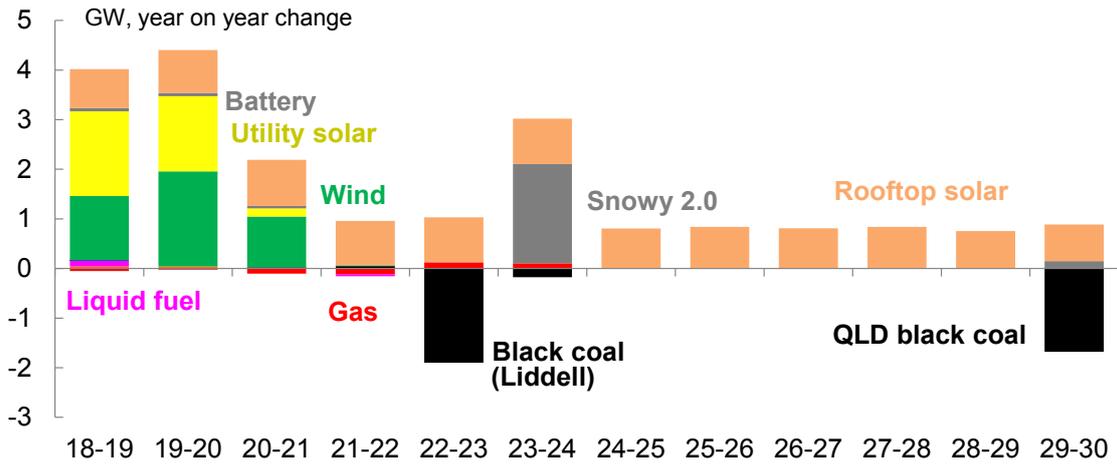
Current high wholesale electricity prices, as well as the RET, have incentivised a large pipeline of renewable generation. Already committed projects and the first stages of the Victorian and Queensland RET schemes means that around 7,800 MW of large-scale wind, solar and battery capacity is expected to be added to the NEM between 2018-19 and 2020-21.

But a failure, again, to agree and implement an integrated energy and climate change policy will be disruptive and could result in a continued and potentially extended environment of policy uncertainty. In this environment, it is reasonable to assume that only those projects currently financially committed would proceed to build. In an environment of continued policy uncertainty, it is also reasonable to assume that financing costs and the associated hurdle for new investment will be higher than under the Guarantee.

Chart 2 outlines the expected build profile over the years to 2030 should the Guarantee not proceed. Only new-build projects that have reached financial close or that will be funded under Stage 1 of the Victorian Renewable Energy Target (VRET) or Queensland Renewable Energy Target (QRET) are expected to be constructed in the short-term. The Australian Government's Snowy 2.0 project is anticipated to commence generation in 2023-24. Some black coal generation is expected to withdraw in line with announced closure or key contracting and technical milestones. Rooftop solar is expected to continue to expand through to 2030 in line with AEMO forecasts.

⁶ ACIL Allen is the largest independent Australian owned economics and policy consultancy in Australia. ACIL Allen Consulting is a leader in advising companies and governments throughout Australasia and SE Asia on energy policy and market trends, and is one of Australia's leading providers of economic modelling services to both the public and private sectors.

Chart 2: Change in NEM generation capacity by fuel type without the Guarantee

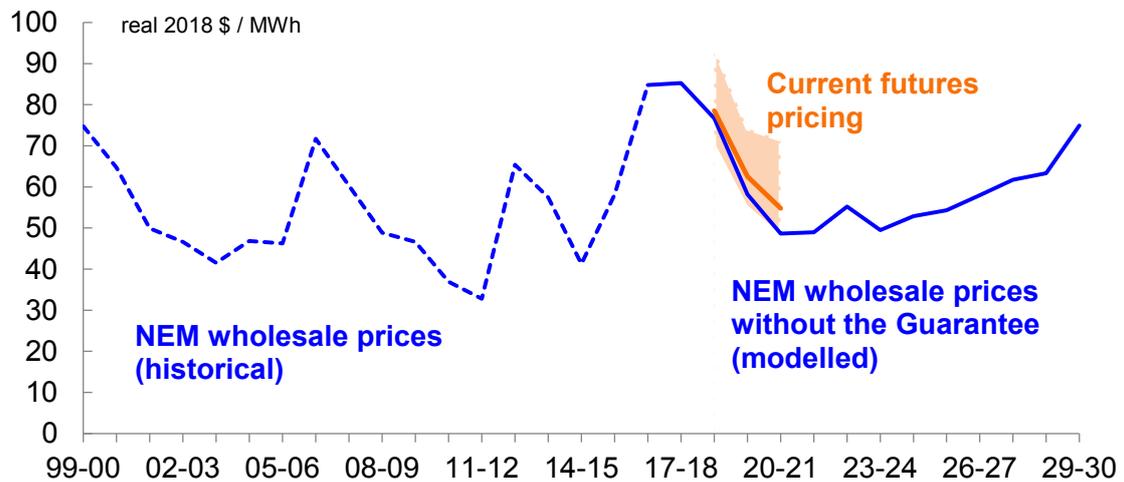


Note: Changes in NEM-wide capacity under the 'no policy' modelling scenario

Source: ACIL Allen consulting

The continued connection of additional renewable generation projects to the NEM in coming years is projected to see prices fall from today's elevated levels (Chart 3). The modelled short-term wholesale price reductions are comparable to those currently implied by futures contracts.

Chart 3: NEM wholesale prices without the Guarantee



Sources: ACIL Allen Consulting, ASX Energy futures, ABS Catalogue 6401.0, AEMO, Energy Security Board

While the closure (as announced) of the Liddell coal-fired power plant in NSW in 2022-23 puts some upwards pressure on prices, in NSW in particular, the addition of around 2,000 MW of capacity with the completion of the Australian Government's Snowy 2.0 pumped hydro project in 2023-24 is expected to extend this period of lower prices. However, prices are expected to rise again over the decade as the supply-demand balance tightens and real gas prices are assumed to rise. Little further investment is required before 2030 under this scenario which assumes no unexpected closures of major thermal plant. There is a further slight increase in price trajectory in 2029-30 associated with the modelled withdrawal of some black coal capacity in Queensland.

The Guarantee will lower prices in five key ways:

- policy stability unlocking new investment
- policy stability reducing the risk (and therefore the cost) of new investments
- increased contracting unlocking new investment
- increased contracting in deeper and more liquid contract markets to reduce the level and volatility of spot prices, and
- increased voluntary demand response.

The Guarantee will provide stakeholders with policy confidence by comprehensively integrating energy and emissions policy to guide an orderly transition for the electricity sector. This will assist in bringing forward additional new investment and reduce the cost of capital on those new investments.

Through their contracting, retailers will support a range of different generation and demand-side technologies to meet the emissions reduction and reliability requirements of the Guarantee at the lowest possible cost.

