Australian Government

Australian Energy Infrastructure Commissioner

Annual Report

to the Parliament of Australia

Year ending 31 December 2021

Australian Government

Australian Energy Infrastructure Commissioner

31 March 2022

The Hon Angus Taylor MP
Minister for Industry, Energy and Emissions Reduction
Parliament House
CANBERRA ACT 2600

Dear Minister

Re: 2021 Annual Report of the Office of the Australian Energy Infrastructure Commissioner

Pursuant to the Australian Energy Infrastructure Commissioner's Terms of Reference, I am pleased to provide the 2021 Annual Report to the Australian Parliament on the activities of the Office of the Australian Energy Infrastructure Commissioner.

This report covers the Office's activities for the period of 1 January 2021 through to 31 December 2021.

I look forward to discussing the report with stakeholders in due course.

Sincerely

Andrew Dyer

Australian Energy Infrastructure Commissioner

CC: The Hon Tim Wilson, Assistant Minister for Industry, Energy and Emissions Reduction

PO Box 24434, Melbourne VIC 3001
1800 656 395
www.aeic.gov.au

Cover images, clockwise from top left: Wind turbine, Toora, Victoria, Michael Hall via Getty Images; Solar panels, John Wallace/EyeEm via Getty Images; Lithium-ion battery, Jamestown South Australia, David Branson Alamy Stock Photo; Power lines across the countryside, Somerset Queensland, Vicki Smith via Getty Images.

ISBN: 978-1-922218-08-7

CONTENTS

COMMISSIONER'S REVIEW

Introduction

The Office of the Australian Energy Infrastructure Commissioner is pleased to deliver the Commissioner's sixth annual report to the Australian Parliament. The 2021 report is for the period 1 January 2021 to 31 December 2021.

The Commissioner is independent and currently reports to the Minister for Industry, Energy and Emissions Reduction.

Our key roles are to:

- facilitate the referral and resolution of complaints received from concerned residents about proposed or operating wind farms, large-scale solar farms (5 MW or more), energy storage facilities such as large-scale batteries (1 MW or more) and new major, long-distance transmission projects.
- provide and promote greater transparency on information related to wind farms, large-scale solar farms, energy storage and new major transmission projects in Australia, and
- identify and promote best practices related to the planning, development, construction and operation of renewable energy and major transmission projects, including guidelines, planning standards and compliance, complaint handling procedures, landholder and neighbor relationships, and community engagement.

There are no formal powers associated with the Commissioner's role. The Commissioner relies on effective relationships with and the co-operation of a wide array of stakeholders to succeed in the role.

The Year in Review

2021 was another challenging year with the ongoing impacts of the COVID-19 pandemic continuing to pose unprecedented constraints upon our Office and our stakeholders. As with 2020, in 2021 our Office continued to operate 'business as usual' working remotely and effectively throughout the pandemic restrictions. During 2021, between various lockdowns and other travel restrictions, we took the opportunity to re-commence site visits to various project locations and affected communities. We expect to continue along a cautious journey ahead, undertaking priority site visits in 2022, as we hopefully return to more normal times during the 2022 year.

Despite the pandemic challenges, Australia's transition to renewable energy has continued to materially progress over the past year, with considerable achievements on many fronts. New achievements included declaring and establishing renewable energy zones through to enacting offshore electricity infrastructure legislation. Significantly, we understand that 27 new large-scale renewable energy projects were completed and connected in 2021, adding an additional 3GW of generation capacity into our energy system, which is 50% increase on new capacity in 2020. The Clean Energy Regulator (CER) also reports that, since January 2016, nearly 22GW of renewable energy projects are either generating power or in the project pipeline. This includes approximately 14.8GW of accredited projects, 4.8GW of projects that are now committed, and 2.1GW of developed projects awaiting financial close.

There remain significant challenges relating to ongoing transmission grid connection and capacity for transmitting power from renewable energy projects, increasing the need for new transmission deployments to occur in parallel with new generation capacity to enable this energy transition. New, major transmission power lines will have a range of challenges with affected landholders, neighbours and the broader community. This is particularly so for 'green-field' transmission projects that require a new route path to be selected as well as acquisition of new easements along that route.

To help address some of these high priority challenges, the Minister announced the expansion of our role in March 2021 to also include new major transmission projects, which includes large-scale proposed projects

such as HumeLink (NSW), Project EnergyConnect (SA/NSW), Marinus Link (TAS/VIC), VNI West (NSW/VIC) and the Western Victoria Transmission Network Project – 'WestVicTNP' (VIC).

The Federal Government also announced funding for the continuation of our Office for an additional four years from 1 November 2021. Our name changed as well – we are now known as the Australian Energy Infrastructure Commissioner, which better reflects the now broader responsibilities of our Office.

Since the announcement or our role expansion in March 2021, our Office received 111 new cases in the remainder of 2021 related to major proposed transmission projects. We have also undertaken a significant number of meetings with various community, industry and government stakeholders, including site visits to affected communities along the HumeLink and WestVicTNP proposed route corridors. Our involvement in transmission matters and our insights so far, have been welcomed by key stakeholders.

In terms of overall case numbers, 2021 has been the busiest year in the history of the Office. In addition to the large number of new cases received about transmission projects, there remained a steady flow of new cases about wind and solar farm projects. In total, we received 212 new cases during 2021, a significant increase on the number of cases received the previous year and the highest total number of new cases received in a year since the inception of the Office.

As of 31 December 2021, the Office had received a total of 736 cases since commencing operations in November 2015. Most cases we received were about proposed projects. Further details and information about the cases received and handled are detailed in this report.

We continued to maintain and develop our network of stakeholders and continued to be invited to engage with various stakeholder groups to share our best practices observations and recommendations. Further information on our stakeholder engagement and improvement advocacy activities are discussed in this report.

The Commissioner's new website address is www.aeic.gov.au and we have updated the Commissioner's website and constituent documents to reflect the new role title and Terms of Reference.

This annual report provides an overview of the various activities of the office during 2021 including:

- case handling
- transmission updates
- stakeholder engagement activities
- updates on conference presentations, committee memberships and formal submissions
- other ongoing best practice activities
- updated and expanded observations and recommendations (Appendix A).

Finally, this report includes a summary of key systemic issues and reforms that the Office has identified and been engaged in during 2021. These include our key initial observations and recommendations in relation to new major transmission projects.

The Year Ahead

2022 is already shaping up to be a busy and active year on many fronts.

Transmission will continue to be a significant effort and area of focus, as projects such as WestVicTNP in Victoria and HumeLink in New South Wales continue to progress through the environmental and planning approval phases.

We look forward to maintaining effective relationships with community, industry, governments and other stakeholders as we continue to assist in resolving cases, promoting best practices and increasing transparency within the large-scale renewable industry during this period of rapid change.

As travel and health restrictions ease in the coming months, the Commissioner expects to resume a program of site visits across Australia to inspect project locations and gain an 'on-the-ground' understanding of community concerns and perspectives.

Finally, we would like to take this opportunity to thank all stakeholders for engaging effectively with us throughout the pandemic period. We also acknowledge the ongoing support of the Federal Government for our Office's operations.

Our small, dedicated team looks forward to the ongoing challenges arising from Australia's major energy transformation and continuing our work to serve communities and other stakeholders through this time of unprecedented change.

Andrew Dyer
Australian Energy Infrastructure Commissioner

OVERVIEW

Background

The Australian Energy Infrastructure Commissioner is an independent role – previously known as the *National Wind Farm Commissioner* – which was originally established in October 2015 by the then Minister for the Environment, the Hon Greg Hunt MP.

