

# Chapter 1

## Introduction

1.1 It is nearly 30 years since Australia's first wind farm was built near Esperance in Western Australia. Currently, there are 82 wind farms accredited under the *Renewable Energy (Electricity) Act 2000*. They consist of 2,077 wind turbines with total installed capacity of approximately 4,180 MW.<sup>1</sup> Appendix 4 shows their location.<sup>2</sup>

1.2 Current policy settings in Australia provide strong financial incentives to invest and develop capacity in renewable energy sources. Most notably, the Renewable Energy Target (RET) creates a market for renewables, requiring electricity retailers to purchase a set annual amount of renewable energy certificates (RECs).

1.3 Among renewables, wind is a major player in Australia. It has benefitted greatly from the financial incentives of the RET. In 2013, wind sources received nearly 60 per cent of the 14 million RECs.<sup>3</sup> That year, wind power accounted for around 63 per cent of the total renewable generation supported by the RET.<sup>4</sup>

1.4 It is anticipated that wind power will drive much of the growth in electricity generation in Australia over the next 20 years. In South Australia alone, proposed wind farm developments will nearly triple the State's existing capacity from wind.<sup>5</sup> Companies are seeking efficiencies through larger turbines. The Australian Energy Market Operator (AEMO) noted in a 2013 report that several recent wind farm developments in the National Electricity Market (NEM) have been built using 3 MW wind turbines, compared to the 1.5–1.75 MW turbines typically used in earlier NEM projects. AEMO noted that turbine manufacturers are continuing to offer larger turbine sizes and that turbines up to 5 MW are expected in the NEM.<sup>6</sup>

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1 Clean Energy Regulator, answer to question on notice, 19 May 2015 (received 10 June 2015).

2 Requested from the Parliamentary Library, *received 12 February 2015*

3 Clean Energy Regulator, *Register of Large scale Generation Certificates*, as of 3 June 2014. See Australian Government, *RET Review Report*, August 2014 <https://retreview.dpmc.gov.au/212-generation> (accessed 20 June 2015).

4 In 2013, the LRET accounted for around 13 100 GWh. Wind accounted for 8 233 GWh. See Australian Government, *RET Review Report*, August 2014 <https://retreview.dpmc.gov.au/212-generation> (accessed 20 June 2015).

5 Australian Energy Market Operator, *South Australian Electricity Report*, August 2014, p. 28.

6 See: Australian Energy Market Operator, *Wind Turbine Plant Capabilities Report*, 2013. Also, Mr John McMahon, President, Wind Industry Reform Victoria, *Proof Committee Hansard*, 9 June 2015, p. 66.

1.5 Given the scale of proposed investment and technology and continuing government assistance for wind power, it is concerning that the industry continues to face persistent and widespread complaint and criticism. As this inquiry amply demonstrates, there is continuing disquiet about the lack of transparency and consultation in planning processes, and the lack of rigorous, independent research into possible health impacts of turbines. This report draws the attention of the Australian Parliament and the Australian public to these issues.

### **The inquiry**

1.6 This is the second and final report of the Senate Select Committee on Wind Turbines. The committee's interim report, tabled on 18 June 2015, contained seven 'headline recommendations'.<sup>7</sup> These recommendations were based on the evidence of the committee's 490 submissions and eight public hearings held in Portland, Cairns, Canberra, Melbourne, Adelaide and Sydney.

1.7 Since then, the committee has held a further three public hearings in Canberra (twice) and Sydney. It has also put many questions on notice to witnesses, the answers to which are on the committee's website.

1.8 As noted in the interim report, this represents a substantial body of evidence. In terms of the detail of evidence and the range of issues covered by submitters and witnesses, this is arguably the most complete Australian parliamentary inquiry into wind farms.<sup>8</sup> Appendix 1 contains a full list of submissions. Appendix 2 contains a list of witnesses for each public hearing.

### **The interim report and its recommendations**

1.9 The purpose of the recommendations in the interim report was twofold. First, it was important to know more about the impact and the operation of wind farms in Australia. The committee proposed establishing an *Independent Expert Committee on Industrial Sound* (IESC) to research the impact on human health of audible noise and infrasound from wind turbines (recommendation 1). It also recommended making publicly available various data collected by wind turbine operators, so as to facilitate the work of the proposed IESC (recommendation 7).