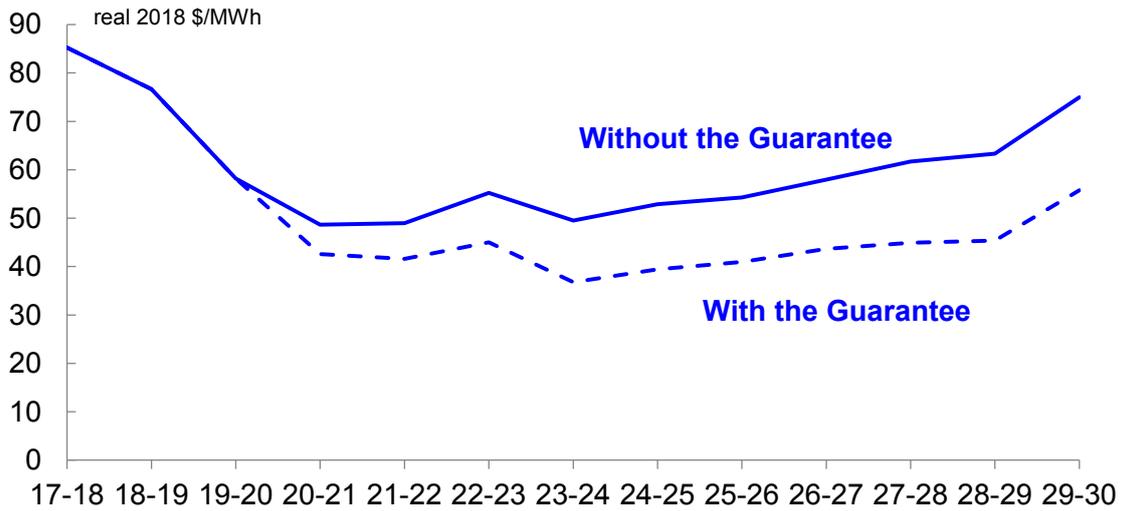
Increased long-term contracting is expected to further lower prices under the Guarantee as all market customers (mostly retailers) will be required to have a reliable level of firm contracts in place at key times. This will lead to more competitive bidding in the spot market as generators reduce their bids to increase their chances of being dispatched to cover their contracted capacity.⁷ Generators with high levels of long-term contracts in place are heavily financially incentivised to be able to generate in contracted time-periods. In this way, higher levels of long-term contract cover also slightly mitigate the risk of short-notice generator closure.

The incentives and structures created by the Guarantee are also expected to accelerate the development of the demand-side response market. This will give the NEM additional, potentially-lower cost, ways to respond to peaks in demand.

In aggregate these aspects of the Guarantee are expected to place significant additional downwards pressure on prices. NEM-average wholesale prices are, on average, expected to be over 20 per cent lower over the 2020s under the Guarantee than without it (Chart 4).

⁷ A generator typically offers contracted capacity at marginal cost (save for below marginal cost bids in respect of a minimum level of generation required to safely continue operation) and offers remaining capacity to maximise net revenues.

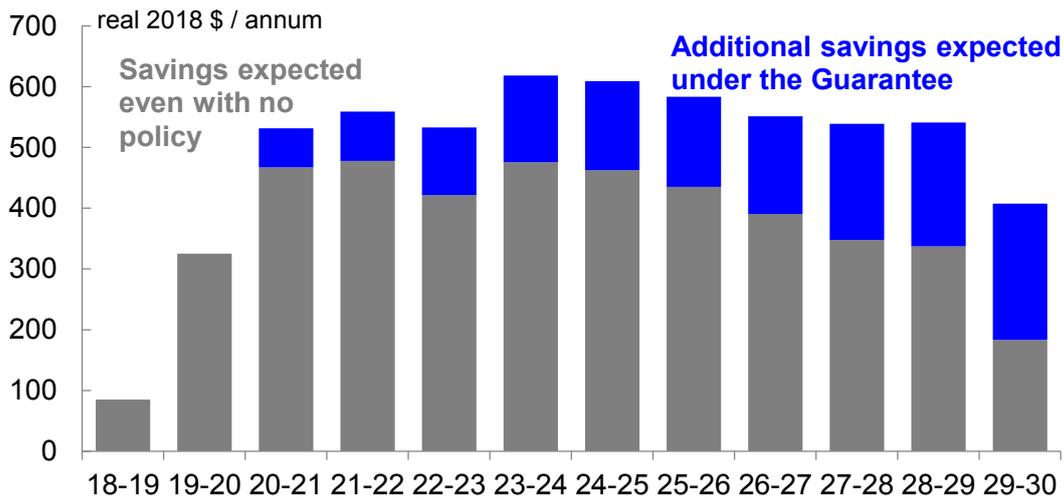
Chart 4: NEM wholesale prices under the Guarantee



Source: ACIL Allen consulting

Lower wholesale prices are expected to lower bills for all consumers. The average NEM-connected household is estimated to save around \$550 dollars a year (real \$2018) on their retail bill over the 2020's relative to 2017-18 with network costs held constant in real terms. Of this, nearly \$150 per year (real \$2018) of projected savings is directly attributable to the Guarantee (Chart 5).

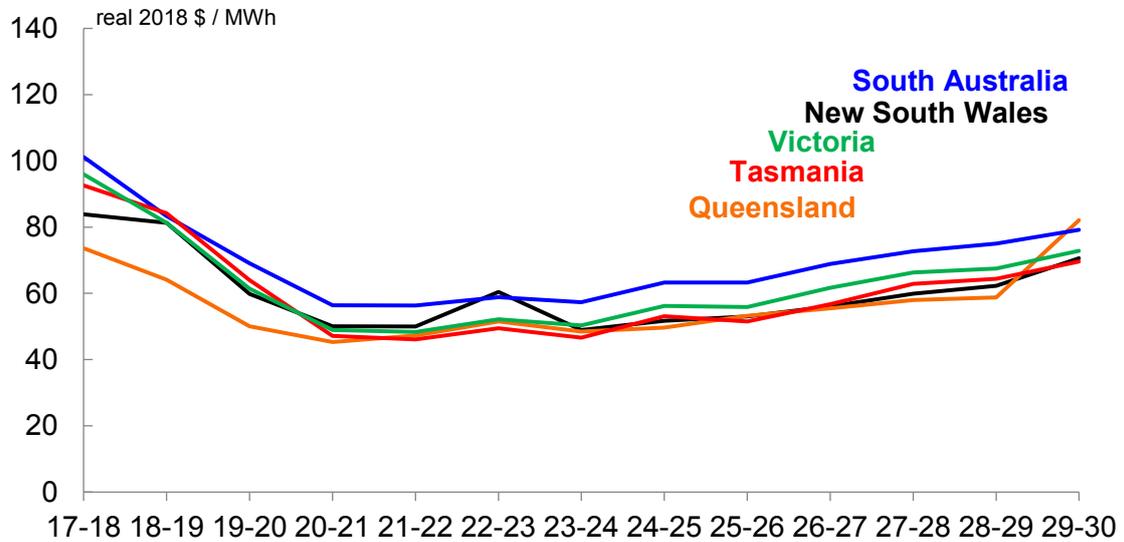
Chart 5: Forecast average retail bill saving relative to 2017-18 for NEM-connected households under the Guarantee