The role's creation was initiated by Recommendation 5 of the 2015 Senate Committee on Wind Turbines Interim Report. The Commissioner commenced the role in November 2015 for a three-year term.

In October 2018, following an independent review by the Climate Change Authority, the role was renewed for a further three years and was expanded to include large-scale solar farms and energy storage facilities.

On 26 March 2021, the Minister for Energy and Emissions Reduction, the Hon Angus Taylor MP, announced a further expansion to the role, with the inclusion of new large-scale transmission projects, changing the title of the role to the Australian Energy Infrastructure Commissioner.

The Commissioner's Terms of Reference are available at Attachment B and on the Commissioner's website at:

www.aeic.gov.au/about

The finances for the Commissioner's office are managed through the Department of Industry, Science, Energy and Resources and are reflected in the Department's annual report.

Who We Are

The Commissioner is supported by a small team provided by the Department of Industry, Science, Energy and Resources. This team comprises an Executive Officer, a Complaints Officer and an Administrative Assistant.

Office Location and Contact Details

The Office of the Australian Energy Infrastructure Commissioner is located in Melbourne's central business district. The Office can be contacted via:

Toll-free telephone:	1800 656 395
Email:	aeic@aeic.gov.au
Post:	Australian Energy Infrastructure Commissioner PO Box 24434 MELBOURNE VIC 3001

COMPLAINT DATA

Complaint Management Process

A primary function of the Commissioner's Office is to receive and refer complaints from concerned community members about operating and proposed projects and, via a voluntary process, help facilitate resolutions where practical. Information relating to the Office's complaint handling activities are detailed in this section of the report.

Many of the complaint cases can be complex, taking time to research and resolve. The Office's complaint management process has been designed to help ensure that the Office functions effectively, managing each complaint received appropriately.

The Office's procedures treat a complaint from a residence usually as one case. The case may contain a number of complaint issues and may involve a large volume of correspondence with the Office over long periods of time. The Office will record ongoing correspondence in the case file as further information about the complaint. If the complainant subsequently lodges a complaint about a substantive new issue or a different aspect of the project, or a different project altogether, a new case may be established and recorded by the Office.

Complaints Handling Policy

The Office's Complaints Handling Policy outlines the procedure for receiving and handling cases. Cases initially received by the Office are classified as an 'enquiry' and may be accepted and progressed as a formal complaint by the Office once sufficient information, including written consent to share information, has been provided by the complainant.

The Office is also guided by the Information Handling Policy, which outlines what information the Office collects, how this information may be disclosed as well as information on confidentiality and privacy.

These policies are available on the Commissioner's website at www.aeic.gov.au/about

Case Activity in 2021

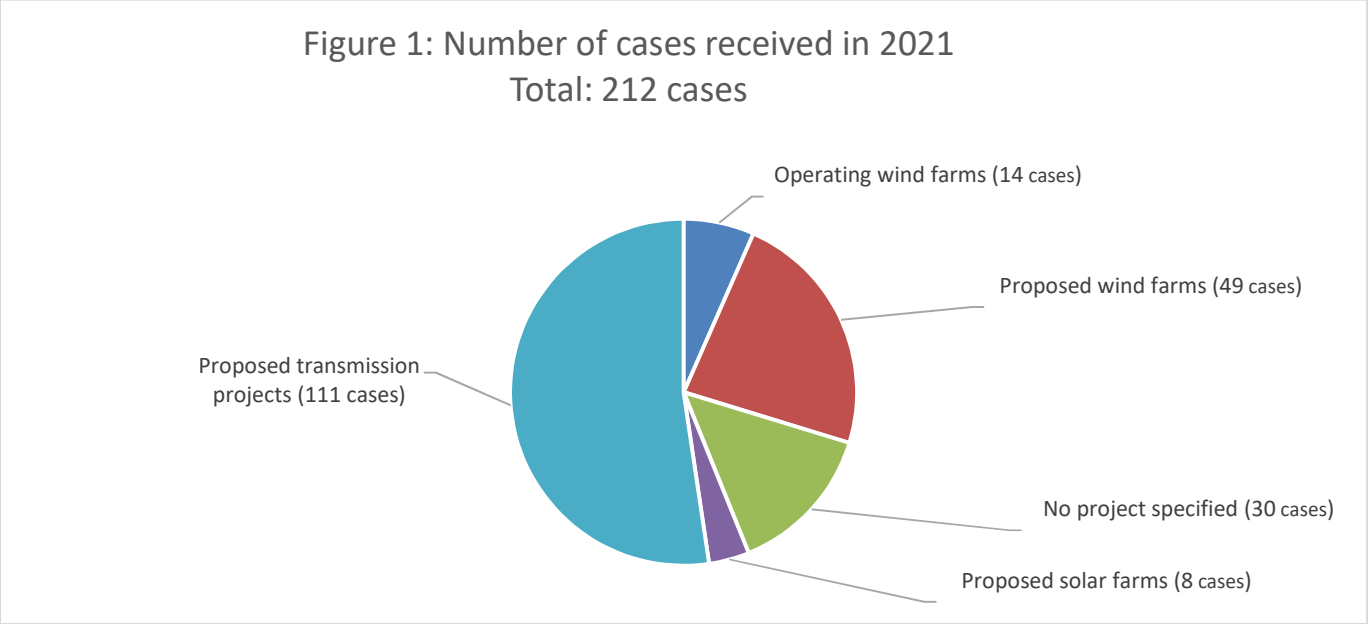
From the period of 1 January 2021 to 31 December 2021, the Office received a total of 212 new cases.

The breakdown of the cases received are as follows:

- 111 cases relating to three proposed large-scale transmission projects
- 14 cases were received relating to seven operating wind farms
- 49 cases were received relating to 22 proposed wind farms
- eight cases were received in relation to five proposed solar farms, and
- 30 cases did not specify a particular project or development.

Of the total of 212 cases received by the Office in 2021, 144 of those cases have been closed as of 31 December 2021. The remaining 68 cases were at various stages of the complaint handling process.

Figure 1 below provides information on the number of cases the Office has received for the period of 1 January 2021 to 31 December 2021. 'Proposed' projects are those which are at the development stage, have been approved by a state or local planning authority or are under construction – but not yet fully commissioned at the time the case was received.



Operating wind farms in 2021

From the period of 1 January 2021 to 31 December 2021, the Office received 14 cases in relation to seven operating wind farms. Nine of these cases related to five operating wind farms in Victoria and the other five cases were in relation to two operating wind farms in New South Wales.

As of 31 December 2021, nine of these cases were recorded as closed and the remaining five cases are at various stages of the complaint handling process.

Proposed wind farms in 2021

From the period of 1 January 2021 to 31 December 2021, the Office received 49 cases in relation to 21 proposed wind farms. As of 31 December 2021, 45 of these cases were recorded as closed and the remaining four cases are at various stages of the complaint handling process.

Figure 2 below provides information on the number of cases about proposed wind farms, by state, for the period 1 January 2021 to 31 December 2021. **Figure 3** also provides information on the location of proposed wind farms, by state, for the period 1 January 2021 to 31 December 2021. Further detail and analysis in relation to these cases is available on page 13.

