

Notice to company pursuant to ss 249N & P of the Corporations Act 2001 (CA)

I/we(name of 'shareholder')

of [address]

.....
identified by the Holder Identification Number (HIN) or Shareholder Reference Number (SRN) [HIN or SRN]

in respect of any holding of the shareholder's Origin Energy Limited ('ORG' or 'the company') ordinary fully paid shares;

hereby give notice (in accord with section 249N & P of the CA) to the company of: the following resolutions (1: Amendment to the Constitution, 2: Climate Risk Disclosure, 3: Transition Planning, and 4: Short-Lived Climate Pollutants) the shareholder proposes to move at a general meeting of the company; and request (in accordance with section 249P) that the company give to all members each of the Supporting Statements following the resolutions.

SIGNED

..... (Signature of individual Shareholder [†] /company director) (Signature of second shareholder in a joint holding/for a company second director or company secretary)
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† Or sole company director and sole company secretary. JOINT HOLDING: For a holding in more than one name all shareholders must sign)

Resolution 1 – Amendment to the Constitution

To amend the constitution to insert at the end of clause 8.3 'Notice of general meetings' the following new sub-clause 8.3(e) "The company in general meeting may by ordinary resolution express an opinion or request information about the way in which a power of the company partially or exclusively vested in the directors has been or should be exercised. However such a resolution must relate to a material risk as identified by the company and cannot either advocate action which would violate any law or relate to any personal claim or grievance. Such a resolution is advisory only and does not bind the directors or the company.

(Note that three accompanying ordinary resolutions seeking further disclosure from Origin Energy on climate risk disclosure, transition planning and short-lived climate pollutants should also be included on Origin Energy Ltd's Notice of 2017 Annual General Meeting. Shareholders who vote by proxy should be able to lodge a vote on all four resolutions.)

Supporting Statement 1

Shareholder resolutions are a healthy part of corporate democracy in many jurisdictions other than Australia. For example, in the UK shareholders can consider resolutions seeking to explicitly direct the conduct of the board. In the US, New Zealand and Canada shareholders can consider resolutions seeking to advise their board as to how it should act. As a matter of practice, typically, unless the board permits it, Australian shareholders can follow the example of none of their UK, US, New Zealand or Canadian cousins in this respect.

A board of Directors is a steward for shareholders and accountability for the discharge of that stewardship is essential to long-term corporate prosperity.

In rare situations the appropriate course of action for shareholders dissatisfied with the conduct of board members is to seek to remove them. But in many situations such a personality-focused approach is unproductive and unwarranted. In those situations a better course of action is to formally and publicly allow shareholders the opportunity at shareholder meetings such as the AGM to alert board members that they seek more information or favour a particular approach to corporate policy.

The Constitution of Origin Energy is not conducive to the right of shareholders to place resolutions on the agenda of a shareholder meeting.

In our view, this is contrary to the long-term interests of Origin Energy, the Origin Energy board and all Origin Energy shareholders.

Passage of this resolution – to amend the Origin Energy constitution – will simply put Origin Energy in a similar position in regard to shareholder resolutions as any listed company in the UK, US, Canada or New Zealand.

Resolution 2 – Climate Risk Disclosure

That in order to address our interest in the longer-term success of the company, given the recognised risks and opportunities associated with climate change, we as shareholders of the company request information about the company's exposure to climate change-related risks. Such information should be provided in routine annual reporting from 2018, in accordance with the final recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD).

Supporting Statement 2

We move this resolution with the intention to increase our company's resilience to regulatory and market changes that can be foreseen as international action is taken to limit global warming in accordance with the climate goals established by the Paris Agreement. In November 2016, the Paris Agreement entered into force, thereby committing 195 countries to holding the increase in the global average temperature to well below 2°C above pre-industrial levels, and to pursue efforts to limit warming to 1.5°C¹.