Source: ACIL Allen consulting

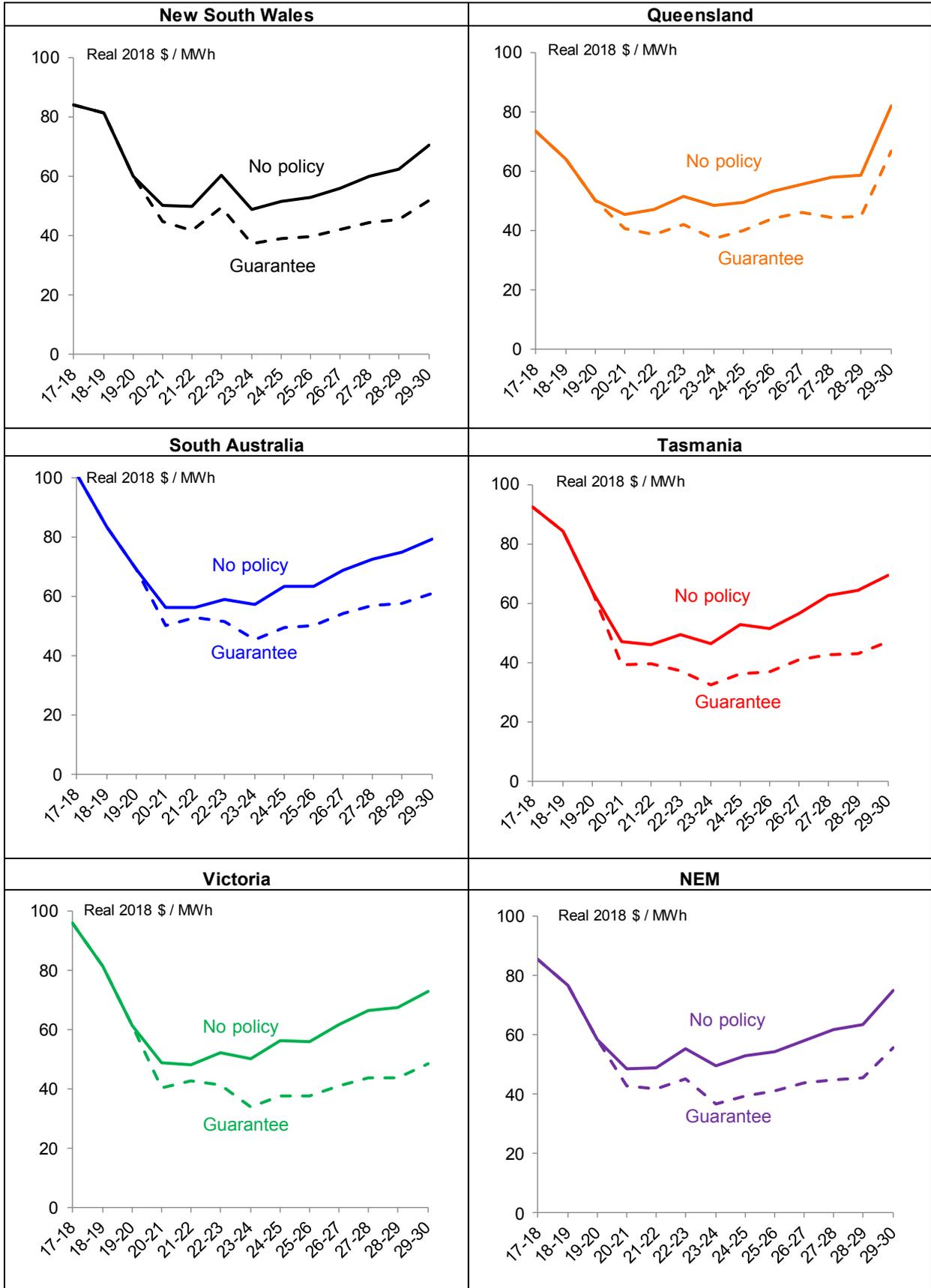
The price savings from the Guarantee are expected to be broad-based, with all NEM jurisdictions expected to benefit from lower electricity prices as a result of the Guarantee. Wholesale prices are forecast to be lower in all NEM jurisdictions under the Guarantee than in its absence (Charts 6 and 7). These savings are not directly comparable with the estimated bill savings in the ACCC's recent Retail Electricity Pricing Inquiry – the estimated savings differ in scope and the time periods compared.

Chart 6: Wholesale regional reference prices without the Guarantee



Source: ACIL Allen consulting

Chart Panel 7: Projected jurisdictional wholesale price outcomes



Source: ACIL Allen consulting

2.5 Managing reliability risks

The reduction in dispatchable coal-fired generation and the greater penetration of variable renewable technologies such as solar and wind generation present risks to the reliability of our electricity supply.

Historically, most of the installed generation capacity has been dispatchable (that is, able to generate as required) provided by coal, gas and hydro-electric plants. Provided these generating units have sufficient fuel (that is, coal, gas, stored water) and their operational positions allow it – and assuming no unexpected outages or transmission constraints – they can be called upon by AEMO to increase or decrease their output at any time in a predictable manner, given enough notice.

However, as Australia's ageing generators retire they are being replaced by cheaper variable renewable alternatives or increased output from gas-fired power stations.

The proportion of available dispatchable generation capacity in the NEM is therefore declining. While some new wind and solar investments in Australia are seeking to make themselves dispatchable by co-locating with a battery or storage such as pumped hydro, this is not true for the majority of these resources. Therefore, a portfolio of resources is required so that when wind and solar are not available an alternative source of power can be dispatched.

The reliability requirement is designed to ensure that a portfolio of dispatchable power is available when required as the system transitions. Increased contracting will also reduce the likelihood of unexpected closures. For generators, greater levels of contracting will have the effect of increasing their commitment to future generation – as a failure to generate at times they are contracted would leave them exposed to significant financial risk. Transferring such liabilities is costly, and so being in a largely contracted position would increase a generator's incentive to keep the plant well-maintained and to quickly take action to respond to any unplanned outages. The reliability requirement is expected to work in combination with the three-year notice of closure rule recommended by the Finkel Review to ensure market decisions are made in a more orderly fashion.⁸

The Guarantee also incentivises a more developed demand response market, financially rewarding action by consumers, which will aid reliability and capture value for consumers who choose to participate.

Neither the risk nor the effects of unanticipated outages or closures should be underestimated, especially as the share of dispatchable generation in the NEM decreases. Without the Guarantee, the market will have a less coordinated response to unanticipated events, and such disruptions could increase prices and threaten reliability as has been seen over the past few years.

⁸ The Finkel Review recommended that generators in the NEM be required to give at least three years' notice to the market prior to closure to support an orderly transition. Energy Council endorsed this recommendation on 14 July 2017 and the rule change request is currently being considered by the AEMC.

Case study: The closure of the Northern Power station in South Australia

The Northern Power Station (Northern) was a 540 MW coal fired generator located near Port Augusta in South Australia that had historically provided up to 40 per cent of the region's electricity. In October 2015, Alinta announced it would be closing Northern in just five months' time, bringing forward the closure date by two years, due to an increasingly challenging operating environment and failure to secure support to remain open.