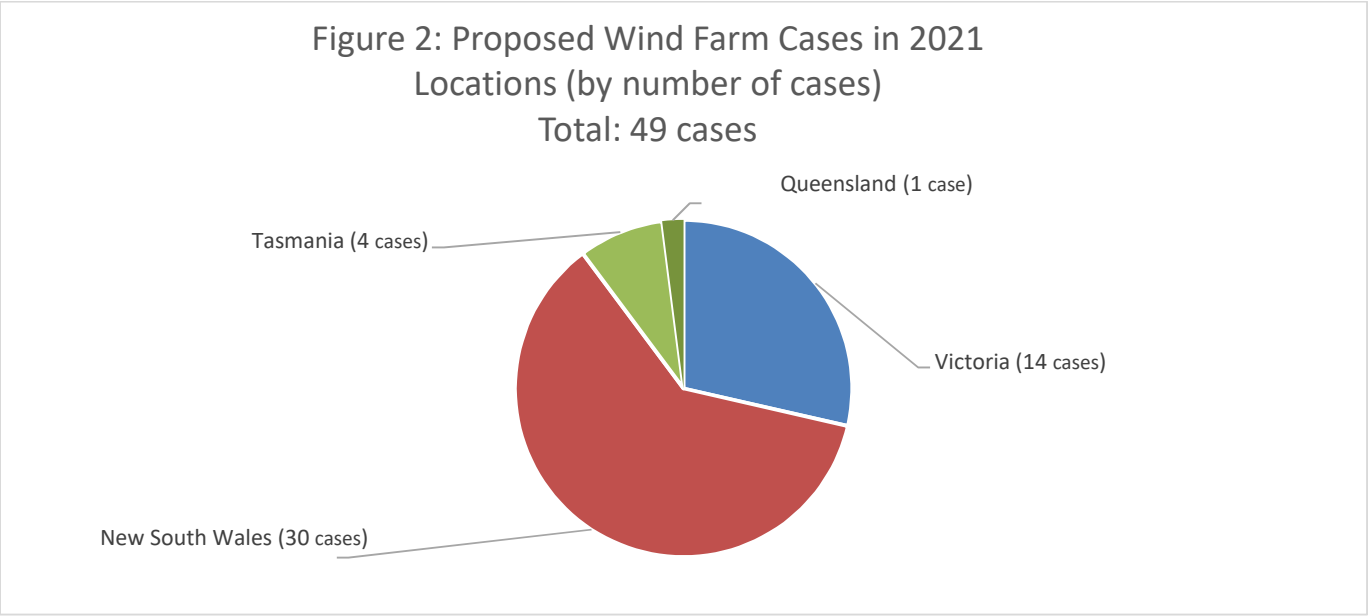
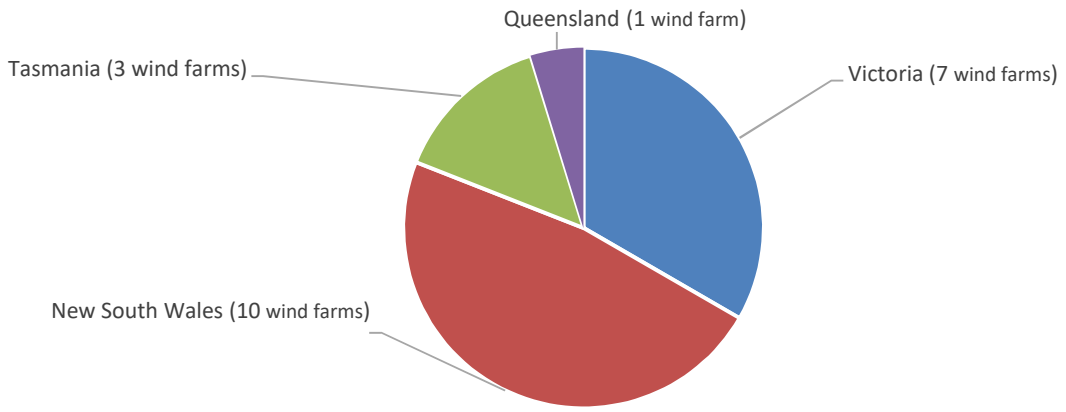


Figure 3: Proposed Wind Farm Cases in 2021
Locations (by wind farm projects)
Total: 21 wind farms



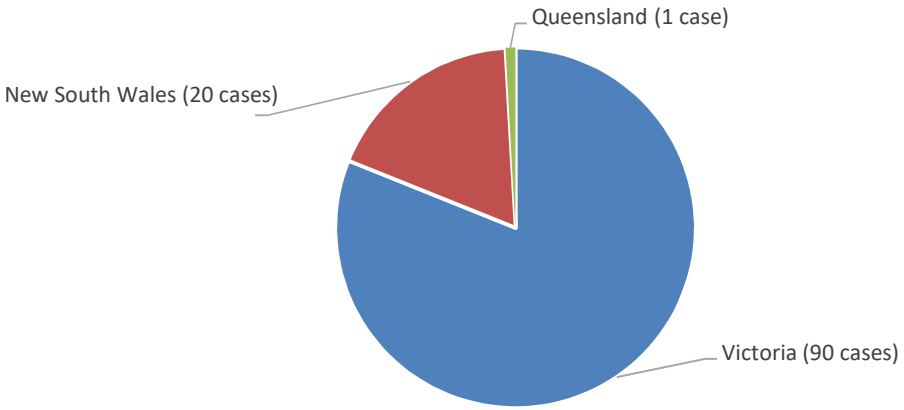
Solar farms and energy storage in 2021

From the period of 1 January 2021 to 31 December 2021, the Office received eight cases in relation to five proposed solar farms. As of 31 December 2021, one of these cases remains open. The Office did not receive any cases about proposed or operating energy storage developments.

New Major Transmission Projects in 2021

Figure 4 provides information on the number of cases about proposed large-scale transmission projects, by state, from the period 26 March 2021 through to 31 December 2021 (noting that the Commissioner's role expanded on 26 March 2021 to include new major transmission projects). This includes cases where the Office has referred the complainant to directly contact respondent for resolution, with the Office monitoring the respondent's handling of those cases.

Figure 4: Proposed Large-scale Transmission Projects
Locations (by number of cases)
Total: 111 cases (three projects)



Case activity since inception (2016-21)

From the Office's inception in November 2015 through to 31 December 2021, the Office has received a total of 736 cases, comprising:

- 111 cases relating to three proposed large-scale transmission projects
- 92 cases relating to 22 operating wind farms
- 405 cases relating to 69 proposed wind farms
- 15 cases relating to 10 proposed solar farms, and
- 113 cases that did not specify a particular project or development.

Of the total of 736 cases received by the Office, since inception, as of 31 December 2021, 665 of those cases have been closed. The remaining 71 cases were at various stages of the complaint handling process.

