



ASX/Media Release

26 September 2019

Response to Shareholder Resolutions

This document presents Origin Energy's supplementary response to shareholder resolutions 9(b) to 9(f) and should be read in conjunction with the Notice of Annual General Meeting for 2019. These shareholder resolutions have been requisitioned by a small group of shareholders representing between 0.0145 per cent and 0.018 per cent of Origin's shares.

The full supporting statements to the shareholder resolutions are included as Attachment 2 to the Notice of Annual General Meeting.

As Australia's leading energy retailer, Origin aspires to the highest environmental, social and governance standards across our business. Our 2019 Sustainability Report provides a summary of Origin's performance and is available at originenergy.com.au/sustainability.

Origin respects the right of shareholders to lodge resolutions and believes that the ability to do so is part of a robust and healthy corporate governance landscape, which promotes dialogue and engagement.

On this occasion, Origin believes the resolutions requisitioned by a minority of shareholders do not have comprehensive regard to Origin's current targets, policies and practices and many of the assertions lack scientific rigour or peer review or are incorrect.

Origin has prepared this *Response to Shareholder Resolutions* to detail to shareholders:

- what the sponsors of these resolutions are seeking with each of the resolutions;
- what Origin's policy, position or practice is in respect to the matters raised in the resolutions; and
- scientific and regulatory positions that support Origin's response to these resolutions.

Origin does not consider the shareholder resolutions advance the best interests of our broader shareholder base. Therefore, the Board recommends that shareholders vote **AGAINST** these resolutions.

Origin's Annual General Meeting will be held on 16 October 2019.

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Resolution 9(b) Transition Planning Disclosure

Shareholders note the Global Investor Statement to Governments on Climate Change and its accompanying briefing paper, which calls for a reduction in greenhouse gas emissions to meet the goals of the Paris Agreement, necessitating the phase out of coal power generation by no later than 2030 in OECD countries, including Australia.

Shareholders therefore request that the company, in annual reporting from 2020, disclose plans to phase out coal power generation consistent with the climate goals of the Paris Agreement.

Key arguments from the supporting statement to Resolution 9(b)

Statement 1:

Our company's plan to continue producing power from coal until 2032 is inconsistent with the Paris Agreement's goals of "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels."¹

Origin's response to statement 1

This assertion is incorrect. Origin's independently validated and approved, Paris-aligned emissions reduction targets (**Targets**) are to:

- halve our Scope 1 and Scope 2 greenhouse gas emissions by 2032 from a FY2017 baseline; and
- reduce Scope 3 emissions by 25 per cent by 2032 from a FY2017 baseline.

Origin was the first Australian company to set emissions reduction targets that have been independently validated and approved by the Science Based Targets initiative (SBTi), and they include the closure of our coal-fired Eraring Power Station (Eraring) by 2032. The SBTi's criteria, validation and approval ensures that our Targets are consistent with the goals of the Paris Agreement.

The *goal* of the Paris Agreement is to hold global average temperature rises to "well-below 2°C" above pre-industrial levels by 2100. Origin's SBTi approved Targets are consistent with a 50 per cent chance of limiting global warming to 2°C². In line with the SBTi criteria, Origin's approved Targets will require revalidation every five years from 2025 to ensure their alignment with the latest climate science.

The *ambition* of the Paris Agreement is to hold global warming to 1.5°C, which requires a 50 per cent chance of limiting temperature increases to 1.5°C. Following the release of the Intergovernmental Panel on Climate Change (IPCC) Special Report on the impacts of global warming of 1.5°C in October 2018, the SBTi is currently updating its guidelines for companies aiming to set 1.5°C targets. We expect the SBTi to provide guidance for companies in early 2020.

In 2017, Origin published a scenario analysis examining our generation portfolio's resilience to climate change risk. We will be releasing our second scenario analysis prior to the Annual General Meeting, which will update the analysis on the resilience of our business in a low-carbon world and set out the implications of a 1.5°C scenario for Origin.

Statement 2:

Emissions reductions needed to meet the Paris goals require the phase out of coal power in OECD countries, including Australia, by 2030.

Origin's response to statement 2

This assertion is incorrect. Meeting the goals of the Paris Agreement does not require Origin or Australia to exit coal-fired generation by 2030, and Origin's plan to exit coal-fired generation by 2032 is consistent with achieving the Paris Agreement goals.

¹ [Paris Agreement](#), art 2(1)(a)

² Consistent with the International Energy Agency's (IEA) World Energy Outlook (WEO) 2012 450 Scenario, IEA Energy Technology Perspectives (ETP) 2014 2DS Scenario and the IEA ETP 2017 2DS Scenario.

When setting our science-based Paris aligned emissions reduction Targets, Origin used the Sectoral Decarbonisation Approach (SDA) methodology. The SDA is a scientifically informed method and reflects in-depth consultation with the SBTi's Scientific Advisory Group, comprised of leading scientists from international agencies such as the IPCC, International Institute for Applied Systems Analysis, and the IEA, as well as leading academic institutions and state climate agencies.

The SDA method is differentiated from other existing methods by virtue of its subsector-level approach and global least-cost mitigation perspective, which is particularly relevant to Origin as we operate across a number of different energy sectors. The SDA's "least-cost mitigation" methodology is also relevant for Australia, as improving affordability while ensuring system reliability are key priorities that must be met along with any decarbonisation strategy.

When applied to the electricity sector, the SDA requires companies to use the convergence approach based on emissions intensity to set their required targets. The convergence approach takes into account the initial starting intensity of the electricity sector. As strong regional variations currently exist between OECD countries, utilising this approach produces fair and equitable Paris-aligned targets. The Australian electricity sector, with its historical dominance of coal-fired generation, has a much higher intensity starting point than other OECD countries. The SDA methodology addresses this, setting a decarbonisation path consistent with the Paris Agreement goals based on this higher intensity starting point.

The assertion in the supporting statement to resolution 9(b) that coal-fired generation needs to be phased out in OECD countries by 2030 is sourced from a 2016 analysis by Climate Analytics³, a high-level report that has not been peer-reviewed. The report does not provide detailed analysis of country or sectoral modelling assumptions, nor does it explain how it addresses initial electricity sector intensity differentials between OECD countries in reaching its conclusion. There is no information in the report to substantiate how it accurately reflects the Australian context or the Australian electricity sector.

Origin does not consider it to be in the best interests of our stakeholders, including customers, investors, suppliers, our people and the community at large, to set our business strategy or emissions Targets based on a high-level, non-peer reviewed report.

Statement 3:

In December 2018, 89 investors with US\$11.5 trillion under management asked power companies to plan for a net-zero carbon future:

Specifically, we request companies to set out transition plans consistent with the goal of the Paris Agreement, including compatibility of capital expenditure plans. We expect explicit timelines and commitments for the rapid elimination of coal use by utilities in EU and OECD countries by no later than 2030.⁴

Investors calling for transition plans recognise the financial risks of 'business as usual' in the face of significant regulatory shifts expected as the world moves to meet its Paris climate commitments.

Origin's response to statement 3

We continue to support a national goal of net zero emissions in the electricity sector by 2050 or earlier and are proud of our ongoing contribution to the decarbonisation of the National Electricity Market (NEM).