At the time of its retirement, Northern was over 30 years old, though not yet at the end of its operational life. However, the mine that supplied the power station was running out of quality coal and the mine would have required significant capital-intensive augmentation to continue operation. Over the previous four and half years, Alinta had reportedly invested \$200 million to extend the operating life of the generator. The key reasons for the difficult trading conditions faced by Northern included reduced electricity demand (partly driven by the uptake of rooftop solar PV) and increased competition from zero marginal cost variable renewable energy generation in South Australia.

Prior to the closure, Alinta was reportedly seeking to secure customers (particularly commercial and industrial users) via long-term energy off-take agreements for the coming years to ensure Northern's continued operation. The prices sought for these contracts, while likely higher than what commercial and industrial users were expecting to pay if they had otherwise remained exposed to the wholesale spot price, look very good value in hindsight.

The closure of the power station in 2016 resulted in a substantial reduction in supply in energy and ancillary service markets, and in contract market liquidity in South Australia. Contributing factors to these increased wholesale prices included a greater reliance on gas generators at a time when gas prices were increasing on the east coast, interconnector constraints, as well as limited availability of existing gas generators due to mothballing. Had Northern successfully secured customers via long-term contracts, it is likely that it would have continued to operate through 2016 and 2017.

Following the closure of Northern, the majority of new generation capacity constructed in South Australia has been variable renewable energy. As variable renewable energy traditionally does not offer firm contract products, this has not improved contract liquidity in the region.

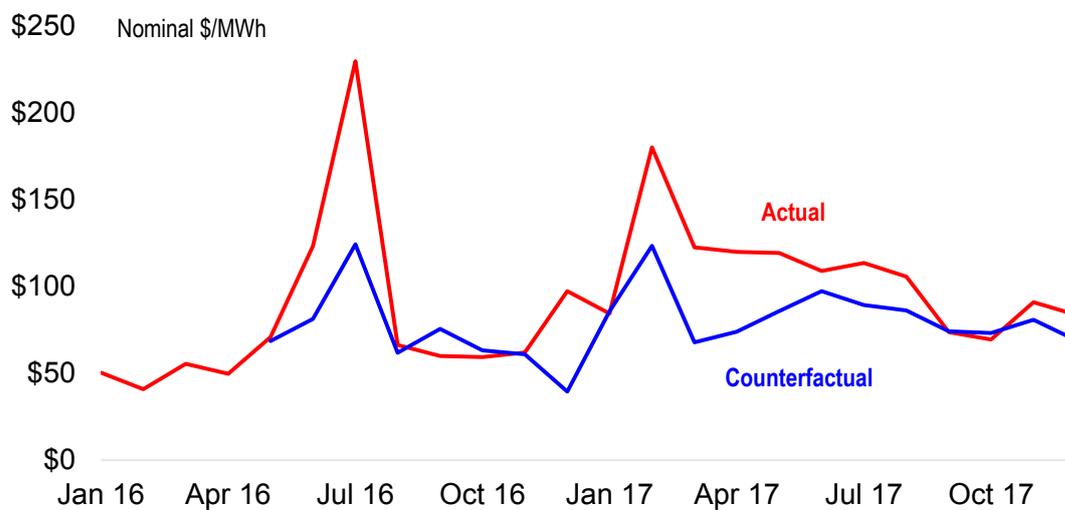
Counterfactual scenario

Drawing on AEMO's observation in its Integrated System Plan that a key element of a least cost approach to support an orderly transition of the energy system sees coal generators maintained until the end of their technical lives, a counterfactual scenario was modelled where Northern continues operating beyond May 2016 to assess the potential wholesale price outcomes.

The Guarantee is intended to increase long-term contracting and help lessen the likelihood of unexpected sudden and early exits, where reliability is identified to be at risk. Increased contracting will incentivise generators to defend their sold contract positions or face significant financial liabilities. The reliability obligation will reinforce the value of firm contracts in times and regions when supply of these contracts is at risk of becoming scarce.

The modelled price outcomes over the period May 2016 to December 2017 suggest that wholesale prices would have been materially lower than those observed over the period. This is particularly evident in the winter of 2016, where a series of high price events significantly drove up average wholesale spot prices, and the first half of 2017 where the supply-demand balance was very tight. The average wholesale price in the counterfactual scenario is around \$79/MWh compared with the actual price observed of \$102/MWh (representing a 23 per cent reduction) (Chart 8).

Chart 8: South Australian wholesale prices in 2016 and 2017



Source: ACIL Allen Consulting, AEMO actuals

These higher wholesale prices flowed through the residential retail bills over the 2016 and 2017 period. A conservative estimate of the impact on typical South Australian residential retail bills of the higher wholesale spot prices would be in the order of \$200 - \$250 for 2016-17.

In this counterfactual scenario, the continued operation of Northern displaces gas-fired generation in South Australia, and also reduces the reliance on imported energy from Victoria.

2.6 Reducing emissions

The Australian Government has proposed to set an emissions reduction target for the electricity sector consistent with achieving a 26 per cent reduction on 2005 levels by 2030.

The currently committed pipeline of new renewable generation is expected to make a substantial contribution to lowering emissions in the NEM and the amount of additional abatement required. Annual NEM emissions are expected to fall by over 15 MtCO₂-e

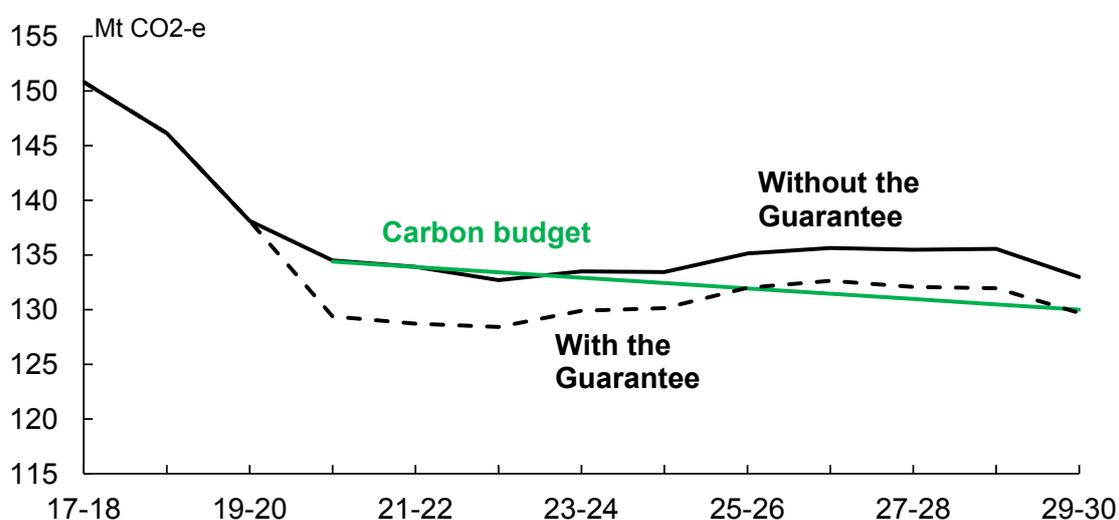
between 2017-18 and 2020-21 reflecting the significant volume of renewable energy committed to connect to the NEM over this period. By 2020-21, emissions in the NEM are expected to be around 24 per cent below 2005 levels.