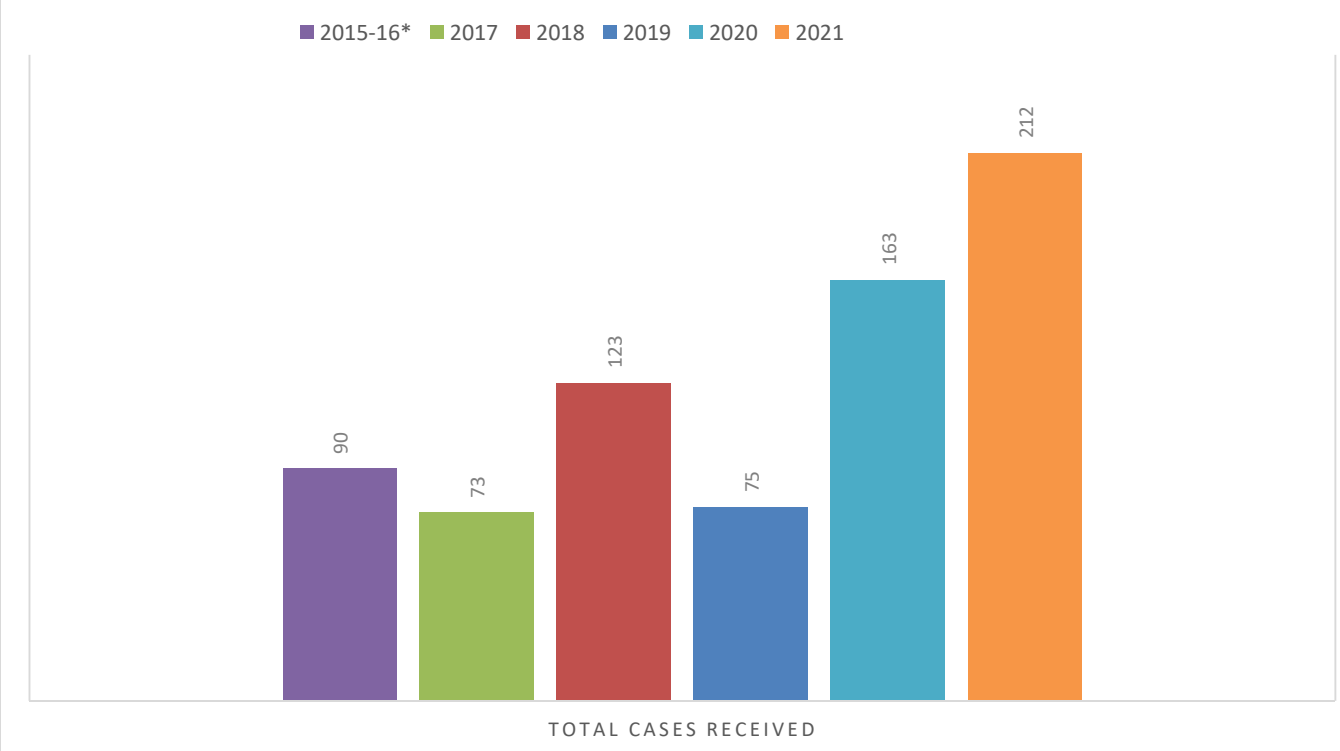
Figure 5 and **Figure 6** below provides comparative data on the number of cases the Office has received for each calendar year since the commencement of the Commissioner's role in November 2015.

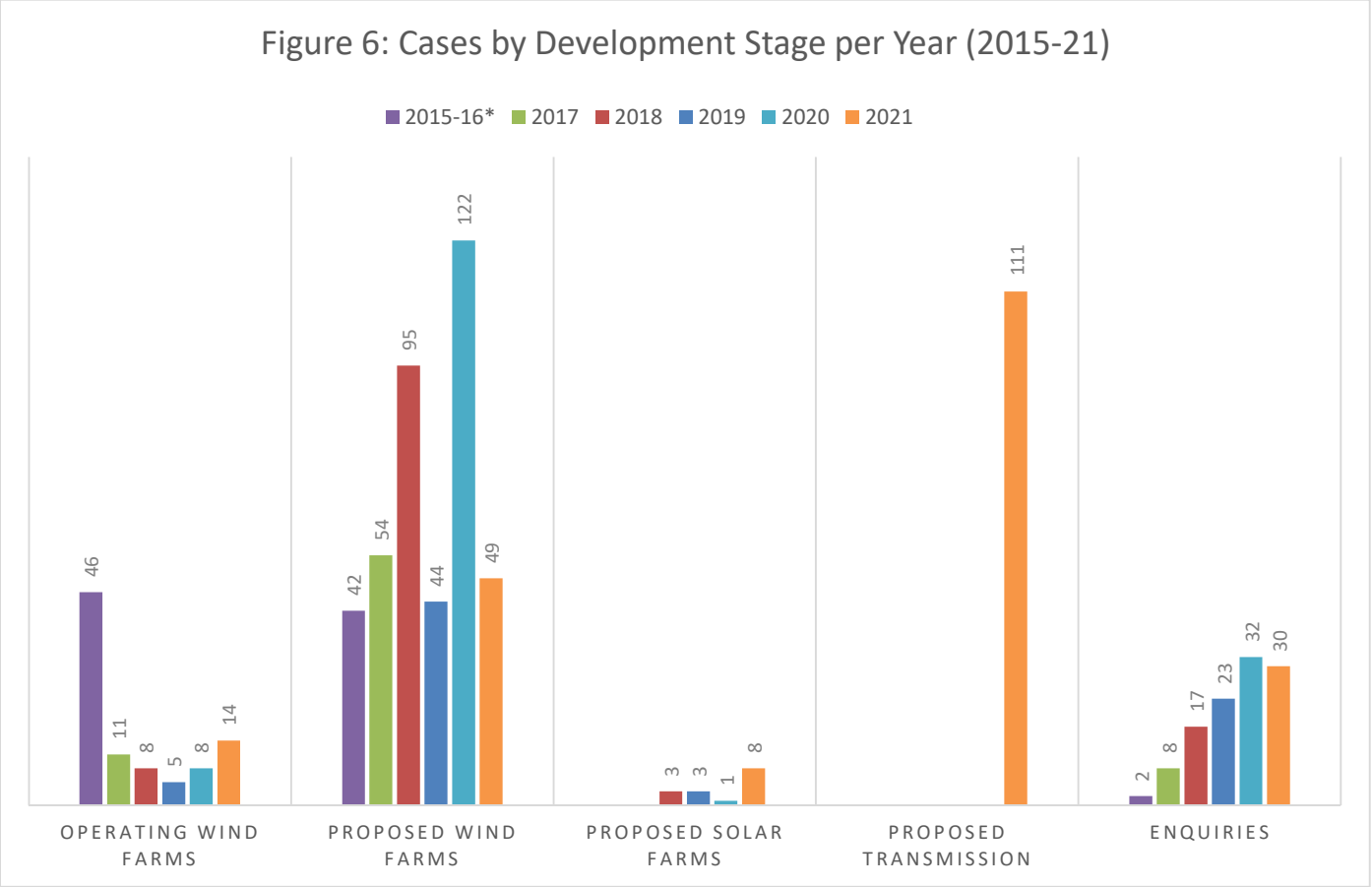
Figure 5 illustrates the level of case activity during 2021, with the highest total number of cases per year since the inception of the Office (which includes 111 cases related to proposed transmission projects).

Figure 6 shows the breakdown of cases received by project type and stage.

Figure 6 also illustrates the ongoing trend of number of cases received about proposed wind farm projects being greater than operating wind farms.

Figure 5: Total Case Numbers per Year (2015-21)





**2015-16 – refers to case volumes from inception of the Office on 1 November 2015 through 31 December 2016*

Operating wind farms – overview 2015-2021

Figure 7 below provides information on the location of all cases relating to operating wind farms by state, from the period of the Office's inception in November 2015 up to 31 December 2021.