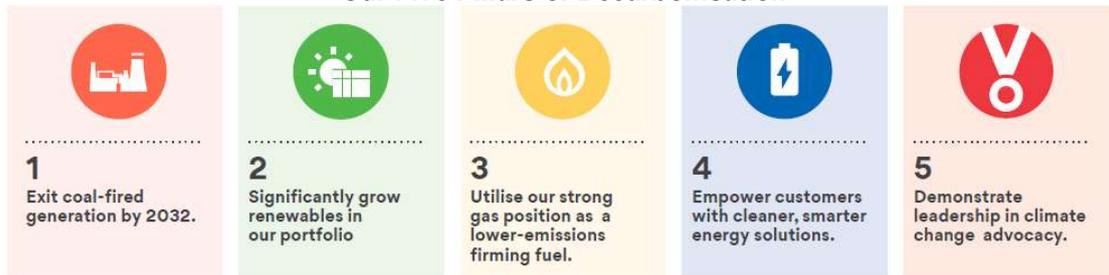
At Origin, we understand the challenges we face in transitioning to a low-emissions future and we have long positioned our portfolio in anticipation of delivering on that challenge. Since we became the first energy company in the world to sign up to the We Mean Business coalition commitments in 2015, Origin has continued to be a leader in transitioning to a cleaner energy future.

³ Implications of the Paris Agreement for Coal Use in the Power Sector, November 2016, climateanalytics.org/media/climateanalytics-coalreport_nov2016_1.pdf

⁴ [Power companies must accelerate decarbonisation](#) (Financial Times, 20 December 2018)

Our five-pillar strategy to progressively decarbonise our business, achieve our emissions reduction Targets and contribute to Australia's emissions reduction targets commits us to exiting coal generation by 2032, and demonstrates that the decarbonisation transition is core to our business strategy.

Our Five Pillars of Decarbonisation



Our board, management and employees recognise the responsibility of our company to show leadership in addressing the challenge of climate change, while improving affordability and providing system reliability for our customers, and we plan to successfully meet that challenge.

Statement 4:

The relative cost and availability of low carbon alternatives renders the energy sector best placed to deliver a significant proportion of the emissions reductions required under the Paris Agreement.

Wind and solar energy with battery storage will be cheaper than energy produced by existing coal power stations almost everywhere by 2030, with this tipping point having already been reached in "many parts of Australia."⁵ This changing energy mix is consistent with a 2°C warming pathway. A faster transition is required to achieve the Paris climate goals, suggesting regulatory and market changes could further impact the cost competitiveness of coal power.

Origin's response to statement 4

As one of Australia's largest generators, we believe the sector, and our company, should be at the forefront of reducing emissions. We believe the electricity sector should be responsible for more than its proportional share of any national reduction measure by helping to unlock abatement in other sectors, such as transport and construction.

Origin agrees that renewable generation is now Australia's cheapest form of energy. To that end we are on track to reach our target of 25 per cent of our owned and contracted generation capacity being made up of renewables and storage by 2020. As the level of renewable energy grows, gas will play a crucial role in the orderly transition away from existing coal-fired generation and integrating intermittent renewable technologies into the grid. Gas-fired generation can react quickly to changes in demand, as well as intermittent renewable supply.

We have published scenario analysis examining the financial resilience of our generation portfolio, including Eraring under a 2°C decarbonising world, and we will be releasing an update to this scenario analysis prior to the Annual General Meeting, setting out what a 1.5°C goal would look like for Origin.

Statement 5:

Commissioned in 1982, Eraring's age poses further financial risks to our company. From December 2017 to June 2019, Eraring experienced 9 breakdowns. Origin must plan for a Paris-aligned transition out of coal power to ensure capital expenditure on Eraring's upkeep is not left stranded by the rapidly changing economics of energy generation in Australia.

⁵ Renew Economy, [Age of cheap coal power is over for Australia, says BNEF](#) (8 May 2019)

Origin's response to statement 5

Ering is Australia's largest power station, providing 27 per cent of NSW's electricity supply in FY2019 and much needed stability and reliability in the NEM. In the 12 months ending June 2019, Eraring achieved an Equivalent Reliability Factor⁶ of 93.4 per cent. We anticipate the replacement of Eraring's 2,922 MW of capacity will be from a combination of renewables, gas, pumped hydro and batteries, which will provide ongoing affordability and reliability to the NEM.

During the period December 2017 to June 2019, Eraring experienced seven breakdowns and had two planned maintenance shutdowns across three of its four units. This is consistent with and not unexpected for an asset of its size and its age.

In our carbon resilience scenario analysis released in 2017, we showed that while the value of Eraring declines under a 2°C scenario, it retains a net positive value and is an important asset providing secure and affordable base load power in the short-to medium-term. We will provide an update on this assessment in our 1.5°C scenario analysis

Statement 6:

Recent policy shifts from major financial institutions will reduce Origin's access to finance and insurance for coal power, potentially increasing the costs of each.

Origin's response to statement 6

Origin diversifies its financing and insured exposures through coverage from multiple sources. We have excellent access to domestic and international insurers, banks and capital markets, we hold investment-grade credit ratings from internationally recognised credit rating agencies and maintain a strong balance sheet providing flexibility to take prudent levels of self-insurance.

Resolution 9(c) Informed Consent relating to our company's proposed Fracking activities in the Beetaloo Sub-Basin

Our company intends to undertake hydraulic fracturing (Fracking) activities for the purposes of hydrocarbon exploration on land subject to petroleum exploration permits (Permits) held by our company in the Beetaloo Sub-Basin, located in the Northern Territory. In view of the substantial length of time which has passed since the Permits were obtained by our company's predecessor(s), Sweetpea Pty Ltd and/or Falcon Oil & Gas Ltd, and the developments in scientific and community understandings of Fracking since that time:-

Shareholders request that the Board commission a review of the process undertaken by its predecessor(s), in order to confirm that Informed Consent was given by Aboriginal native title holders on whose lands our company intends to undertake Fracking (Review).

The Review should:

- Be limited to the processes undertaken to obtain the affected native title holders' consent to the grant of the Permits;*
- Examine the activities, disclosed to native title holders, for which consent was given to the grant of the Permits;*
- Consider human rights standards applicable to our company including the principle of Informed Consent;*
- Examine any relevant due diligence undertaken by our company when acquiring its interest in the Permits; and*
- Analyse the risks to our company arising from a possible historical failure to obtain the Informed Consent of affected native title holders.*

Shareholders request that the Review be summarised in a report to be made available on the company website by 30 June 2020 (Report). The Report should be prepared at reasonable cost and omit confidential information.

⁶ Equivalent Reliability Factor is the probability the plant will be available for full output when required

Key arguments from the supporting statement to Resolution 9(c)

Statement 1:

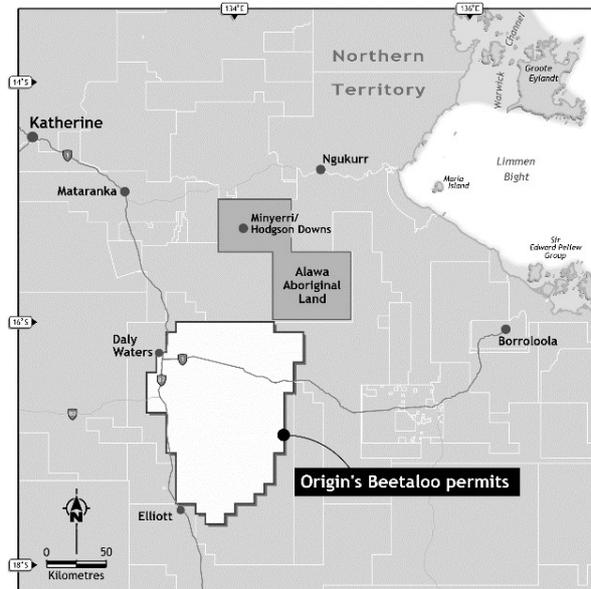
Aboriginal communities in the Beetaloo Basin region have declared their country to be “Fracking Free”⁷. That is to say, the concerns expressed [at the 2018 AGM] have not been substantively addressed since last year’s AGM.