But without a specific policy commitment to achieve emissions reductions in the NEM, it is expected that cumulative emissions over the decade will not reduce enough for the NEM to meet its share of the national target (Chart 9).

The emissions reduction requirement is designed to ensure that the NEM evolves in a manner that is consistent with the undertakings given by Australia under the Paris Agreement. The Guarantee can also accommodate different levels of ambition over time, and work with State and Territory schemes to create greater confidence for the industry.

The Guarantee is expected to deliver the emissions reduction target for the NEM, with an additional 38 MtCO₂-e abatement over 2020-21 to 2029-30 relative to a scenario without the Guarantee. The flexibility allowed by the carrying forward of over-achievement and deferral between years will assist in lowering overall abatement costs.⁹

Chart 9: NEM carbon-dioxide equivalent emissions under the Guarantee



Source: ACIL Allen consulting

Operation of the Guarantee under higher emissions reduction targets

It is possible that higher emission reduction targets (that is, a larger percentage reduction in emissions, which would result in lower emissions) may be set in the future by the Australian Government. This would require a change to Australian Government legislation. However, the Guarantee framework will automatically accommodate the new target. In particular, no changes to the NEL are expected to be required based on the proposed drafting.

⁹ The modelling imposed a cumulative target for 2020-21 to 2029-2030 of around 1,320 MtCO₂-e, consistent with the NEM achieving a 26 per cent reduction on its historical 2005 emissions.

Higher targets create greater demand for lower emissions intensity allocations under the emissions reduction requirement, providing investment signals for existing and new low emissions intensity generators, but will not change the fundamental operation of the Guarantee. The strong disincentives against non-compliance, including a penalty of up to \$100 million, allow the design to accommodate higher targets and ensure that market participants respond effectively to the investment signals provided by the Guarantee.

Depending on the magnitude and timing of any changes to targets, consideration could be given to adjusting some parameters of the emissions reduction requirement, such as the limit on carrying forward over-achievement or deferring under-achievement. However, these are parameters that can be changed in the Rules; the NEL itself would not need any changes.

In the absence of a policy such as the Guarantee that takes into account both emissions and reliability, higher targets could mean an increase in the share of variable renewable generation to a point where reliability becomes an issue. However, under the Guarantee, the reliability requirement ensures that firm capacity (including demand response) is contracted by liable entities. Coupled with wholesale market prices, this will incentivise investment in dispatchable resources so that higher targets do not impact on reliability.

Interaction of the Guarantee with state targets

A number of State and Territory governments have, or have proposed, renewable energy targets for their region. Projects developed under a state-based scheme would also be eligible to transfer their allocations to a market customer for the purposes of complying with the emissions reduction requirement. These projects would therefore contribute to achieving the NEM-wide emissions intensity target set by the Australian Government.

However, there is nothing within the design of the Guarantee which limits the ability of states to set and meet their own emissions reduction or renewable energy targets.

In regions with both the Guarantee and a state target operating, some of the beyond business-as-usual (BAU) investment would be driven by both policies supplementing each other. One of the two policies will bind to deliver more additional investment and emissions reductions than the other.

The Guarantee does not require any region to deliver a specified level of emissions reductions or renewable investments to achieve the NEM-wide emissions reduction target. Instead, the Guarantee creates the incentives for investors to find the most efficient locations to invest across the NEM to deliver a given emissions reduction target. This is reinforced by the reliability requirement that, regardless of the change in generation mix, preserves reliability in each region. Emissions reduction or renewable energy goals within a jurisdiction will contribute to achieving the NEM-wide emissions reduction target, but there is no mechanism to increase the target for other jurisdictions in light of individual state and territory goals.

2.7 Safeguarding competition

In 2017, the Finkel Review highlighted concerns about wholesale market competition and increased retail and wholesale market concentration, and the implications for price and service outcomes.¹⁰ As noted above, the ACCC has also considered issues of market concentration as part of its Retail Electricity Pricing Inquiry and made a number of key recommendations.

Stakeholders have been clear in their engagement with the ESB that competition cannot be undermined through the design of the Guarantee. The Guarantee has therefore been specifically designed to not undermine, and may indeed boost, competition through measures that enhance market liquidity and pricing transparency in retail and wholesale electricity markets.

The Guarantee will safeguard competition in five key ways:

- Emissions registry will support contract market liquidity by not requiring bespoke, physically linked financial contracts.
- Limits will be applied on carrying forward over-achievement in the emissions registry to prevent hoarding but with greater flexibility for smaller retailers.
- The emissions registry will automatically correct over-allocations of generation, to prevent hoarding and to make sure that all retailers will be able to comply.
- 50,000 MWh exemption from registry compliance to support smaller retailers.
- Market Liquidity Obligation (when the reliability obligation is triggered) to ensure largest participants must offer to buy and sell contracts with all participants. This will be supported by a voluntary Book Build conducted by AEMO.

¹⁰ *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future*, Commonwealth of Australia 2017, p.138.

3. Emissions Reduction Requirement

The emissions reduction requirement will be an annual obligation on each entity registered by AEMO as a market customer under the Rules (mostly retailers, but also other parties that purchase electricity directly from the NEM) to ensure the average emissions intensity of their load is at or below the prescribed electricity emissions intensity target for that compliance period.

The Australian Government will legislate annual electricity emissions targets for the electricity sector, expressed as annual average emissions per MWh (electricity emissions intensity targets). The NEL will refer to these electricity emissions intensity targets for the purpose of the emissions reduction requirement.

Compliance with the emissions reduction requirement will be assessed and reported annually, based on a financial year compliance period. The first compliance year is proposed to be the 2020-21 year. There will be a specified reporting and revision window after the end of each compliance period, with a deadline of mid-December.

The AER will be the agency responsible for monitoring and enforcing compliance.

Some State and Territory Governments in Australia have established schemes to encourage renewable energy and to reduce electricity sector emissions. All State and Territory renewable energy schemes can operate with the Guarantee and contribute towards achieving the emissions reduction trajectory for the Guarantee.

3.1 Emissions registry

A registry, administered by AEMO, will be established to allocate generator output and its associated emissions against a market customer's load. The emissions registry will facilitate efficient compliance with the emissions reduction requirement.

The registry will allow market customers to be allocated a share of a generator's output and its associated emissions, for which they have obtained the rights. This can be based on any contractual arrangement held with a counterparty outside the registry, provided both parties verify the agreement in the registry. Market customers can agree to enter into contracts to allocate generation in the registry with the same generators that they enter into hedging contracts with, but there is no requirement for these parties to be the same.

This will ensure that the Guarantee works in a way that is integrated with existing electricity market operations without compromising financial market liquidity. Importantly, it will draw on existing reporting obligations already faced by participants under the National Greenhouse and Energy Reporting (NGER) scheme.

- The registry will be administered by AEMO, as an enhancement to its existing systems.
- Market customers and generators will participate in the registry. Third parties will not be entitled to hold accounts within the registry. Account holders will only be able to view information relevant to their own account and allocations.

Some information will be made public to the market and other stakeholders at regular intervals. For instance, to inform the market of what generation is available, information on each generator's unallocated generation will be published on a regular basis, alongside its pre-assigned emissions intensity. The AER will report annually on high-level registry outcomes for each compliance year, including the performance of each market customer against the target.