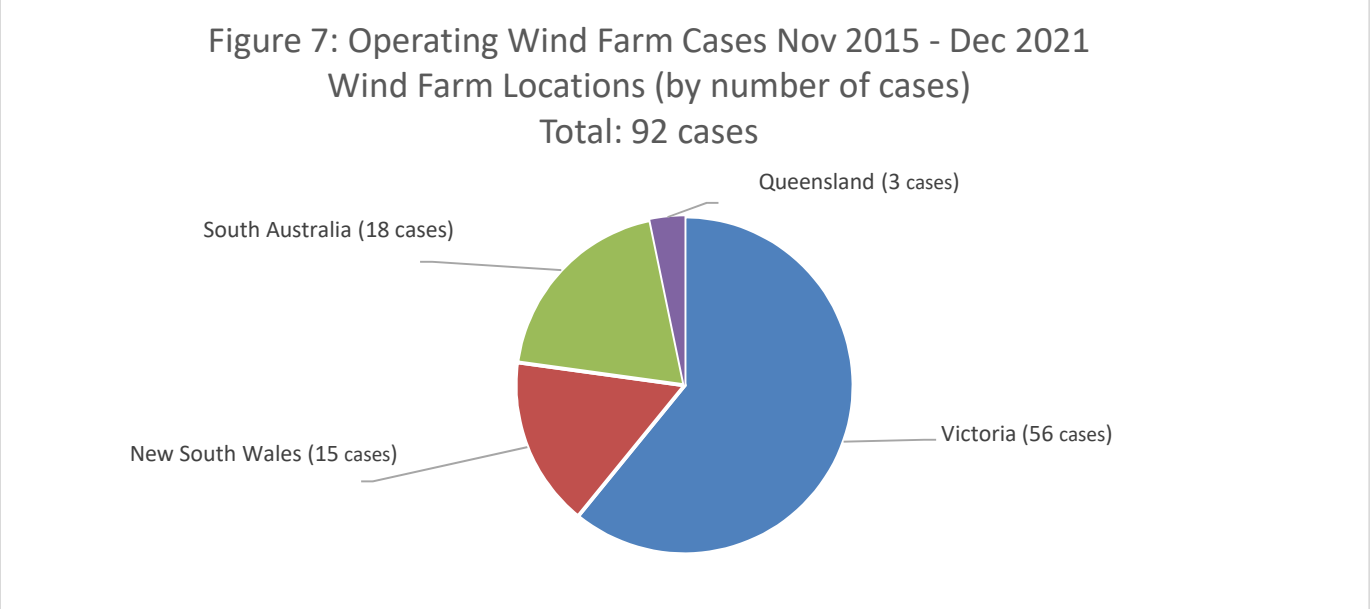
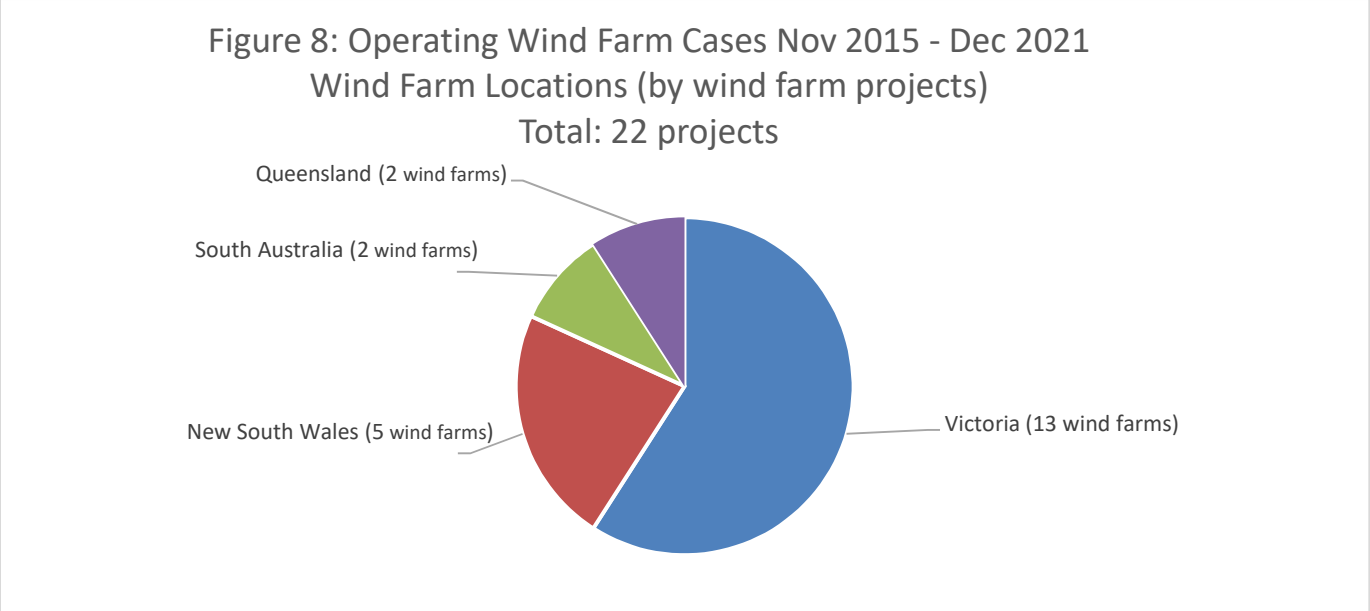
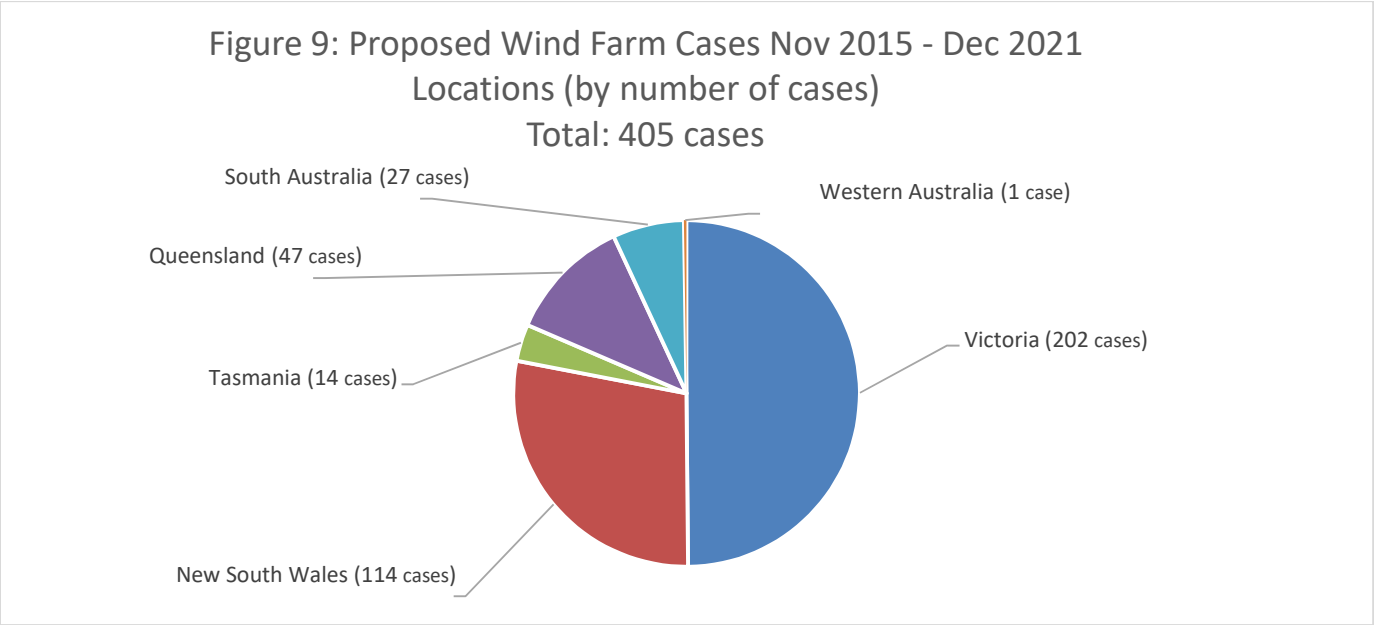