Origin’s response to statement 1

Origin has the support of the Traditional Owners of the land on which we operate.

We work with the Northern Land Council (NLC) to engage with the Traditional Owners who are the Native Title holders who may speak legally and culturally for the areas within our exploration permits where activity is proposed. The NLC is the statutory body responsible for determining who the rightful Native Title holders are for Origin to consult and work with each year.

During the past 12 months, Origin has worked with the NLC and our Native Title holders to complete sacred site clearance and avoidance surveys, secured Aboriginal Areas Protection Authority certification for nine future potential exploration locations and participated in seven on-country meetings with Native Title holder families.



Origin is not exploring for gas on Alawa Aboriginal land nor in or around the Minyerri community (referenced by the resolution supporting statement), which are to the north of our permit area, as shown in the map above.

We have previously offered to meet with communities outside of our exploration permit areas to discuss our activities in the Beetaloo Basin. This engagement can only occur at the express invitation of those communities to allow us to meet with them on their land and facilitated by the NLC. The invitation by Origin remains open.

Statement 2:

A recent review of publicly available information about consent processes in place in the Northern Territory, including the findings of the Hawke and Pepper inquiries, raises the concerning prospect that some if not all petroleum exploration permits in the NT that enable Fracking have been issued in the absence of free, prior and informed consent (FPIC).

Origin’s response to statement 2

Our exploration agreements with our Native Title holders (Exploration Agreements) and ongoing engagement with Native Title holders are guided by the principles of FPIC. We are committed to continue working respectfully with our Native Title holders as we resume exploration work in the Beetaloo Basin.

Exploration permits, including those we hold in the Beetaloo Basin, are only granted by the Northern Territory Government after the requirements of the Native Title Act are met.

The Exploration Agreements provide the framework and methodology for the exploration permit holder to work with Native Title holders prior to undertaking petroleum exploration activities, which vary in nature, location and process, including hydraulic fracture stimulation. The processes followed to reach

⁷ [sbs.com.au/nitv/article/2019/06/21/remote-community-declares-their-country-frack-free-zone](https://www.sbs.com.au/nitv/article/2019/06/21/remote-community-declares-their-country-frack-free-zone)

these agreements have been guided by the principles of FPIC and occurred prior to any exploration work commencing.

The process we follow under the Exploration Agreements for subsequent drilling and appraisal work is based on sharing annual work programs and on-country meetings with the NLC and Native Title holders.

Origin's work program plans are provided to the NLC a year in advance, allowing the NLC adequate time to consult with the Native Title holders and for discussions to occur over time. Meetings are held on-country and are part of a wider process of consultation and information sharing about the activity and locations for planned work. It also allows for important activity such as sacred site clearances to be undertaken prior to the on-country meeting where formal consultation occurs.

At the meetings themselves, site-specific information is provided and then Origin representatives withdraw to allow the Native Title holders and the NLC to discuss. There is no pre-determined timeframe for this to occur at the meeting. To date, we have always received support for our planned activities at the cleared locations, including hydraulic fracture stimulation.

Statement 3:

Our company did not itself negotiate consent agreements with affected native title claimants/ holders for the grant of the Permits that it now holds in the Beetaloo Sub-Basin (Agreements). Rather, our company acquired its interest in the Permits, most likely negotiated in the early 2000s, and granted around 2005, from either or both of Sweetpea Pty Ltd and Falcon Oil & Gas Ltd.

The circumstances in which Sweetpea/Falcon obtained the Agreements carry risks that should have been the subject of careful due diligence before our company acquired its interest in the Permits (granted pursuant to the Agreements). In particular, confirmation of the existence under the Agreements of informed consent for the Fracking activities now proposed by our company should have been, and should now be, a matter of the highest importance to our company.

Origin's response to statement 3

Origin carried out a thorough due diligence process prior to acquiring its interest in the permits and was comfortable that consent to the exploration activities was given by the Native Title holders. Our continued engagement with and support from the NLC and Native Title holders reaffirms our view that this consent remains valid.

While Origin's predecessors negotiated the terms of the Exploration Agreements, the NLC was a signatory to the agreements. Origin received the necessary consent of the NLC, as the statutory representative body of the Native Title holders and claimants, before we were able to take assignment of the Exploration Agreements.

Statement 4:

- *Fracking was a practice relatively unknown to most Australians in the early 2000s.*
- *It was also relatively unknown in the early 2000s that Fracking could be permitted under a petroleum exploration permit.*
- *It is far from clear that an adequate degree of information, consultation and advice was afforded to affected native title holders about Fracking before they were asked to sign Agreements that purport to provide their consent to the grant of petroleum exploration permits to Sweetpea/Falcon at that time.*
- *Even assuming that the best and most informative of consultation and advice processes was afforded to affected native title claimants/holders at that time (which remains in doubt), the state of available scientific knowledge in the early 2000s about the impacts and risks of Fracking could not have enabled affected native title claimants/holders to understand adequately the risks involved in the Fracking activities to which they purported to give their consent.*

Origin's response to statement 4

Hydraulic fracture stimulation, or fracking, has been occurring in the Northern Territory for more than 40 years. Hydraulic fracture stimulation is an established technology for which there is significant scientific information, assessment and regulation.

In 2015, prior to any drilling activity, Origin provided the NLC and Native Title holders with a work plan submission that included the hydraulic fracture stimulation of one horizontal well, and we went on-country to talk in detail with our Native Title holders about our planned activities. We prepared specific materials to help explain the exploration activity, and the process and the controls we put in place to protect groundwater and the environment. Native Title holders then discussed the activity, process and controls with their advisors, and upon return to the meeting we received unanimous support from Native Title holders to proceed with the work program. Native Title holders, together with the NLC and the Northern Territory regulator, also visited the worksite preparing for a fracture stimulation in 2016.

All subsequent work plans have been presented to Native Title holders, including the 2019 planned activities, which specifically references hydraulic fracture stimulation activities. Following on-country meetings earlier this year, we have support and authorisation for our planned FY2020 activities.

Statement 5:

Many of the senior native title holders of the Beetaloo Basin have little formal education, and speak English as a second language. In these circumstances the burden of ensuring informed consent is far greater.

Origin's response to statement 5

We work with the NLC so that the Native Title holders are supported in understanding the information provided. We put considerable effort into preparing materials that assist in explaining technical information visually and bring a team of experienced subject matter representatives to on-country meetings.

We support the use of interpreters where English is not the primary language spoken. The NLC determines if interpreters are required and which languages interpreters need to be fluent in. We also recognise how important language families and dialects are to cultural identity and rely on anthropological advice and guidance from the NLC to facilitate this.

Statement 6:

Our company's assertion in its 2019 exploration program Environmental Management Plan (2019 EMP) to the effect that it has received no objections from native title holders affected by its 2019 Fracking plans is not supported by the available evidence.