1.10 The second purpose of the interim report was to strengthen the regulatory governance of wind farms. To this end, the committee recommended introducing *National Wind Farm Guidelines*, which each State and Territory Government should

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7 Senate Select Committee on Wind Turbines, Interim Report, June 2015, pp vii–viii, [http://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Wind\\_Turbines/Wind\\_Turbines/Interim\\_Report](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Wind_Turbines/Wind_Turbines/Interim_Report) (accessed 20 July 2015).

8 The 2012 Senate Environment Legislation Committee inquiry into the provisions of the *Renewable Energy (Electricity) Amendment (Excessive Noise from Wind Farms) Bill 2012* held one public hearing and received 217 submissions. The 2011 Senate Community Affairs References Committee inquiry conducted five public hearings and received 1018 submissions.

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reflect in their relevant planning and environmental statutes (recommendation 3), and establishing a *National Environment Protection (Wind Turbine Infrasonic and Low Frequency Noise) Measure* (NEPM) (recommendation 2). The NEPM is automatically reflected in States' and Territories' statutes.

1.11 The committee also recommended stricter requirements for the receipt of RECs. Specifically, wind turbine operators seeking RECs should have to:

- comply with *National Wind Farm Guidelines* (recommendation 4);
- comply with the NEPM (recommendation 4); and
- pay a levy to fund the costs of the proposed IESC and a proposed National Wind Farm Ombudsman (recommendation 6).

### **The federal government's response**

1.12 The committee is delighted that the federal government has agreed to the recommendations in the committee's interim report. The federal Minister for the Environment has committed to:

- establish, by 1 September 2015, an IESC to examine (among other matters) the impact of wind turbines on human health;
- publish research on the development of Australian methodologies and frameworks in sound measurement and standards for wind farms to improve planning and compliance decisions by state and territory authorities;
- publish research on options for wind farm operators to maximise transparency such as by providing information on wind speed, operational statistics, operating hours and sound monitoring;
- establish a National Wind Farm Commissioner to resolve complaints from concerned residents about the operation of wind farm facilities. The Commissioner will publish documents on:
  - the location of existing and proposed wind farms in Australia;
  - planning and environmental approvals in place for each wind farm;
  - RECs received by each wind farm; and
  - data on wind farm operators including operating times, wind speed, power output and sound monitoring and emissions reductions in the electricity sector;
- seek agreement from the States and Territories to implement National Wind Farm Guidelines as recommended by the IESC which each state and territory government should reflect in their relevant planning and environmental frameworks; and

- seek to obtain agreement of state and territory Environment Ministers through the National Environment Protection Council to develop sound measures.<sup>9</sup>

### **The purpose of this report**

1.13 This report presents evidence that further substantiates the need for these recommendations. It highlights submitters' and witnesses' concerns with the impact of wind turbines on human health. It identifies various concerns with state planning processes that have facilitated wind farm developments, and with inadequacies in the way that wind farms are monitored and through which wind companies are eligible for RECs. In assessing the committee's evidence on these matters, the report directly addresses key terms of reference relating to the role of the National Health and Medical Research Council (NHMRC) and the Clean Energy Regulator (CER).

1.14 This report also addresses two terms of reference not covered in the interim report, namely:

- the effect on household power prices, particularly households which receive no benefit from rooftop solar panels, and the merits of consumer subsidies for operators; and
- the effect that wind towers have on fauna and aerial operations around turbines, including firefighting and crop management.

### **The need for a broader mix of renewable energy sources**

1.15 The committee acknowledges the need for Australia's renewable energy sector to develop and prosper. It also recognises that a properly regulated wind industry should be an important part of the sector's future growth. However, the committee has been concerned that not enough is being done to promote the development of other renewable technologies. The committee is encouraged that the Australian Government has committed to consider various options to further support solar technologies and develop a solar technology information package.<sup>10</sup>

1.16 This report does not deal in any detail with the development of solar technologies or renewable technologies other than wind. However, the report does note that the RET is promoting an unbalanced market for renewables in Australia, with an over-reliance on wind.