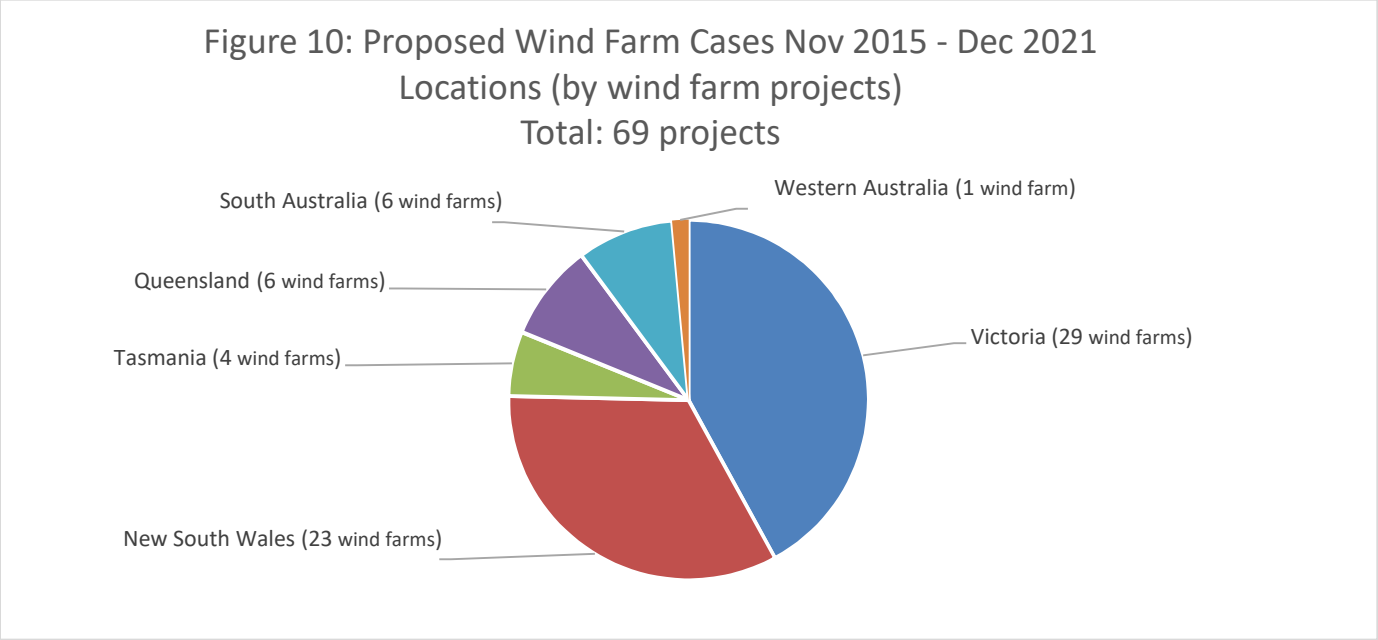
Figure 8 below provides information on the number and location of all operating wind farms, by state, for which the Office received cases from the period of the Office's inception up to 31 December 2021.



Proposed wind farms – overview 2015-2021

Figure 9 provides information on the number of cases about proposed wind farms, by state, for the period of the Office's inception in November 2015 through to 31 December 2021. **Figure 10** also provides information on the location of proposed wind farms, by state, for which the Office has received cases from the period of the Office's inception up to 31 December 2021.





Solar farms and energy storage – overview 2018-21

Since the Commissioner's role was expanded to include solar farms and energy storage in October 2018, the Commissioner has received a total of 15 cases about 10 proposed solar farms. The Office has not received any cases about proposed or operating energy storage developments.

It should be noted that some cases received have been in relation to proposed projects that could be considered hybrid renewable projects which include wind, solar and/or energy storage facilities. In these cases, where the case is specifically in relation to the wind turbine component of the proposal, it has been recorded as a wind farm case.

Resolutions and Closure in 2021

As of 31 December 2021, 665 of the 736 cases received since the inception of the Office had been closed, with 71 cases remaining open at various stages of the Office's complaint handling process. Many of the open complaints as of 31 December 2021 related to proposed transmission project complaints that were received towards the end of 2021.

165 cases were closed during the period of 1 January 2021 to 31 December 2021, including 22 cases that were lodged with the Office prior to 1 January 2021 (noting that a total of 24 cases were open as of 31 December 2020).

The majority of cases were resolved in 2021 by the provision of relevant information addressing concerns raised by the complainant or by referring the case to the appropriate contacts at the respondent for resolution. In relation to new major transmission projects, the Commissioner has worked closely with industry proponents to establish an effective referral procedure, as well as assist proponents to develop and/or improve their complaint handling and related procedures.

In more complex cases, the Commissioner has worked closely with the respective parties towards reaching acceptable resolutions, including making recommendations to the parties for their consideration.

Key observations on complaint handling and issues raised in 2021

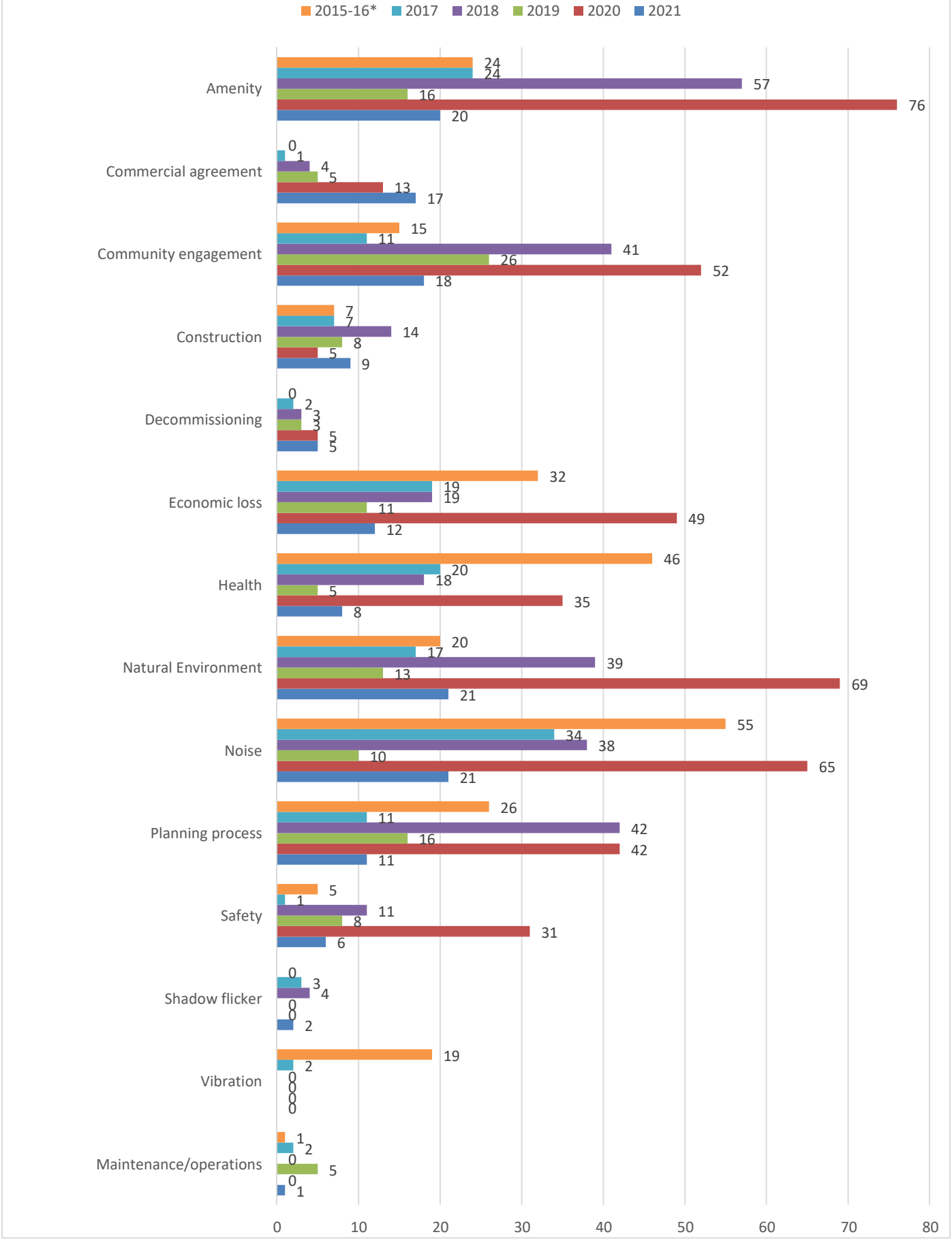
Figure 11 and **Figure 12** on pages 15-16 provides comparative data on the types of complaint issues raised in cases lodged with the Office and the number of times the type of issue has been raised collectively by complainants.