Submissions on behalf of affected native title holders to the Northern Territory Government in response to the 2019 EMP include:

- *Detailed and plausible complaints that our company has failed to comply with its duty under Northern Territory law to consult many native title holders with interests in the relevant area as determined by the Federal Court of Australia;*
- *A summary of concerns that would have been conveyed to our company if it had consulted the affected native title holders, including about:*
 - *Potential risks to the vital subterranean waters;*
 - *the inadequacy of current environmental studies; and*
 - *Our company's alleged failure to abide by the recommendations of the Pepper Review, particularly in relation to the proposed storage of waste Fracking water in open pits (as opposed to closed containers, as required by the Pepper review recommendations) in channel country where risks of flooding and danger to wildlife are high.*

Origin's response to statement 6

It is important to recognise that the NLC is the statutory body responsible for determining who the rightful Native Title holders are who may speak legally and culturally for the areas within our exploration permits where activity is proposed, and who Origin is to consult and work with each year.

Earlier this year we participated in seven on-country meetings with the NLC and Native Title holder families where exploration activity, hydraulic fracture stimulation, protection of aquifers and ground water monitoring were discussed. Through this process, we received no objections to our proposed activities from the Native Title holders.

As detailed in our Environmental Management Plans that have been assessed and approved by the Northern Territory regulator, Origin will comply with the wastewater requirements of the Code of Practice for Onshore Petroleum Activities in the Northern Territory. This includes the use of enclosed wastewater storage, and stormwater, wastewater and spill management plans.

Resolution 9(d) Public health risks of coal operations

Shareholders request that, by 30 June 2020, the board prepare and disclose an assessment of the capital and operating expenditure required to install and maintain pollution controls at the Eraring coal-fired power station, sufficient to mitigate public health risks associated with non-carbon air pollution from that facility.

The assessment should be prepared at reasonable expense and omit proprietary information.

Key arguments from the supporting statement to Resolution 9(d)

Statement 1:

The burning of coal to generate electricity is a major contributor to climate change, and it produces air pollution and coal ash, both of which are harmful to public health.

Origin's response to statement 1

Stack emissions including particulate matter (PM), sulphur dioxide (SO₂), oxides of nitrogen (NO_x) and mercury (Hg) are all monitored as part of Eraring's Environmental Protection Licence (EPL). Origin also reports in accordance with the National Pollutant Inventory (NPI) and National Greenhouse and Energy Reporting Scheme. The NPI is a publicly available database of emissions from Australian industrial facilities. Eraring's emission calculations are independently verified, and EPL monitoring data is available via Origin's website.

Origin is fully compliant with stack emission limits set by the NSW Environment Protection Authority (EPA) as outlined in Eraring's EPL. Additionally, the results of ambient air quality (SO₂ and NO_x), measured at two locations in the surrounding community, do not exceed quality standards set out in the National Environment Protection Measure for Ambient Air Quality (NEPM AAQ), which is adopted by the EPA.

Origin has ongoing dialogue with regulators including the EPA and the Department of Planning, Industry and Environment to ensure all Eraring operations, including ash management, are undertaken in accordance with our regulatory requirements. We have made significant investment in measures to improve how we safely manage the coal ash that is created as part of the electricity generation process. We reuse over one-third of the ash that is produced at Eraring, and in FY2019 we implemented new arrangements to increase Eraring's ash reuse rate by 125,000 tonnes. Ash has numerous applications across the industrial and construction sectors, and we are actively pursuing new supply opportunities and non-traditional markets to support increasing our re-use levels.

Statement 2:

Public health impacts from air pollution include heart disease, stroke, asthma attacks, low birth weight of babies, lung cancer and type 2 diabetes⁸. Air pollution from NSW's five coal-fired power stations is estimated to lead to 279 early deaths every year for people aged 30 to 99. It is estimated that operating Eraring until its planned closure dates in 2032 will cause an additional 1,219 deaths, 1,058 babies to have low birth weight, and 1,579 additional cases of new onset diabetes in NSW. These estimates are based only on PM2.5 pollution, so there are likely to be broader health impacts from other emissions.

Origin's response to statement 2

The data claims regarding public health are sourced from the Ewald report⁹. The Australian Energy Council's (AEC) Environmental Working Group engaged Environmental Risk Sciences Pty Ltd (EnRiskS), an independent qualified consultant, to peer-review the Ewald report¹⁰. The EnRiskS review summarises that:

"The Ewald report is not sufficiently transparent, hence the detailed calculations undertaken cannot be checked and verified. This is especially important where the conclusions of the report make claims regarding specific sources being directly attributable/responsible for mortality."

The EnRiskS review identified a number of specific issues with the Ewald report, namely:

- the area evaluated appears to be random and does not relate to any method for estimating exposures;
- the baseline incidence for mortality is only estimated, not based on available age specific data; and
- current science does not support the incidence of type 2 diabetes or low birth weight as "core health outcomes"¹¹.

In summary, specific estimates of mortality numbers in the Ewald report relating to emissions of PM_{2.5} from NSW coal fired power stations, including Eraring, are not well founded and are not based on the best available science relating to emissions and exposure assessment.

In 2016 the NSW Office of Environment and Heritage undertook a Lower Hunter Particle Characterisation Study¹² which found that industry (including but not limited to power stations) contributed between 12 and 24% of fine particles at four sites included in the study. Other sources with higher contributions of fine particles include sea salt, reflective of the coastal population centres in the area, the transport sector, other local industry, wood smoke from domestic heating, agriculture as well as natural sources such as windblown dust and bushfires.

Additionally, the NSW EPA commissioned a review of air quality in the Lake Macquarie / Wyong region in 2016, including data from Eraring sites at Dora Creek and Marks Point¹³. The report found that the air quality in the Lake Macquarie - Wyong region was generally "good" or "very good" on the NSW Air Quality Index¹⁴.

Origin acknowledges that air pollution from a range of sources has the potential to impact on public health. However, we believe that investigations into the health risks resulting from air emissions should be undertaken through independent, peer reviewed studies which present a holistic picture of overall health risk from a range of sources. Further, Origin believes that the regulation of air quality needs to be underpinned by robust, peer reviewed scientific data and assessments to provide the

⁸ Ewald, B., The health burden of fine particle pollution from electricity generation in NSW, November 2018.

⁹ Ibid.

¹⁰ energycouncil.com.au/media/16734/enrisks-report-final.pdf

¹¹ Namely, "we are sure that what has been reported really is what the data indicates and is not just due to random chance, bias or confounding".

¹² environment.nsw.gov.au/topics/air/research/previous-research/lower-hunter-particle-characterisation-study

¹³ epa.nsw.gov.au/your-environment/air/regional-air-quality/lake-macquarie-wyong-air-quality

¹⁴ environment.nsw.gov.au/topics/air/understanding-air-quality-data/air-quality-index

community with the necessary assurance that potential health and environmental air quality risks are being managed effectively.

Statement 3:

While our company may comply with the emissions limits in its licences (set by the NSW EPA), on almost all measures, the licence limits imposed on Eraring are far less stringent than limits applied in China, the European Union and the United States¹⁵. In other jurisdictions, power station operators must install modern pollution controls in order to comply with the stricter licence limits. These include:

- *Flue Gas Desulfurisation (FGD), which reduces SO₂ emissions by as much as 99%;*
- *Selective Catalytic Reduction (SCR) which reduces NO_x emissions by 95%; and*
- *activated carbon injection to reduce emissions of mercury by about 90%.*

Origin's response to statement 3

The emission limits detailed in the supporting statement to resolution 9(d) accurately reflect the emission limits for Eraring, with the exception of SO₂. Eraring does not have an SO₂ emission limit, rather it has a limit on the sulphur content in coal of 0.5 per cent, and if SO₂ emissions go higher than 600 ppm (1572 mg/m³) they need to be reported to the EPA.