- The registry will allow market customers to be allocated a share of a generator's output, for which they have obtained the rights. It will automatically match emissions to each market customer based on the emissions intensity of the generation allocated against their load.
- The unallocated generation and emissions in the registry will have an associated 'residual' emissions intensity. The residual emissions intensity will be a floating value, which varies over the compliance period as allocations are recorded.
- Market customers that do not have generation allocated for some, or all, of their load will be assigned the 'residual' emissions intensity of unallocated generation in the registry, in respect of their unallocated load.
- To ensure no market customer is left with insufficient generation to match their load, if a market customer's allocated generation volume exceeds its liable load, the over-allocated volume will be returned to the unallocated pool (starting with the lowest emissions generation allocated to that market customer).
- The AER will actively monitor the behaviour of registry participants and, if required, the ESB will re-consider the need for a general anti-avoidance regime and/or unreasonable withholding provision when the operation of the scheme is reviewed.

The emissions reduction requirement has been designed as a whole-of-market mechanism, in that every megawatt-hour (MWh) of generation that occurs in a compliance year will be recorded in the registry for allocation against every MWh of market customer load in that compliance year. This includes pre-1997 renewable generation (such as Snowy Hydro and Hydro Tasmania). The emissions reduction requirement will also include the net exports from non-market embedded generators and behind the meter resources. These will be added to a market customer's generation and load in the registry.

This whole-of-market approach to designing the emissions reduction requirement will ensure that it remains efficient and capable of delivering much higher emissions reduction targets.

Some adjustments will be made for specific circumstances:

1. Small market customer exemption

To support retail market competition, the first 50,000 MWh of any market customer's load will be exempt from the emissions reduction requirement, and instead spread over other market customer load. This will help smaller market

customers meet the emissions reduction requirement, while not impacting overall coverage.

2. EITE exemption

The Australian Government intends to exempt EITE load from the emissions reduction requirement. To give effect to this, each market customer's load for the purposes of the emissions reduction requirement will be reduced by any EITE load it supplies in a compliance year. Across all market customers, each MWh of non-EITE load will then be scaled-up by a factor such that it equals the total market customer load.

3. GreenPower

Some businesses and household consumers undertake voluntary action to reduce emissions associated with their electricity use. A prominent example is the GreenPower program. GreenPower will be treated as additional to the emissions reduction requirement. This will be achieved by deducting a market customer's GreenPower load and associated generation occurring in the compliance year from its total load and allocated generation. The ESB is working with the National GreenPower Steering Group to ensure the policy goal of additionality can be achieved within the framework of the Guarantee.

All pool generation and wholesale pool purchases will be defined 'at the node':

- Pool generation data will be measured at the transmission node identifier, with generator imports netted against exports, and then adjusted by the marginal loss factor.
- Wholesale pool purchases will be measured by applying transmission and distribution loss factors to the metered volumes.

This approach ensures that pool generation and wholesale pool purchases will require minimal scaling to match (estimated to be within 1 per cent).

For grid-connected batteries that are registered in the NEM as both a scheduled load and scheduled generator, their generation will be netted against their load, such that only their net wholesale pool purchases are included in their market customer load.

To ensure total generation matches total market customer load in the registry for each compliance year:

- Total generation will be calculated as pool generation from AEMO, plus non-market embedded generation¹¹ and net exports of solar PV generation.
- Market customer load will be calculated as wholesale purchases from AEMO, plus load associated with non-market embedded generation and net exports of solar

¹¹ Defined as generation that is not explicitly part of the NEM (i.e. is non-market) and is embedded within a local retailer's host region. This is different to generation that is embedded behind the meter at a site.

PV. It will be adjusted for the small market customer exemption and the EITE exemption, and to exclude the voluntary GreenPower load.

The emissions intensity that applies to each generator for a given compliance year will be recorded in the registry before the start of the compliance year.

- Emissions data used to calculate the emissions intensity will primarily be sourced from reports submitted under the NGER scheme, for the financial year two years prior to the compliance year. This data is available by 28 February before the start of the compliance year.
- Generation data used to calculate the emissions intensity will be for the same year as the emissions data for consistency.

Three months following the compliance year, all AEMO data recorded in the registry is taken as final. This will allow a further two and a half months for embedded generation data to be inputted and any allocation imbalances in the registry to be resolved before the mid-December reporting deadline.

3.2 Compliance with the emissions reduction requirement

Providing flexibility in how market customers meet the emissions reduction requirement will minimise instances of non-compliance and reduce the costs of the mechanism. The following flexible compliance options will be in place:

- Each year, market customers can carry forward up to 10 per cent of the first year's electricity emissions intensity target per MWh of load plus a fixed amount of 60,000 tCO₂-e. No market customer will be allowed to carry forward more than 100 per cent of the emissions intensity target per MWh of load. The limit will be lifted in any year where all market customers were found to be compliant with the target.
- To provide flexibility without impacting on whether the target is achieved, market customers can defer 10 per cent of the electricity emissions intensity target per MWh of load, and this limit will be cumulative over two years, enabling market customers to make good on a deferral for the first year in the third year. In the first year, market customers will be able to defer their full compliance obligation.
- The NEL will allow the use of offsets that are prescribed emissions units surrendered under the *Australian National Registry of Emissions Units Act 2011* of the Australian Government and in accordance with the NER. Regardless of whether the Australian Government allows the use of offsets under the current electricity emissions intensity targets, the NEL should provide for the future use of certain defined offsets to ensure the scheme is robust to future changes in the target.

A market customer will be deemed 'non-compliant' if the emissions intensity associated with its generator allocations exceeds the electricity emissions intensity target once all flexible compliance options, described above, have been taken into account. A market customer can choose to be below the electricity emissions intensity target without penalty.

The AER will commence assessing and enforcing compliance from mid-December following each compliance year. In doing so, it will draw on compliance and enforcement tools that already exist under the NEL:

- The AER can initiate civil proceedings in the courts for alleged breaches of civil penalty provisions of the NEL. A court may order that an entity pay a financial penalty (a 'civil penalty') as a result of breaching its obligations. The existing definition of civil penalty in the NEL will be amended such that a new upper limit of \$100 million will apply in circumstances where a market customer is non-compliant with the electricity emissions intensity target.
- At its discretion, the AER may seek to undertake other enforcement options in place of, or in addition to, civil penalties, such as administrative undertakings, infringement notices or court enforceable undertakings.

The AER will publish guidance on these compliance and enforcement tools and the circumstances in which they are likely to be applied under the emissions reduction requirement.

The AER will report annually on registry outcomes for each compliance year by the end of February following the compliance year.

4. Reliability Requirement

The reliability requirement builds on existing spot and financial market arrangements in the electricity market to facilitate investment in dispatchable capacity. The reliability requirement is designed to incentivise retailers, on behalf of their customers, to support the reliability of the power system through their contracting and investment in resources.

AEMO will forecast annually whether the reliability standard is likely to be met (or not) in each NEM region over a 10-year period. Where reliability gaps are identified, the market will have the opportunity to invest to resolve any gap in resources. However, if a material gap persists or emerges three years from the period in question, then AEMO will be able to apply to the AER to trigger the reliability obligation.