Figure 11 provides data on complaint issues raised in relation to proposed and operating renewable energy projects for each calendar year since the inception of the Office. **Figure 12** provides data on complaint issues related to large-scale transmission projects raised in cases received by the Office in 2021.

Some key observations on the 2021 report complaint case data include:

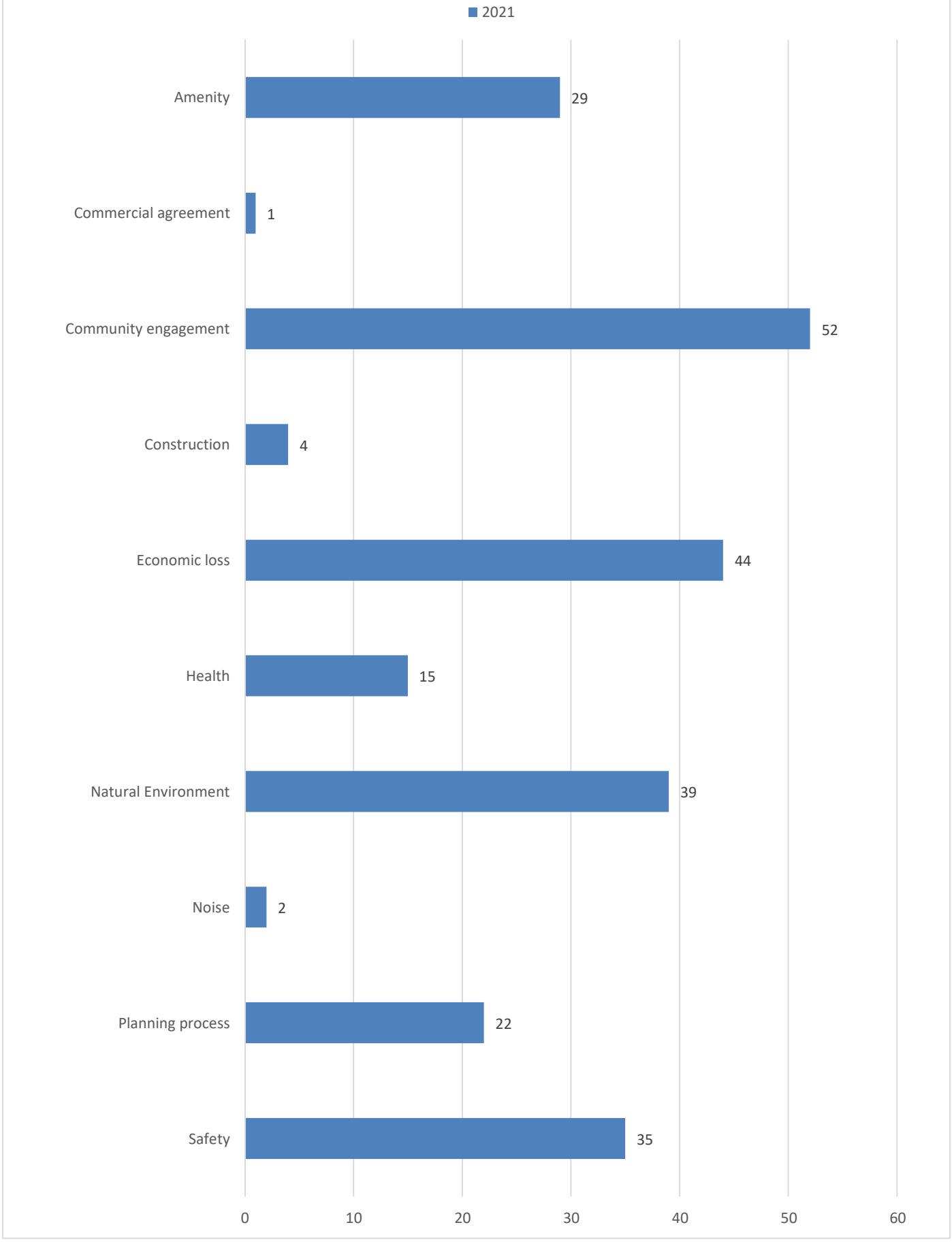
- The majority of cases received in 2021 by the Office related to two large-scale transmission projects that are currently in the development phase.
- Separating out transmission cases received in 2021 (111 cases), the total renewable energy cases received for 2021 would have been 101 cases, compared with 163 cases in 2020 and 75 cases in 2019.
- As outlined in **Figure 1**, the number of cases received about operating wind farms in 2021 remains relatively low.
- **Figure 6** also illustrates the relatively low number of cases about operating wind farms in previous years, which has been a consistent trend since 2017.
- The 49 cases received about proposed wind farms in 2021 is materially less than the 122 cases received about proposed wind farms in 2020.
- As indicated in **Figure 6**, the number of cases received about proposed wind farms in 2021 is broadly consistent with cases received in other previous years. The higher level of proposed wind farm cases received in 2020 can be largely attributed to some proposed projects located in commercial forest plantations.
- **Figure 11** depicts a normalisation in some complaint issues relating to renewable projects after some inflated data recorded in 2020. This is most notable in concerns about amenity impacts, community engagement, health, noise, environment, economic loss, planning processes and safety. Concerns raised about shadow flicker and vibration remain at virtually zero, while concerns in relation to commercial agreements appear to have modestly increased.
- **Figure 12** provides an indication of the key complaint issues raised in relation to new major transmission projects, highlighting community engagement, economic loss, environment, safety and amenity impacts as the predominant issues of concern. Investigation of these issues raised with our Office have led to the development of several new observations and recommendations, specifically addressing improved practices and processes relating to the development of new major transmission projects. These matters are outlined later in this report.
- Proponents continue to seek suggestions from our Office on specific complaints they have received, either directly or via our Office. These collaborative efforts are typically increasing resolutions being achieved by proponents and further improving the complaint handling skills of industry.

Figure 11: Issues Raised in Cases relating to Renewable Energy Projects (note: a case may include more than one issue)



**2015-16 – refers to data collected from inception of the Office on 1 November 2015 through 31 December 2016*

Figure 12: Issues Raised in Cases relating to Transmission Projects
(note: a case may include more than one issue)



STAKEHOLDER ENGAGEMENT

The Commissioner continues to work directly with a wide range of stakeholders to resolve systemic issues, complaints, provide briefings and identify needs that can be met through best practice guidance and more transparent information. Key stakeholders include concerned and supportive community members, industry representatives, federal, state and local governments as well as experts engaged by the industry or other organisations.

The Commissioner also maintains collaborative relationships with stakeholders to encourage the adoption of best practices and facilitating improvements to planning and governance frameworks.