The setting of emissions limits in overseas jurisdictions is a matter for those regulatory bodies based on a range of considerations, including how the characteristics of the regional air shed¹⁶ translate into exposure for the local population. With respect to SO₂ and NO_x, internationally the need for emissions controls such as FGD and SCR has largely been driven by degraded air quality where reductions in industrial emissions has been required to return ambient air pollution to acceptable levels.

Ambient air quality in Australia on the whole is "very good"¹⁷ and regulators in Australia have not considered it necessary to take a similar regulatory response. Ambient SO₂ and NO_x is measured by Origin in the community surrounding Eraring and we have not recorded any exceedance of ambient air quality standards for these pollutants.

Eraring is the only NSW coal-fired power station that has low NO_x burners. When installation was completed in 2012, they reduced NO_x emissions by 40 per cent per MWh.

Eraring's mercury emissions are already compliant with the quoted international standards. This relates to the relative low mercury content of Australian coals and the "best practice" fabric filter emission controls already in place at Eraring for particulates including particle phase mercury emissions.

Statement 4:

While our company reports annual aggregate air pollution statistics, it has not disclosed any assessment of the risk of public health impacts, nor has it disclosed a financial assessment of the capital and operating expenditure required to retrofit and maintain Eraring with modern pollution controls.

Origin's response to statement 4

As stated above, Origin operates Eraring in accordance with all regulatory air emission requirements including its EPL which are administered by the NSW EPA, and has already installed fabric filter emission controls and low NO_x burners.

Given all air emissions sources need to be considered holistically in risk assessing public health impacts resulting from air pollution, Origin is of the view that regulatory authorities, such as the EPA, are better positioned to undertake health risk assessments and consider the need for pollution controls than individual companies.

¹⁵ Environmental Justice Australia, Toxic and Terminal, August 2017

¹⁶ An air shed is a part of the atmosphere that behaves in a coherent way with respect to the dispersion of emissions

¹⁷ environment.gov.au/system/files/resources/188756ab-ed94-4a3c-9552-62763ca86a7f/files/national-clean-air-agreement.pdf

The AEC has engaged engineering firm WSP to undertake a study to assess world's best practice for emissions control and abatement by reviewing the Best Available Techniques (BATs) legislation for other developed countries and assessing it in the Australian context. WSP has also investigated the emissions abatement that can be achieved by installing the BATs and estimated the incremental costs for their installation and operation. The purpose of this study is to estimate the environmental benefits of installing BATs to Australian coal fired power plants and estimate indicative capital and operating costs to retrofitting these systems. This report is currently being finalised, and will likely be complete by the end of 2019.

Statement 5:

In Europe, various legal actions have been taken against national governments for failing to address air pollution, including Italy, Poland and the United Kingdom¹⁸. In China, civil society organisations have filed a number of lawsuits against companies responsible for air pollution¹⁹. Our company faces the credible threat of litigation if it fails to adequately address air pollution.

Origin's response to statement 5

Origin is aware of its obligations regarding the environment impact of operating Eraring, and we are compliant with the air pollution emission limits as set out in our EPL. We have the following controls in place to mitigate air pollution:

- Reduce – Eraring is the only NSW coal-fired power station with low NOx burners installed, which reduce NOx emissions by 40 per cent per MWh
- Monitor – particulate matter, SO₂, NOx and mercury are all monitored as part of Eraring's EPL and emissions calculations are independently verified.
- Report – Origin reports in accordance with the National Pollutant Inventory and National Greenhouse and Energy Reporting Scheme.
- Engage – we closely monitor the future direction of air pollution regulation in Australia and assess what the implications of possible changes may mean for the ongoing operation of Eraring. This includes regular dialogue with the EPA, our counterpart coal-fired power stations and industry group, the AEC.

Resolution 9(e) Paris Goals and targets

Shareholders request the Board disclose, in annual reporting from 2020:

1. *Details of how our company's capital expenditure, including each material investment in the acquisition or development of oil and gas reserves, is aligned with articles 2.1 (a) and 4.1 of the Paris Agreement (Paris Goals);*
2. *Short, medium and long-term targets for reductions in our company's Scope 1, 2 and 3 emissions (Targets) that are aligned with the Paris Goals; and*
3. *Details of how the company's remuneration policy will incentivise progress against the Targets.*

Key arguments from the supporting statement to Resolution 9(e)

Statement 1:

The IPCC's Special Report on Global Warming of 1.5°C projects that in the absence of, or with only a limited use of fossil fuels with carbon capture and storage (CCS), the share of primary energy provided by gas must decline by 20-25% by 2030, and by 53-74% by 2050 (relative to 2010). Contrary to those projections, our company is planning to explore and develop a 6.6 trillion cubic feet (TCF) reserve in the Beetaloo Basin before 2030, which will require material capital expenditure. There is a clear gulf between our company's plans and the recommendations of the IPCC, given the absence of commercially viable carbon capture and storage.

¹⁸ clientearth.org/air-pollution/

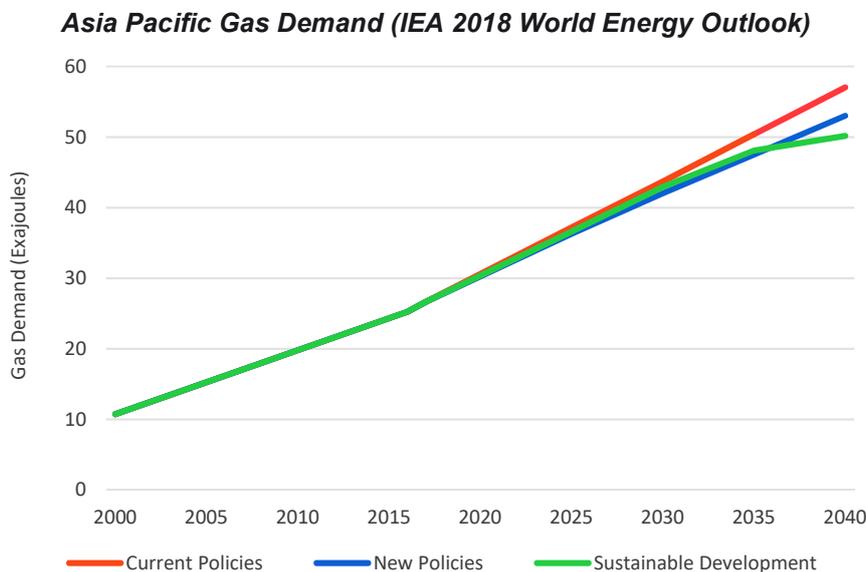
¹⁹ newsecuritybeat.org/2018/08/people-vs-pollution-empowering-ngos-combat-pollution-environmental-law

Origin's response to statement 1

In the IPCC's Special Report on Global Warming of 1.5°C²⁰, while it does project that the *global* share of primary energy provided by gas must decline as quoted in the supporting statement to resolution 9(e), the IPCC notes these "indicators have been selected to show global trends", and that "national and sectoral characteristics can differ substantially from the global trends".

In its fifth Assessment Report, the IPCC highlights one of the main mitigation options in the energy supply sector is: "switching from (unabated) fossil fuels with high specific GHG emissions (e.g. coal) to those with lower ones (e.g. natural gas)".²¹

The IEA's 2018 World Energy Outlook²² presents three pathways for the global energy sector development, including the Sustainable Development scenario of limiting future temperature increases to 1.75°C, which the IEA considers to be consistent with the more ambitious aspiration in the Paris Agreement. Under all three pathways, including the Sustainable Development scenario, gas demand in the Asia Pacific region is forecast to grow until at least 2040, reflecting the substantial variation in decarbonisation pathways across different regions, and the very different role gas will play in different countries as their energy sectors transition.