This resolution seeks further information consistent with the final recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). According to the TCFD, improved disclosure of climate-related information will allow

¹The Paris Agreement, UN Framework Convention on Climate Change

investors to “appropriately assess and price climate-related risk and opportunities”². Furthermore, “inadequate information about risks can lead to a mispricing of assets and misallocation of capital”, potentially threatening financial system stability as “markets can be vulnerable to abrupt corrections”³.

In describing the transition risks posed by the Paris Agreement, the TCFD states “rapidly declining costs and increased deployment of clean and energy-efficient technologies could have significant, near-term financial implications for organisations dependent on extracting, producing, and using coal, oil and natural gas”⁴.

The TCFD issued its final recommendations in June this year, which were subsequently endorsed by scores of companies including ANZ Banking Group, BHP Billiton and Royal Dutch Shell. The TCFD recommendations seek improved climate-related information from companies based on four key themes: Governance, Strategy, Risk Management, and Metrics and Targets.

Origin has disclosed much information related to climate change, particularly on Governance and Risk Management, in its annual submissions to the CDP (formerly Carbon Disclosure Project). As per TCFD guidance and its own commitments to the ‘We Mean Business’ coalition, Origin should seek to incorporate as much of this information as possible into mainstream financial reporting⁵.

According to its 2016 submission to the CDP (formerly Carbon Disclosure Project), Origin’s Public Policy team is responsible for “coordinating company-wide positions on climate change and related policies”⁶. Origin should disclose the process by which company-wide positions on climate change are formed, and whether executives responsible for forming these positions, particularly where it informs strategy, are adequately empowered, and how their remuneration is linked to climate change targets.

In relation to Strategy, Origin should disclose the risks and opportunities to its businesses over the short, medium and long term. This is particularly relevant for the development of new technologies, and how they may impact the behaviour of Origin’s customers. Origin should also disclose the physical risks posed to its infrastructure from climate change.

Arguably, the most important element of the TCFD recommendations (within the theme of Strategy) pertains to scenario analysis. Though Origin has clearly assessed the International Energy Agency’s (IEA) 450 Scenario⁷, to date the company has not disclosed the impacts on all of its businesses of such a scenario, nor policy scenarios consistent with the Paris Agreement. Shareholders should be rightly concerned about the company’s future under more aggressive policy pathways, including a 1.5°C scenario. Origin should disclose the results of the scenario analysis conducted to date, including the assumptions and sensitivities contained therein.

²Recommendations of the Task Force on Climate-related Financial Disclosures, Final Report, June 2017

³Breaking the tragedy of the horizon – climate change and financial stability, Mark Carney, September 2015

⁴Recommendations of the Task Force on Climate-related Financial Disclosures, Final Report, June 2017

⁵ibid.

⁶Origin Energy - Climate Change 2016 Information Request, CDP

⁷Sustainability Report 2016, Origin Energy Ltd

Origin should disclose the metrics used to assess the risks and opportunities posed by climate change. This should include the metrics used to assess the efficiency of new technologies, and the growth of gas demand in Origin's export destinations.

Origin should seek to improve the disclosure of its greenhouse gas (GHG) emissions. Aggregated emissions, like those reported to the National Greenhouse Gas Inventory (NGGI), are a useful measure of the company's performance, however, the company should disclose the emissions performance of individual assets.

Origin should disclose the metrics and targets by which they measure their performance in reducing emissions. Despite committing to adopt a "science-based emissions reductions target"⁸, which was due to be announced by the end of the 2016 calendar year, the company has yet to announce such a target. If Origin's commitment to a science-based target has proven to be too difficult or inflexible, then the company should determine its own target and explain as much to investors.