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9 The Hon. Greg Hunt MP, Minister for the Environment, 'Attachment A: Addressing community concerns about wind farms', Tabled in the Senate, 23 June 2015.

10 The Hon. Greg Hunt MP, Minister for the Environment, 'Attachment B: Measures to enhance the uptake of large scale solar, other renewable energy technologies and energy efficiency', Tabled in the Senate, 23 June 2015.

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## Science and public policy

1.17 The interplay of science and public policy is a complex matter. For policy-makers, there are some fundamental but difficult questions in how science is interpreted for purposes of decision-making. These questions include:

- how well the science is 'settled';
- what were the assumptions and the methodology for reaching the existing findings;
- what new evidence would cast doubt on an existing consensus;
- what is the likelihood that it will evolve, particularly in new directions and with new outcomes;
- what are the risks of basing public policy on 'the current science'; and
- what constitutes a satisfactory solution to these risks?

1.18 As the committee's interim report made clear, the committee believes that the science on the possible impact of wind turbines on human health is evolving. By agreeing to establish an IESC to research wind turbine sounds, it is clear that the Australian Government shares this view.

1.19 This report highlights the evidence of several eminent acousticians as to the audible and sub-audible sounds made by wind turbines and the possible impact of these sounds on human health. This evidence is notable for several reasons:

- the subject matter is highly complex and technical;
- there is disagreement among acousticians as to the correct methodology for testing wind turbine sounds and for simulating the operation of turbines;
- while there is dispute among acousticians as to what has, and has not, been scientifically established in this area, there are various areas of possible scientific inquiry for the IESC; and
- the acoustical evidence is only part of the equation—multi-disciplinary work with medical researchers is also needed.

## Improving compliance and the duty of care

1.20 Many wind power companies have engaged constructively with this inquiry, making written and verbal submissions. They have noted their efforts to connect with, and contribute to, their local community. They have also noted that they are generally compliant with current laws. But does compliance adequately meet their 'duty of care' to the community? Does compliance alone mean that wind companies have a 'social licence' to operate?

1.21 The committee makes a distinction between a wind company meeting compliance and its 'duty of care': the second is broader than the first. Wind executives seemed to believe that existing standards represented the limits of the company's 'duty

of care'. Pacific Hydro executive, Mr Andrew Richards, told the committee that the company's initiative to fund the Cape Bridgewater study with residents affected by its turbines was an effort '...to try and understand why a compliant wind farm, with current regulations, is still creating complaints of that nature...' <sup>11</sup> He added:

We are reliant on the standards to meet our duty of care and to ensure that they are operating within parameters. As far as our duty of care is concerned, again, I point to the report that we have funded to try to understand this issue better. There was nothing in that report, in our view, that was actionable beyond what we have currently done. <sup>12</sup>

1.22 In this context, the committee reiterates two points made in its interim report. The first is that there are considerable gaps in understanding about the impact of wind turbines on human health. The second point is that there is a regulatory lag in the wind sector. The sector has to date avoided some of the regulations, guidelines and frameworks that apply to other energy producing sectors. The recommendations in the interim report reflect the committee's view that it is time that the wind sector 'caught up'.

1.23 The committee believes the higher bar set by implementing the recommendations in the interim report will improve public confidence in how the sector operates. Importantly, however, regulation and oversight will not absolve wind power companies from a continuing duty of care.

1.24 This inquiry has also highlighted that a duty of care exists for government and regulators. The medical dictum, *primum non nocere*, <sup>13</sup> should also apply to governments, particularly where the effect of investments on community health and safety is uncertain. As this report notes, submitters and witnesses have complained that the NHMRC, the CER and State Environment Protection Authorities have abrogated their duty of care. <sup>14</sup>

## **Acknowledgements**

1.25 The committee is grateful to all the individuals and organisations that have made a submission and provided verbal evidence to this inquiry. It acknowledges that a decision to become involved in a parliamentary committee inquiry of this nature can be difficult to make. For many rural communities, wind farm developments have been emotive community issues and decisions to speak out either in favour or in opposition to a development can strain and even break relationships.

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11 Mr Andrew Richards, Chief Executive Officer, Pacific Hydro, *Proof Committee Hansard*, Portland, 30 March 2015, p. 16.