The development of gas resources in Australia is predominantly for export to Asia which is consistent with supporting decarbonisation in Asia where economies continue to fuel switch from coal to gas.

Statement 2:

It is incumbent upon our company to demonstrate to shareholders how our company's capital expenditure, including each material investment in the acquisition or development of oil and gas reserves, is aligned with the Paris Climate Agreement's goal

Origin's response to statement 2

As a leading energy company, Origin recognises it has a responsibility to be clear and consistent in our disclosure on climate-related risks and opportunities to our business and portfolio. To achieve this, we use the comprehensive definition of climate-related risks established by the Taskforce on Climate-related Financial Disclosures (TCFD). Origin regularly and transparently reports progress against our decarbonisation strategy which guides our transition to a low-carbon future. We include disclosures in line with the recommendations of the TCFD and the Board in our Sustainability Report.

²⁰ ipcc.ch/sr15/

²¹ IPCC, Climate Change 2014, Mitigation of Climate Change, WG III, 5th Assessment Report

²² iea.org/weo2018/

Climate change scenario analysis, incorporating a range of carbon price scenarios, plays a significant role in our assessment of the assets we should hold, invest in, dispose of, and acquire. This analysis is conducted as part of the annual strategic planning process that tests the resilience of our portfolio and investment decisions against a range of outcomes. All major capital expenditure and investment decisions are subject to a formal review and approval process which is overseen by the Origin Investment Committee (OIC). The OIC, comprised of Origin's executive leadership team, assesses material capital projects against a range of climate-related scenarios.

Statement 3:

Despite [our Company's emissions reduction] targets, our company's Scope 1+2 emissions increased by 4% in FY2018, due to higher output at Eraring and increased production at APLNG. In all likelihood, our company's Scope 1+2 emissions in FY2019 will be well above the FY2017 baseline once again. The cumulative impact of our company producing emissions ~5% higher than the FY2017 baseline every year until 2032 would equate to operating Eraring for an entire year. Continuously producing emissions higher than the baseline calls into doubt our company's Science Based Target

Origin's response to statement 3

Origin's aggregate Scope 1 and Scope 2 emissions in FY2019 were in line with FY2018, reflecting:

- a decrease in Scope 1 emissions due to lower generation from our gas fleet against increased output at Eraring, to support affordability, stability and reliability in the NEM; and
- higher Scope 2 emissions due to increased pumping at Shoalhaven and an increase in the proportion of gas produced from electrified facilities at Australia Pacific LNG.

The reduction in Origin's emissions between now and 2032 will not be linear and will be determined by various factors including demand from the NEM and growth in renewable energy. We have committed to closing Eraring by 2032, and its intended closure will make the most significant contribution to the realisation of our Scope 1 and Scope 2 emissions reduction Targets.

The task of reducing carbon emissions is a NEM-wide task and needs to be balanced against the need to maintain a reliable electricity supply at a competitive cost. In a climate where reliability and affordability are seen as paramount, the government and community are demanding existing generators maximise production in the short term to reduce energy costs for all consumers and ensure reliable supply.

The retirement of the high-carbon intensity brown coal-fired electricity generator, Hazelwood, in 2017 in Victoria highlights this point. Following the closure of Hazelwood, Origin's fossil fuel generation increased in response to replace the supply previously provided by Hazelwood, and our carbon emissions increased accordingly. However, the net effect was that carbon emissions across the NEM reduced as our generation fleet is less carbon intensive than Hazelwood.

Statement 4:

Our company currently has no intention of reducing its emissions by 2030, the key milestone upon which Nationally Determined Commitments (NDCs) within the Paris Agreement depend. Despite our company's explicit support for Australia's current target of a 26-28% reduction by 2030 (on 2005 levels), our company will make little, if any, contribution to the achievement of that target.

Origin's response to statement 4

This statement is not an accurate reflection of Origin's decarbonisation strategy. Origin has a clear five-pillar approach to decarbonisation, accompanied and supported by independently endorsed science-based emissions reduction Targets.

Since March 2016, we have committed to purchase the offtake from approximately 1,200 MW of new wind and solar projects, helping to underwrite the development of these renewable projects. We are on track to meet our target for 25 per cent of our total owned and contracted generation capacity to be made up of renewables and storage by 2020, up from 15 per cent in FY2017.

We are also investigating expanding our Shoalhaven Pumped Hydro power station by 235 MW, which would bring total capacity up to 475 MW.

Origin continues to look at initiatives to reduce emissions across our business. At Eraring, a Real Time Optimisation (RTO) project is an Australian-first digital tool to optimise power plant performance. In FY2019, over 136,000 tonnes CO₂-e²³ were avoided due to the RTO efficiency improvements, and once the project is fully implemented we aim to avoid a total of 1 million tonnes CO₂-e at Eraring between 2020 and 2025.

We are helping our customers decarbonise by offering innovative renewable energy PPA agreements, and we are the leading installer of commercial solar systems in Australia and ranked second in terms of overall capacity. In residential solar, we consistently occupy a top three position.

All of these activities contribute to not only decarbonising our business but contribute to the decarbonisation of the NEM and achieving Australia's NDC to the Paris Agreement.

Statement 5:

Our company's Scope 3 target explicitly excludes exported emissions from the APLNG joint venture. Our company claims that APLNG "makes an important contribution to lowering the carbon intensity of energy consumption in Asia," although this kind of emissions accounting is not recognised by the Intergovernmental Panel on Climate Change (IPCC). This is a fundamental misreading of the Paris Agreement, which depends on public policy and corporate action at national level to reduce emissions in each country. Furthermore, the CSIRO could not conclude that Australian LNG exports are actually reducing emissions in Asia, as it did not have data sufficient to "know the proportion of [energy produced by] gas used to displace what [energy] would have been produced from coal".

It is imperative that our company takes responsibility for the entirety of its Scope 3 emissions, instead of making speculative or uncertain assessments about 'avoided' or 'displaced' emissions. Recently:

- *Royal Dutch Shell Plc committed to set emissions reduction targets inclusive of its value chain (Scope 3);*
- *the board of BP Plc has supported a resolution very similar to this resolution, and BP has set separate targets regarding its methane intensity, which our company has not done;*
- *BHP Group announced that it would "set public goals to address scope 3 emissions";*
- *All three companies have committed to incentivise emissions reduction in executive remuneration.*

Our company risks becoming a laggard on emissions reduction both in its home market and compared to its international peers if it fails to match these companies' ambition.

Origin's response to statement 5

We believe Origin is a leader in setting science-based emissions reductions targets, being the first Australian company to set targets independently validated and approved by the SBTi in 2017. We are proud of our Targets and our position on climate change. To date there are only five companies in Australia who have set independently validated and approved science-based targets.²⁴ Our current actions exceed the ambitions of the peer companies noted in the resolution's supporting statement, furthermore Origin's leadership in this space has been recognised by the World Wildlife Foundation²⁵.

Origin is committed to working with our supply chain to address Scope 3 emissions as is evidenced by our science-based Scope 3 target. Origin's validated and approved Scope 3 emissions target does not include Australia Pacific LNG's exported LNG volumes, purchased LPG and corporate emissions which meets SBTi's minimum two-thirds coverage requirement.