Resolution 3 – Transition Planning

That in order to address our interest in the longer term success of the company, given the recognised risks and opportunities associated with climate change, shareholders request information on how the company plans to transition to low-carbon technologies in order to manage the material risks from fossil fuel dependency. Such information should be provided in routine annual reporting from 2018, and should:

- Provide emissions-reduction targets (short, medium, long-term) that will result in 95% clean energy generation by 2050 (base year: 2017);
- Explain how the company's capital expenditures, remuneration structure, and its approach to public policy lobbying align with its transition strategy.

Supporting Statement 3

We move this resolution with the intention to increase our company's resilience to regulatory and market changes that can be foreseen as international action is taken to limit global warming in accordance with the climate goals established by the Paris Agreement. In November 2016, the Paris Agreement entered into force, thereby committing 195 countries to holding the increase in the global average temperature to well below 2°C above pre-industrial levels, and to pursue efforts to limit warming to 1.5°C⁹.

In describing the transition risks posed by the Paris Agreement, the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) states "rapidly declining costs and increased deployment of clean and energy-efficient technologies could have significant, near-term financial implications for organisations dependent on extracting, producing, and using coal, oil and natural gas"¹⁰.

Investors are concerned that Origin is not properly assessing and reporting to shareholders on the financial, operational, and policy risks linked to planned capital expenditures on fossil-fuel based power generation, transmission and distribution.

⁸Sustainability Report 2016, Origin Energy Ltd

⁹The Paris Agreement, UN Framework Convention on Climate Change

¹⁰Recommendations of the Task Force on Climate-related Financial Disclosures, Final Report, June 2017

The International Energy Agency (IEA) calculates that energy-related CO₂ emissions need to peak before 2020 and fall by more than 70% from 2017 levels by 2050 to limit global mean temperature rise to below 2°C with a probability of 66%. This equates to 95% clean energy generated by 2050¹¹.

In FY2016, Origin Energy was Australia's fourth largest greenhouse gas (GHG) emitter¹². Climate change poses significant transition risks to Origin's Energy Markets business. In FY2016, the company generated 61% of its electricity from coal, 28% from natural gas and 11% from renewables¹³. The emissions intensity of Origin's generation portfolio is generally consistent with the National Electricity Market (NEM), operating at 0.88 tonnes of CO₂-e per MWh, marginally below the NEM average of 0.90 tonnes of CO₂-e per MWh¹⁴. However, the emissions intensity of Australia's NEM is the highest amongst developed countries¹⁵ and globally behind only South Africa.

Origin has committed to retiring its only coal-fired generator, Eraring, "in the 2030s"¹⁶, more than 50 years after its commission date. The company has not announced plans for the retirement of its gas-fired generators, claiming gas to be a "complementary fuel to support the intermittency of renewables"¹⁷. Origin has however, committed to build or contract up to 1,868MW of renewable capacity by June 2020¹⁸. Though this is a positive commitment, the company should disclose its long-term plans for its generation portfolio, and the expected emissions of its generation portfolio into the future.

Origin claims that renewable energy alone cannot deliver system reliability and that "the lowest cost and most carbon-efficient method of ensuring system reliability is increased use of low-emission, flexible, gas-fired generation"¹⁹. Yet the levelised cost of energy from utility-scale PV technologies, offshore wind generation, and lithium batteries continues to fall precipitously²⁰. Taller wind towers with greater rotor diameters for example are driving exponential gains in capacity. This makes continued investment in gas-fired plants with a 30-year life increasingly risky, given the dependence on the capital-intensive nature of replacing rapidly depleted gas wells and building/maintaining extensive pipelines.

Origin cites the IEA in stating, "gas [will be] the only fossil fuel that is expected to increase in demand under the 2°C scenario"²¹. Yet the IEA's Energy Technology Perspectives 2017 report anticipates that in a "below-2°C" scenario, natural gas's share of global energy use will fall by 47% against a 2014 baseline²². Origin should disclose the analysis upon which current and future capital expenditure on exploration and development of new gas reserves is based. Origin should disclose how such capital expenditures are consistent with multiple policy pathways.