12 Mr Andrew Richards, Chief Executive Officer, Pacific Hydro, *Proof Committee Hansard*, Portland, 30 March 2015, p. 19.

13 —first do no harm.

14 See, for example: Ms Jackie Rovensky, *Submission 89*, p 8; Mrs Lee Schwerdtfeger, *Submission 459*, p. 10; Mr Richard Paltridge, *Submission 367*, p. 1.

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## A note on procedure

1.26 The committee has, throughout this inquiry, provided information to submitters and witnesses on procedural matters. In written evidence to prospective witnesses and at public hearings, the Committee Chair has routinely drawn attention to the following privilege resolutions:

A person shall not, by fraud, intimidation, force or threat of any kind, by the offer or promise of any inducement or benefit of any kind, or by other improper means, influence another person in respect of any evidence given or to be given before the Senate or a committee, or induce another person to refrain from giving such evidence.<sup>15</sup>

A person shall not inflict any penalty or injury upon, or deprive of any benefit, another person on account of any evidence given or to be given before the Senate or a committee.<sup>16</sup>

1.27 The committee reiterates that these actions may be considered contempt of the Senate. It may constitute a criminal offence under Section 12 of the *Parliamentary Privileges Act 1987*.

1.28 The committee also highlights the following advice from the Clerk of the Senate to the 2011 inquiry into the impact of wind farms:

If a person who is covered by a confidentiality provision in an agreement gives evidence to a parliamentary committee about the contents of that agreement, they cannot be sued for breaching that confidentiality agreement. If they are subject to any penalty, threat or intimidation as a consequence of their having given evidence to a committee, Privilege Resolution 1(18) provides that a committee must inquire into the circumstances, ascertain the facts and, if those facts disclose that a person may have been improperly influenced or subject to or threatened with penalty of injury in respect of their evidence, the committee shall report the matter to the Senate. The Senate may then deal with the matter as a potential contempt which may attract penalties including fines and imprisonment. The action may be prosecuted as an offence under section 12 of the *Parliamentary Privileges Act*.<sup>17</sup>

1.29 While the committee itself will cease operating upon tabling of this report, the Senate and its Privilege Committee have the capacity to examine matters of contempt relating to the evidence that has been received by the committee.

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15 The Senate, Standing Orders and other orders of the Senate, February 2014, Privilege Resolution 6(10)

16 The Senate, Standing Orders and other orders of the Senate, February 2014, Privilege Resolution 6(11)

17 Dr Rosemary Laing, Clerk of the Senate, Advice to the Senate Community Affairs References Committee, 12 November 2010.

## Structure of this report

1.30 This report has seven chapters:

- chapter 2 focuses on the role and the capacity of the National Health and Medical Research Council to advise on the possible impacts of wind turbines on human health. It presents the view of many contributors to this inquiry that the NHMRC's processes and findings to date have been flawed;
- chapter 3 examines issues relating to the planning processes for wind turbine developments including:
  - current planning processes in the various State jurisdictions;
  - standards for community engagement and consultation at each stage of the application and development process;
  - the capacity of local councils to implement a robust planning approval process for wind farms; and
  - the need for national wind farm guidelines;
- chapter 4 looks at the current standards for monitoring noise and environmental impacts of wind farms in Australia. It is interested in:
  - the current role of State Governments and local councils in monitoring noise;
  - the view of local Councils and State Governments on their monitoring responsibilities;
  - the role of the CER; and
  - the need to improve the system and the funding to monitor wind farm operations.
- chapter 5 examines the effect that wind turbines and wind towers have on fauna and aerial operations around turbines, including firefighting and crop management;
- chapter 6 presents the committee's views and recommendations on research into the impact of wind turbines on human health (chapter 2), the processes for planning wind farm developments and engaging with communities on these plans (chapter 3), and systems for monitoring and ensuring compliance (chapters 4 and 5); and
- chapter 7 considers various issues relating to the first term of reference including:
  - how the RET supports wind power and the impact of the RET on wholesale and retail prices;
  - the impact of renewables, and wind energy in particular, on retail prices;
  - the merit of consumer subsidies for wind farm operators; and



- the evidence on the impact of wind power on wholesale and retail electricity prices and the merit of providing RECs.