If the reliability obligation is triggered, retailers may be expected to demonstrate future compliance by entering into sufficient qualifying contracts for dispatchable capacity (including demand response) to cover their share of system peak demand at the time of the gap.

One year from the forecast reliability gap (T-1), if the AER confirms a material gap in resources remains, AEMO will use its safety-net procurer of last resort to close the remaining gap. At this point, liable entities must disclose their net contract position to the AER.

If actual system peak demand (at T) exceeds that which would be expected to occur one in every two years, then the AER will assess the compliance of liable entities.

The ESB has identified eight steps in the reliability requirement.

4.1 Step 1: Forecasting the reliability requirement

Using the Electricity Statement of Opportunities (ESOO), AEMO will forecast whether the reliability standard is likely to be met (or not) in each NEM region over a 10-year outlook period. If the forecast is that the reliability standard will not be met, AEMO will identify the size of any 'gap' in supply/demand response.

To support liable entities to make informed decisions, additional descriptive information will be required to provide further context to AEMO's forecasts including:

- an indication of the additional capacity required to 'close' the gap;
- the pipeline of potential generation projects over the forecast period, along with progress of their development; and
- likely time of occurrence of the shortfall, such as month and time of day.

AEMO's ES00 forecast will be subject to a robust and transparent process along with an annual performance review. AEMO will be required to assess its forecasting process against best practice guidelines set by the AER.

4.2 Step 2: Updating the reliability requirement

AEMO will update the forecasts of the reliability requirement annually or more frequently if there is a material change to the supply-demand outlook such as a generator announces retirement or there are significant changes in expected demand.

4.3 Step 3: Triggering the reliability obligation

If a material reliability gap is identified in the forecasts, the market would be expected to react. This could take the form of investment in new capacity (for example, generation, transmission, storage or demand response) or an offer of additional existing capacity to the market.

If, three years from the period in question, AEMO considers that a material gap continues to exist or a new material gap has emerged, AEMO can submit a request to the AER (the independent entity) to trigger the reliability obligation on retailers.

In considering such a request, the AER would assess whether the identification of a material gap is consistent with the assessment framework set out in the Rules and is reasonable, based on all information available.

The basis for the assessment of materiality will be a clearly defined objective metric and transparently communicated to support liable entities to predict their potential liability and to close the gap as efficiently as possible.

South Australia has suggested that this step is not required and that the operation of the reliability requirement would be improved without it. The ESB has undertaken some preliminary consultation with stakeholders on this suggestion. Stakeholder reactions have generally not been supportive and the ESB has been unable to reach a concrete view of the merits or otherwise of this suggestion in the time available. While there is potential that the removal of the trigger could further smooth contracting within the NEM, the Board has decided to retain the trigger. The level and tenor of contracting will be considered when the operation and implementation of the scheme is assessed in due course with the potential to remove the trigger at that point if it would improve scheme operation.

4.4 Step 4: Liable Entities

If the reliability requirement is triggered, then all liable entities must assess their likely share of system peak demand and secure sufficient qualifying contracts, by the compliance date (T-1), to cover this.

As with the emissions reduction requirement, entities subject to the reliability requirement will be each entity registered by AEMO as a market customer under the Rules (mostly retailers, but also other parties that purchase electricity directly from the NEM).

Large customers, who are not market customers, will be provided the flexibility to 'opt-in' to manage their own reliability obligation. Large customers that manage their own reliability obligation may believe they can do so better, and at a lower cost, than a retailer but there will be no requirement to do so. The existing contracts of large

customers that choose to be a liable entity will be considered qualifying contracts (up to the load covered by the contracts in place). These contracts will need to have been in place on 10 August 2018.

To avoid disincentives to take on additional commercial and industrial customers below 30 MW, retailers will, under specific circumstances, be able to adjust their contract position within the compliance year.

However, to ensure the objectives of the reliability requirement are maintained, retailers will not be able to adjust their T-1 contract position where they take on new customer sites above the 30 MW threshold (unless it is a new entrant large customer). As a result, large customers above 30 MW will need to have their retail contracts in place for the forecast gap at T-1 or, if they have chosen to manage the reliability obligation themselves, have sufficient qualifying contracts in place for their share of system peak demand.

4.5 Step 5: Qualifying contracts

If the reliability obligation is triggered, liable entities will be required to enter into sufficient qualifying contracts to cover their share of system peak demand at the time of the reliability gap to meet possible future compliance.

There is a range of existing contract types, such as cap and swap contracts, which expose the sellers of those contracts to very high prices if generation or demand response is not available when the system needs it. Generally speaking, these types of contracts are only offered if they are underpinned by dispatchable capacity or demand response; that is, capacity that is available to be dispatched when the system needs it.

Consistent with this, any wholesale contract with a direct link to the electricity market which a liable entity uses to reduce exposure to high spot prices will qualify.

If a material gap persists one year from the forecast reliability gap (T-1), liable entities will be required to submit their net contract position to the AER – and in doing so, to ensure that the net position submitted has been appropriately adjusted for the ‘firmness’ of contracts used for compliance (each contract approximated by a ‘firmness factor’ that is supported by an independent audit report).

To help manage significant stakeholder concerns about the liquidity and transparency of contract markets, large, vertically integrated retailers will be covered by a ‘Market Liquidity Obligation’ when the reliability obligation is triggered.

- This will require at least two vertically integrated retailers per region (with separate consideration required for Tasmania) to make contracts available, for the period of the gap, on an appropriate platform.
- Liability for the obligation will be determined based on a size threshold and will need to involve more than one party in each region.
- Obligated participants will be required to post bids and offers, with a maximum spread, for standardised products in the relevant region that would cover the period of the gap.

- Additional safeguards will be required to ensure that obligated participants can reasonably meet their requirements.

The detailed design of the Market Liquidity Obligation will be further developed in consultation with industry and will be set out in the Rules.

With the Market Liquidity Obligation in place, the ESB does not consider that the costs of establishing a trade repository¹² are warranted to satisfy the objectives of the Guarantee. However, the Board notes that the ACCC has recommended in its broader Retail Electricity Pricing Inquiry – Final Report that all over-the-counter transactions be reported to promote greater transparency in contract markets.

If the reliability obligation is triggered, AEMO may invite interested parties to lodge an expression of interest to participate in a voluntary book-build mechanism.

The book build will provide an opportunity for liable entities to secure contracts which are underpinned by new physical resources. It will further assist liable entities – in particular, small retailers or large customers who choose to manage their own reliability obligation – to lock in qualifying contracts.

The book-build will be conducted by inviting sellers to make offers to sell new contracts for the duration of the gap and for buyers to make offers to buy new contracts. AEMO will aim to match buyers and sellers in a way that delivers the maximum closure of the gap. All risks will be borne by the participants (not by AEMO).

Demand response products will qualify under the reliability obligation provided they meet the same criteria as other financial instruments. Demand response contracts must have a direct link to the electricity market which a liable entity uses to manage exposure to high spot prices. The demand response will have to be ‘in-market’¹³. Demand response contracts will also need to be registered with AEMO via its Demand Side Participation Portal.