¹¹Perspectives for the energy transition: Investment needs for a low-carbon energy system, IEA and IRENA, 2017

¹²Greenhouse and energy information by registered corporation, National Greenhouse and Energy Reporting (NGER) Scheme, 2015-16

¹³Annual Report 2016, Origin Energy Ltd

¹⁴Sustainability Report 2016, Origin Energy Ltd

¹⁵Analysis of electricity consumption, electricity generation emissions intensity and economy-wide emissions, Climate Change Authority, October 2013

¹⁶Sustainability Report 2016, Origin Energy Ltd

¹⁷ibid.

¹⁸Full Year Results 2017, Origin Energy Ltd

¹⁹Sustainability Report 2016, Origin Energy Ltd

²⁰Levelised Cost of Energy Analysis 10.0, Lazard, December 2016

²¹Sustainability Report 2016, Origin Energy Ltd

²²Energy Technology Perspectives 2017, International Energy Agency

Origin's Integrated Gas business is also subject to significant transition risks. In FY2017, Origin incurred further post-tax impairment charges of \$3.064 billion, including \$1.846 billion on Australia Pacific LNG (APLNG)²³. Much of the impairments on APLNG were due to over-inflated oil price estimates. Now that APLNG is operating above design nameplate capacity²⁴, Origin should disclose its plans for APLNG to 2050, the sensitivity of APLNG to various gas demand scenarios, and how APLNG reconciles with IEA analysis of a low-carbon energy system.

Origin claims that the Long Term Incentives available to approximately 100 senior executives are "strongly linked to pursuing opportunities that decarbonising the energy sector provides"²⁵. Yet Performance Share Rights and Options are explicitly linked to measures of ROCE (Return on Capital Employed) and relative Total Shareholder Return²⁶, respectively. Given the transition risks faced by the company and the sectors in which it operates, Origin should disclose how its remuneration structures specifically align with decarbonisation. Origin should consider incentivising executives to meet climate-related targets; for example, emissions reductions or portfolio decarbonisation.

Resolution 4 – Short-Lived Climate Pollutants

That in order to address our interest in the longer term success of the company, given the recognised risks and opportunities associated with climate change, we as shareholders of the company request information on the company's strategy to accurately and comprehensively measure and reduce 'short-lived climate pollutants' (SLCPs), particularly fugitive methane emissions. Such information should be provided in routine annual reporting from 2018.

Supporting Statement 4

We move this resolution with the intention to increase our company's resilience to regulatory and market changes that can be foreseen as international action is taken to limit global warming in accordance with the climate goals established by the Paris Agreement. In November 2016, the Paris Agreement entered into force, thereby committing 195 countries to holding the increase in the global average temperature to well below 2°C above pre-industrial levels, and to pursue efforts to limit warming to 1.5°C²⁷.

As part of the We Mean Business Coalition's climate change initiatives, Origin committed to reduce short-lived climate pollutants (SLCPs)²⁸. SLCPs include methane, fluorinated gases including hydrofluorocarbons (HFCs) and black carbon²⁹. The oil and gas sector has been identified as the single largest source of methane globally³⁰.

Methane (CH₄) is the primary component of natural gas, and "can be directly released to the atmosphere at each stage of gas production and transport either intentionally (via flaring or venting, equipment purging, or incomplete combustion), or unintentionally (e.g. leaks and

²³2017 Full Year Results, Origin Energy Ltd

²⁴ibid.

²⁵Origin Energy - Climate Change 2016 Information Request, CDP

²⁶Annual Report 2016, Origin Energy Ltd

²⁷The Paris Agreement, UN Framework Convention on Climate Change

²⁸Sustainability Report 2016, Origin Energy Ltd

²⁹Short-Lived Climate Pollutants, Climate and Clean Air Coalition

³⁰Global Methane Emissions and Mitigation Opportunities, Global Methane Initiative, December 2015

failures)³¹. Methane can also enter the atmosphere via the landscape, known as migratory emissions. Origin correctly states, “the emission of methane is more potent and has a higher potential to exacerbate the effects of climate change than carbon dioxide”³². According to the Climate Council, “the global warming potential of methane is 86 times greater than carbon dioxide over a 20-year timeframe and 28 times greater over a hundred years”³³.