Origin is not aware that any of the companies noted in the resolution has an independently verified and approved science-based target for Scope 3 emissions in place.

Under IPCC guidelines, the boundary for a national greenhouse gas emissions inventory is the boundary of a country, and as such IPCC guidelines focus on producing a national inventory based on

²³ Compared to FY2016 baseline performance.

²⁴ sciencebasedtargets.org/companies-taking-action/

²⁵ [wwf.org.au/news/news/2017/wwf-origin-energy-target-success-should-inspire-other-energy-companies#gs.49mfqn](https://www.wwf.org.au/news/news/2017/wwf-origin-energy-target-success-should-inspire-other-energy-companies#gs.49mfqn)

emissions that occur within a country's borders. Recent analysis by the IEA has demonstrated the important role gas, such as the LNG exports from Australia Pacific LNG, is playing in helping to prevent emissions growth, reporting that coal-to-gas switching has saved around 500 million tonnes of CO₂ since 2010²⁶.

Origin recognises that in order to maximise the climate benefits of natural gas, minimising fugitive emissions, particularly methane emissions, is essential. This is a key focus for Origin which is evidenced by Origin's methane emissions from venting and leaks remaining at approximately 0.1 per cent of metered sales gas from operated areas.

While our current methane emissions are already lower than the 0.2 per cent methane intensity ambition of the Oil and Gas Climate Initiative, of which BP is a member, Origin continues to work to reduce our methane intensity and minimise fugitive emissions. We have a robust leak detection and repair program in place, we participate in and sponsor research into fugitive emissions, and we are also evaluating opportunities to retrofit or change the design of infrastructure to further reduce methane emissions.

Statement 6:

Twenty per cent (20%) of the CEO scorecard for FY2018, used to determine short-term incentives (STI), is made up of "People, culture and HSE measures". These measures are mixed, and include "engagement and culture metrics, total recordable injury frequency rate, significant incidents, process safety and environmental reportable incidents". Emissions reduction targets are not explicitly included in the executive remuneration structure. Shareholder interests would be served by clearer incentivisation of emissions reduction in our company's remuneration structure.

Origin's response to statement 6

Origin has agreed to the first seven We Mean Business commitments, committed to science-based emissions reduction Targets and has a publicly stated decarbonisation strategy which includes closing Eraring by 2032. While there are no specific metrics in the STI scorecard on these individual elements, the STI scorecard is concerned with the annual operating plans that are themselves framed within, and support, the company's long-term strategy and climate-related commitments.

Resolution 9(f) Lobbying

1. *Shareholders request that our company prepare and disclose annually, beginning in 2020, an analysis (Analysis) of climate and energy policy lobbying, advertising and advocacy (Activities), undertaken over the reporting year by industry associations of which our company is a member (Industry Associations). The Analysis should identify Activities and evaluate whether or not they are "positively in line with the Paris Agreement".*
2. *Shareholders recommend that our company suspend memberships of Industry Associations that undertake Activities to influence policy in Australia, where:*
 - a. *dominant function of that Industry Association is to undertake Activities relating to climate, energy and/or emissions policy; and*
 - b. *the Analysis does not demonstrate a record of "lobbying positively in line with the Paris Agreement".*

Key arguments from the supporting statement to Resolution 9(f)

Statement 1:

At our company's 2018 annual general meeting (AGM), 46.32% of shareholders supported a resolution that requested our company conduct a review of the advocacy undertaken by its industry associations in respect to climate change and energy policy, and make that review available to shareholders within six months of the AGM. To date, our company has not satisfied key elements of that request

²⁶ iea.org/publications/roleofgas/

Origin's response to statement 1

Following the 2018 AGM, Origin developed and published on our website an industry associations policy. Origin undertook an internal review of its industry and association memberships against those associations' formal climate change policies.

Origin annually assesses the alignment of its own policy positions with those of the industry associations with whom it engages and has provided an update on our memberships on our website and in our Sustainability Report.

We have also disclosed on our website²⁷ and attached as an appendix to this paper the outcome of the annual review of climate change and other key policy positions of each association. Our review did not find any significant differences in formal positions on climate change policy between Origin and key industry associations. However, some differences are noted.

Where there are different positions on specific matters, Origin informs the relevant associations of its position and continues to lobby for our position. For example, some industry associations have made comments regarding the possible use of prior period Kyoto carry over credits towards meeting future climate change targets. Origin does not support using Kyoto carry over credits for Australia to meet its current NDC to the Paris Agreement and we have reinforced this position to the relevant industry associations.

There are significant benefits of retaining our memberships of our associations, including providing us with access to industry research, engaging in industry-wide policy discussions (broader than climate change), ensuring our views on certain issues are well understood by our industry peers, and at times discuss ways to address social issues more broadly.

Statement 2:

Several of our company's industry associations continue to conduct advocacy counter to the Paris Agreement's goals

Much of the advocacy by our company's industry associations has led to adverse outcomes that are not in our company's long-term interests. These include an absence of policies to adequately reduce emissions across the economy, policy uncertainty in the electricity sector, and the government's "big stick" legislation, which would force divestment of coal-fired power stations in order to prolong their operation

Origin's response to statement 2

We are members of various industry associations and peak bodies. These memberships enhance our ability to advocate for common industry views and gain industry insights. We may not align with every element of an association's public position, but where we believe there is a benefit in constructive dialogue or advocacy, we will maintain our membership.

More than a decade of policy inaction and confusion around climate change policy has resulted in a muted investment signal and the retirement at short notice of ageing coal generators. Origin continues to advocate for co-ordinated and long-term energy policy at a national level to give industry the confidence to invest in new electricity generation and gas supply. Investment is critical to maintain reliability and improve affordability as we transition to a low-carbon emissions energy system.

In recent years, Origin has advocated publicly for the following:

- We have unequivocally supported the Paris Agreement and policies to guide a smooth transition to lower emissions without compromising on reliability and affordability. However, we believe Australia's NDC to the Paris Agreement to reduce emissions by 26 to 28 per cent on 2005 levels is not enough to limit global warming to 1.5°C or less.

²⁷ originenergy.com.au/industryassociations

- Origin does not support using Kyoto carry over credits for Australia to meet its current NDC emissions reduction target, and we have reinforced this position to the relevant industry associations who have made comments in this regard.
- Origin supports a carbon price market mechanism as it would facilitate achieving the least cost abatement outcome overall, and we believe it is the most effective way to encourage more renewable generation into the system.
- Origin supported the National Energy Guarantee's (NEG) objectives of bringing together energy and climate change policy and providing a clear investment signal for low-emissions and reliable generation sources at the least cost to Australian homes and businesses.
- We continue to support a national goal of net zero emissions in the electricity sector by 2050 or earlier.
- We believe the electricity sector should be responsible for more than its proportional share of any national reduction measure by helping to unlock abatement in other sectors, such as transport and construction.

Statement 3:

Since our company's 2018 AGM, several of its industry associations have advocated for positions which are clearly inconsistent with our company's positions on climate change and energy policy.