4.6 Step 6: Procurer of Last Resort

The Procurer of Last Resort is the ‘safety net’ for the reliability obligation.

One year from the forecast reliability gap, AEMO will again review its forecast. If the reliability standard is now forecast to be met there is no further action. However, if the reliability obligation has been triggered and a reliability gap persists one year out, the AER will again review AEMO’s forecasts and, if a material gap remains, activate the requirement for retailers to provide their net contract position to the AER. Concurrently, AEMO will commence procurement of resources through the RERT framework to address the remaining gap.

If AEMO and/or a relevant state government feels that the specific circumstances in a particular jurisdiction dictate that prudent action is required to ensure the ongoing reliability of the electricity system, then a rule change could be expedited to enable

¹² Trade repositories are entities that centrally collect records of OTC derivatives in a number of sectors.

¹³ Meaning it is not eligible to be contracted by AEMO through the Procurer of Last Resort, and allocated to a liable entity and a supply region.

AEMO to commence its Procurer of Last Resort function earlier than one year before the forecast reliability gap. However, it is not the intention of the Guarantee for AEMO to become the default procurer of capacity for the NEM.

4.7 Step 7: Compliance

If the reliability obligation is triggered and a reliability gap persists in one or more NEM regions one year out, liable entities in the region/s will be required to submit their net contract position to the AER to demonstrate they have sufficient enduring qualifying contracts over the gap period.

Following the compliance period, if AEMO has procured additional resources **and** peak demand actually exceeds the one in two-year forecast threshold, the AER will assess the contract positions submitted by liable entities and confirm if the level of contract coverage was adequate to meet their obligation.

- The AER will use data for the relevant trading intervals in a region in which demand exceeded the one in two-year forecast to determine each liable entity's share of demand in that interval.
- It will then compare liable entities' net contract position with their share of actual demand in that interval (determined based on metering data provided by AEMO), scaled back to the one in two-year system peak forecast consistent with the 'safe harbour' provision that contracts should only be required to meet the one in two-year system peak forecast.

Where liable entities are under-contracted in one or more trading intervals, the AER will calculate the shortfall across the relevant compliance period. This shortfall will be used to determine and assign penalties for non-compliance.

4.8 Step 8: Penalties

Penalties will be assigned to retailers that have insufficient qualifying contracts for their load. Penalties will include at least some of the cost of procuring necessary resources via the procurer of last resort function.

A two-stage approach to compliance and assignment of penalties will be undertaken:

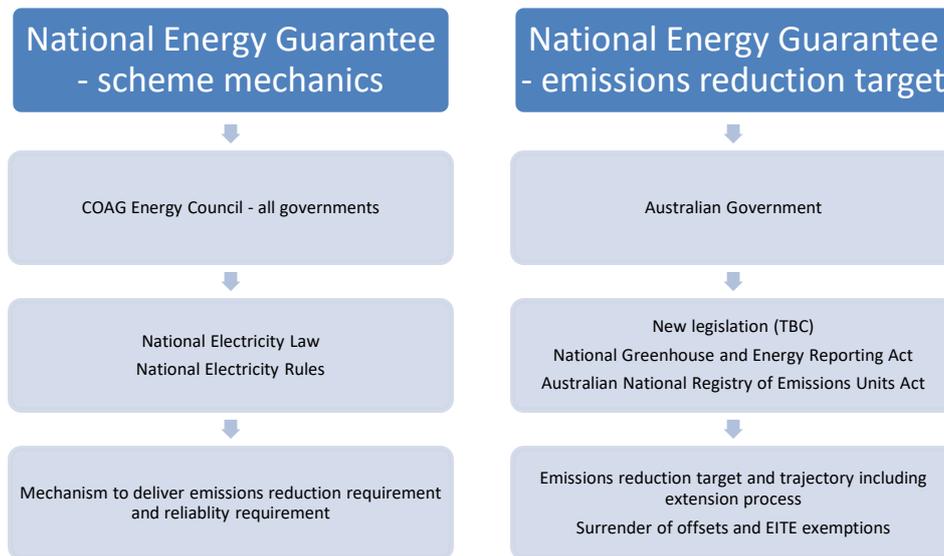
- The **first stage** of the penalty framework for the reliability obligation will allocate costs to liable entities that have failed to meet their contractual obligations. A liable entity found to be non-compliant will be charged a proportionate cost based on its contribution to the Procurer of Last Resort costs. A non-compliant entity's costs will be capped at \$100 million.
- In the **second stage**, the AER will retain its ability to apply its usual suite of enforcement options in addition to the assignment of Procurer of Last Resort costs in stage one. These enforcement options would likely only be used for more significant or repeated failures to comply with the reliability obligation. They comprise administrative undertakings, enforceable undertakings and civil proceedings, including the issue of financial penalties.

The definition of civil penalty in the NEL will be amended to provide a meaningful upper limit on the financial penalties which can be assigned for non-compliance under the reliability obligation. Similar to rebidding civil penalty provisions, the ESB considers up to \$1 million would be an appropriate upper limit on first offences, with up to \$10 million the upper limit on repeat offences.

5. Governance

The Guarantee mechanism will be implemented through existing governance arrangements for the NEM. Using an established framework, with clear accountabilities and change processes, will give businesses and investors the confidence and certainty they need to invest in the long-term and deliver cheaper, cleaner and more reliable electricity for Australian consumers.

The responsibilities of the COAG Energy Council and the Australian Government, as they relate to the Guarantee, are set out in the diagram below.



The Guarantee mechanism will be implemented through amendments to the NEL and the Rules.

Embedding the Guarantee mechanism into the existing NEL and Rules will allow the mechanism to be fully integrated within the broader energy governance framework. This will maximise consistency between the Guarantee's reliability and emissions reduction requirements and the existing regulatory requirements of the NEM, reducing complexity and compliance costs for market participants.

Amendments to the NEL, after being agreed by the Energy Council in accordance with the AEMA, will be implemented by the South Australian Parliament and automatically applied in each of the other participating jurisdictions of the NEM.

There will be a period of public consultation on the draft NEL amendments, which is anticipated to occur from around mid-August to around mid-September. It is expected that the draft legislation will then be finalised for introduction to the South Australian Parliament by the end of 2018.

The NEL will set out who is liable under the emissions reduction and reliability obligations, the key aspects of those obligations, and the compliance and penalty framework. It will also include a new emissions objective to guide rule-making in relation to Rule changes relevant to the emissions reduction requirement.

The necessary changes to the Rules to implement the Guarantee will be made by the South Australian Energy Minister in mid-2019. Detailed aspects of the mechanism (as set out in the final detailed design document) will be included in the Rules.

After the initial package of changes to the Rules are made, the AEMC will be the rule-maker in response to Rule change proposals and in accordance with its current functions under the NEL. It will be able to accept and assess rule change requests from any entity relating to those aspects of the Guarantee contained in the Rules, following the well-established AEMC rule-making processes set out in the NEL.

Limited aspects of the operation and implementation of the Guarantee will be reviewed in due course, say after three years, in case minor modifications would improve its operation.

Commonwealth legislation will be required in relation to setting the emissions targets, EITE exemptions, the use of offsets, and emissions reporting and related information sharing and gathering powers.