Due to methane’s global warming potential, excessive fugitive emissions would jeopardise the dependence of Origin’s strategy on natural gas “as the least emissions-intensive fossil fuel”³⁴. The Melbourne Energy Institute cited research from Alvarez et al that suggested “the methane-emission threshold at which point using gas for electricity generation provides no benefits over using coal occurs at a methane-emissions level equal to 3.2 per cent of total gas production”³⁵. This threshold is further lowered in the case of LNG that is exported, due to the energy consumed throughout the export and import process. Origin’s claims of providing “cleaner energy” would therefore be seriously compromised by significant fugitive methane emissions.

Origin states that it surveys Australia Pacific LNG’s gas field infrastructure for methane leaks, in accordance with the Queensland’s Government’s regulatory requirements³⁶. Origin reported in 2016 that its “fugitive methane emissions from flaring, venting and leakage at [its] oil and gas operations were 756 kt of CO₂-e”, which were slightly down on the previous year, despite a significant increase in production volumes³⁷. Yet the Climate Council found that Australia’s coal seam gas industry under-reports methane emissions due to:

- “a lack of field studies and direct measurement by the industry”;
- “most reporting of methane emissions uses factors derived from out-dated United States (US) industry metrics which been shown to significantly under-report emissions, particularly from the coal seam gas industry”;
- “no baseline studies undertaken of methane emissions before development of large coal seam gas deposits took place in the Bowen and Surat Basins”;
- “minimal studies have been done since of actual emissions over this now very large developed area”³⁸.

Origin relies on a single CSIRO study from 2014 to claim “fugitive emissions formed only a very small percentage of Scope 1 greenhouse gas emissions”³⁹. The CSIRO described it as a “pilot study”, as it had measured emissions at just 43 coal seam gas (CSG) wells – less than 1 per cent of the existing CSG wells in Australia⁴⁰ (at the time). The study concluded that “to fully characterise emissions, a larger sample size would be required and measurements would need to be made over an extended period to determine temporal variation”⁴¹. Furthermore, that “there are many other potential emissions points throughout

³¹Pollution and Price: The Cost of Investing in Gas, Climate Council, April 2017

³²Sustainability Report 2016, Origin Energy Ltd

³³Pollution and Price: The Cost of Investing in Gas, Climate Council, April 2017

³⁴Sustainability Report 2016, Origin Energy Ltd

³⁵A review of current and future methane emissions from Australian unconventional oil and gas production, Melbourne Energy Institute, October 2016

³⁶Sustainability Report 2016, Origin Energy Ltd

³⁷ibid.

³⁸Pollution and Price: The Cost of Investing in Gas, Climate Council, April 2017

³⁹Sustainability Report 2016, Origin Energy Ltd

⁴⁰Field Measurements of Fugitive Emissions From Equipment and Well Casings in Australian Coal Seam Gas Production Facilities, CSIRO, June 2014

⁴¹ibid.

the gas production and distribution chain that were not examined in this study⁴². To date, there have been no further studies published on the fugitive methane emissions from Queensland's CSG fields.

It is imperative that Origin, and the broader LNG industry in Australia, commission an independent, expert assessment of the full life cycle of GHG emissions. Such an assessment would allow investors to assess Origin's claims, and determine whether further capital should be invested in the further development of natural gas reserves. Given the short term warming potential of methane emissions, it is critical that such an assessment is carried out as soon as practicable.

⁴²Field Measurements of Fugitive Emissions From Equipment and Well Casings in Australian Coal Seam Gas Production Facilities, CSIRO, June 2014