Two issues of particular concern are:

- *support for the use Kyoto carryover credits, which would reduce Australia's 2030 emissions target (pursuant to Australia's Nationally Determined Commitment (NDC)) from 26-28% to 15-16%, and*
- *support for investment in new or existing coal-fired power stations, and the promotion of Australia's continued or even expanded reliance on coal for energy.*

Origin's response to statement 3

With regard to specific comments attributed to various industry associations in Resolution 9(f), Origin has and continues to advocate for the following positions:

- Origin does not support using Kyoto carry over credits for Australia to meet its current nationally determined contribution to the Paris Agreement target, and we have reinforced this position to the relevant industry associations.
- Origin is aligned with APPEA in not supporting state-based moratoria on safe exploration and development of onshore gas. Origin believes that unlocking access to resources closest to where the consumers are located is one way to put downward pressure on prices. Gas plays an important role in firming renewable energy as Australia transitions to a lower carbon electricity sector.
- We unequivocally support the Paris Agreement and measures to progressively reduce global emissions. We view Australia's current 2030 emission reduction target as a starting point but not sufficiently ambitious for a 1.5°C goal. We believe the electricity sector needs to deliver more than its proportional share for the economy in transitioning to a low carbon future.
- Origin supports retention of the current Renewable Energy Target. We believe that a number of State based renewable subsidies are no longer required and these subsidies add unnecessary costs for consumers. Origin supports a carbon price market mechanism as it would facilitate achieving the least cost abatement outcome overall.
- Origin does not have any plans for and does not support any investment in new coal-fired power stations. However, ongoing investment in existing coal-fired power stations will be required to maintain safety, security and reliability in the NEM as Australia transitions to a renewable future.

Appendix

Review on Industry Associations' positions on climate change policy

Origin is a member of a number of industry associations which often have a broad range of members and views. Origin uses its memberships to understand the views of other industry participants and present and advocate its views on relevant policy, particularly in relation to climate change and climate related policy. While there may not be full alignment across industry representatives on some key policy areas, we may remain a member of an industry association with whom we don't have complete alignment on the basis that through our advocacy we can make our views known and ultimately influence the industry association and the members of the association.

Origin has undertaken a review of relevant industry associations in respect to their climate change and climate related policy. The review identified both areas of alignment and areas of difference. Where there are areas of difference we seek to influence the relevant industry association and its members through constructive dialogue.

The commentary below summarises the publicly stated climate change policy positions of the key industry associations that Origin is a member of and compares their positions to ours.

Australian Energy Council

The Australian Energy Council is a member of the Australian Climate Roundtable (ACR) which was established to allow members to formulate common ground in the climate policy debate. The principles of the ACR include:

- Recognising the major parties' bipartisan goal of limiting global warming to less than 2 degrees Celsius.
- Achieving this goal will require deep global emissions reductions, with most countries including Australia eventually reducing net greenhouse emissions to zero or below.
- Policy should allow Australia to meet its short and long term emissions reduction goals at least cost.
- Policy should prevent the unnecessary loss of competitiveness by Australia's trade exposed industries.
- Policy should recognise the strategic importance of reducing emissions from the energy sector in achieving the overall goal.

The review identified a strong alignment with Origin's climate principles and goals. We will continue to use the Australian Energy Council as a forum to build a common ground on climate policy in Australia aligned with these principles.

Australian Petroleum Production & Exploration Association (APPEA)

APPEA is the peak national body representing Australia's oil and gas exploration and production industry. APPEA supports a national climate change policy that delivers greenhouse gas emissions reductions at the least cost and facilitates broad-based investment decisions consistent with an international price on carbon.

APPEA's climate change policy principles are:

- International engagement is crucial.
- Climate Change and energy policies must be integrated and harmonised.
- Climate change adaptation strategies are necessary.
- Climate policy must not compromise national or global economic development or energy security.

The review identified a high level of broad alignment. However, we note that APPEA lacks details around its climate change policy principles. We will continue to advocate the association and its members on the need to support national targets based on climate science that are aligned to the Paris Agreement goals.

Business Council of Australia (BCA)

The BCA represents the chief executives of Australia's largest employers and is a member of the Australian Climate Roundtable. The BCA supports:

- Climate Change Science and the Paris Agreement.
- Australia's 26-28% Paris emissions reduction target, noting that this is a sensible and achievable starting point, and achieving net-zero emissions by 2050.
- A regular review of Australia's national emissions reduction target as required under the Paris Agreement.
- Transition to a low emissions economy that does not put our standards of living at risk.
- A carbon price signal.
- Investment in renewable and low emissions power and storage.
- De-carbonisation of energy sector.

The review identified a strong alignment with Origin's climate principles and goals. However, we do not support the BCA's commentary on using carry-over credits for Australia to meet its current National Determined Contribution target and we have reinforced this position to the BCA.

We will continue to advocate our position regarding carry-over credits and the need to support national targets based on climate science that are aligned to the Paris Agreement goals.

We believe the benefits of BCA membership, and the fact that we are broadly aligned, outweigh any concerns around the areas where our opinions may diverge.

Clean Energy Council (CEC)

The Clean Energy Council is the peak body for the clean energy industry in Australia. The CEC is committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner. The CEC's position on energy and climate change policy is:

- The Federal Government should provide leadership and support the transition of the sector by proceeding with the National Energy Guarantee (or an equivalent policy) that will provide much needed investment certainty.
- This should include clear targets for emissions reduction that will ensure decarbonisation of the energy sector well before 2050.
- Accelerate reforms to support the deployment of energy storage, including streamlining of grid connection processes and requirements.
- Build strong leadership and cooperation with state and territory governments in accelerating regulatory reform to remove barriers and level the playing field for renewable energy and storage projects.
- In the absence of federal leadership, state governments should play a crucial role in providing leadership to underpin investment confidence and new investment.

The review identified a strong alignment between the CEC and Origin on climate principles and goals. We will continue to work with the CEC as a forum to build a common ground on climate policy in Australia and support the deployment of renewable energy and storage.

Gas Energy Australia (GEA)

Gas Energy Australia is the national peak body that represents the domestic use of gaseous fuels including Liquefied Petroleum Gas (LPG), Liquefied Natural Gas (LNG) and Compressed Natural Gas (CNG). GEA focuses on policy that support greater use of gaseous fuels. GEA's position on energy policy is:

- Work with Australian governments to support cleaner air and improved health outcomes through greater use of gaseous fuels.
- Work with Australian governments to support policies to reduce greenhouse gas emissions given the inherent low carbon content of gaseous fuels.

- Advocate for government policy, procurement and other support to treat all cleaner energy sources equally.
- Build awareness of the benefits of cleaner, affordable gaseous fuels to the Australian community.
- Work with Australian governments to encourage greater use of gaseous fuels to power regional and remote Australian communities and fuel bus, ferry and train services.

The review identified broad alignment with Origin's climate principles and goals. We will continue to work with GEA to promote the use of gaseous fuels as part of Australia's transition to a low carbon emissions energy system.

Queensland Resources Council (QRC)

The QRC represents the commercial developers of Queensland's mineral and energy resources. The QRC's position on energy and climate change is:

- Queensland's resource industry supports global action on climate change.
- The global need to reduce emissions has clear implications for Queensland's energy policy.
- Achieving an orderly transition to a low emission economy needs policy stability to minimise costs.
- Climate adaptation requires a concerted focus to ensure Queensland communities remain resilient.

The review identified a weak alignment and a lack of details around QRC's position on energy and climate change. Further, the QRC has voiced its support for a new high-efficiency low-emissions coal-fired power station to be built in Australia. We do not support the construction of any new coal fired power stations in Australia.

We continue to believe that the benefits of membership of the QRC outweigh concerns about where our opinions may differ. Further, we will continue to advocate our position against the construction of any new coal-fired power stations in Australia and the need to support national targets based on climate science that are aligned to the Paris Agreement goals.