Project and community site visits

Since the inception of the Commissioner's role, the Commissioner has visited a total of 70 project sites around Australia (see Tables 1-3 on the following page).

The site visits provide the opportunity to meet with concerned residents as well as directly experience the operational activities and/or the potential affected area. In several cases, largely due to case handling activities or ongoing systemic matters, some project locations have been visited multiple times.

In 2021, the Commissioner undertook several site visits in Victoria and New South Wales to inspect various corridor locations for proposed transmission line projects, meeting with a range of potentially affected residents to understand their concerns and perspectives. In between the various lockdown restrictions, the Commissioner was also able to visit a number of other renewable energy project sites during 2021.

Issues raised during these meetings and site visits have helped assist discussions with industry and government in considering the development of future policy and guidelines as well as assisting community groups to better prioritise and articulate their concerns. These site visits also ensure that we are better informed in developing and updating the Commissioner's observations and recommendations.

Communities and residents

Despite the ongoing constraints of lockdowns and travel restrictions related to COVID-19 throughout 2021, the Commissioner continued to participate in many relevant meetings and events via videoconference. These included meetings/events with community groups, representative groups, local government and other community related groups and committees.

The Commissioner presented to several workshops during the year, including forums to provide information about commercial agreements for potential host landowners. Presentations on this important topic were made at the National Renewables in Agriculture Conference in Dubbo, NSW as well as various seminars hosted by National Farmers Federation and New South Wales Farmers Association.

Industry

Throughout 2021, the Commissioner has continued a strong focus on proactively engaging with the energy industry on a wide range of matters. As with previous years, key focus areas for stakeholder engagement included approaches to best practice community engagement, case handling and transparency of information.

The Commissioner's meetings and presentations have been essential to proactively addressing potential community concerns in relation to projects and/or emerging issues as well as identify areas where further improvements could be made by the industry. Given the expanded role, a particular emphasis during 2021 has been to proactively engage with transmission industry related stakeholders to gain an understanding of current challenges, standards, policies and procedures, and to help assist identify areas for further improvement.

Table 1: List of 61 wind farm sites visited since 2015:

State	Wind farm		
Victoria (23 sites)	Alberton	Hexham	Oaklands Hill
	Ararat	Lal Lal	Salt Creek
	Bald Hills	Macarthur	Stockyard Hill
	Cape Bridgewater	Moorabool	Toora
	Delburn	Mortlake South	Waubra
	Golden Plains	Mt Gellibrand	Wonthaggi
	Hawkesdale	Mt Mercer	Willatook
	Hepburn	Naroghid	
New South Wales (16 sites)	Bango	Cullerin Range	NSW Energy Cluster
	Collector	Glen Innes	Sapphire
	Coppabella	Gullen Range	White Rock
	Crookwell I	Gunning	Walcha
	Crookwell II	Hills of Gold	
	Crudine Ridge	Jupiter	
South Australia (8 sites)	Crystal Brook	Palmer	Snowtown
	Hallet	Port Augusta	Waterloo
	Keyneton	Twin Creek	
Queensland (5 sites)	Coopers Gap	Kaban Green Power Hub	Mt Emerald
	High Road		Windy Hill
Western Australia (3 sites)	Albany	Denmark	Mount Barker
Tasmania (6 sites)	Musselroe	Jims Plains	St Patricks Plains
	Robbins Island	Cattle Hill	Western Plains

Table 2: List of other renewable sites visited since 2018:

State	Solar farm
New South Wales (5 sites)	Jemalong CSP Pilot Plant
	Parkes Solar Farm
	New England Solar Farm
	Walcha Solar Farm
	Bomen Solar Farm
South Australia	Hornsdale Power Reserve

Table 3: List of new major transmission projects visited in 2021:

New South Wales (multiple sites)	HumeLink (various proposed locations and community groups along the corridor)
Victoria (multiple sites)	Western Victoria Transmission Network Project (various proposed locations and community groups along the corridor)

Examples of stakeholder related activities that the Commissioner undertook in 2021 include:

- ongoing presentations and meetings with representatives of the Clean Energy Council's Wind Directorate and Utility Scale PV Directorate to discuss industry updates and best practice approaches
- guest speaker at launches of Energy Charter launch of *Better Together Better Practice Landholder and Community Engagement Guide and* Re-alliance launch of *Building Trust for Transmission: Earning the social licence needed to plug in Australia's Renewable Energy Zones*
- other seminars and workshops with industry proponents to discuss potential solutions to major issues and challenges that the industry is facing, such as decommissioning of projects, appropriate site location, grid connection and transmission constraints
- ongoing consultations with transmission proponents to improve landholder communications, land access protocols, complaint handling processes as well as provide guidance on various other social licence matters
- regular meetings with stakeholders in relation to evolving new government regulatory and policy initiatives such as renewable energy zones and planning amendments, and
- briefings with various project developers to understand the proposed project and proactively identify areas of potential community concerns as well as possible mitigations to concerns

The Commissioner is also a member of several committees and industry reference groups. Further information on this is summarised below.

Government

The Commissioner continues to engage regularly with federal, state and local governments and parliamentarians to provide briefings as well as promote the adoption of best practices and reforms arising from the Commissioner's observations and recommendations.

In particular, the Commissioner has held ongoing engagement activities over the year with a range of energy planning and regulatory agencies and market operators, including the Australian Energy Regulator, Australian Energy Market Commission, Australian Energy Market Operator and state energy planners such as VicGrid and Energy Company of NSW.

The Commissioner continues to be consulted by government agencies on new initiatives. Examples include Renewable Energy Zones and the Federal Government's offshore electricity infrastructure framework.

Submissions and consultations

The Office made submissions and was invited to discuss our views on a range of statements, reviews, guidelines and other draft policy documents. These include:

- Australian Energy Market Commission *Planning and Investment Review for Large-scale Transmission Infrastructure*
- Civil Aviation Safety Authority's Draft AC 139.E-05 *Obstacles (Wind Farms) outside the vicinity of a CASA certified Aerodrome*
- Tasmanian Government draft *Renewable Energy Coordination Framework*
- Victorian Government updated *Community Engagement and Benefit Sharing in Renewable Energy Development in Victoria*

- Victorian Government regulatory framework for regulating wind farm noise
- AEMO *Draft 2022 Integrated System Plan*
- NSW Government *Draft Large-Scale Solar Energy Guideline*.
- Clean Energy Council Australian G*uide to agrisolar for large-scale solar*
- Energy Charter *Better Together Better Practice Landholder and Community Engagement Guide*, and
- Re-Alliance report *Building Social Licence for Transmission* and Re-Alliance report *Building Social Licence in NSW Renewable Energy Zones*.

Presentations

Throughout 2021, the Commissioner formally presented to a variety of stakeholder groups and forums. These presentations typically focus on community engagement, social licence and best practices as well as sharing experiences and observations within the renewable energy and transmission industries. These presentations also provide opportunities for the Commissioner to share and promote advocacies and reforms across the sector.

Events and meetings that the Commissioner presented or chaired in 2021 include:

- Clean Energy Council Wind Industry Forum session 'Community and social licence in renewable energy zones'
- National Renewables in Agriculture Conference (Dubbo), providing information on commercial agreements for potential host landowners
- Australian Renewable Energy Zones Conference (Sydney), presentation on 'large-scale transmission deployment - a new frontier for community engagement'
- Tasmanian Energy Development Conference 'Community and Stakeholder Engagement'
- National Renewables in Agriculture Conferences focused on development of NSW REZs, providing information on commercial agreements for potential host landholders (two sessions)
- New South Wales Farmers Association seminar in relation to renewable projects in New South Wales
- Victorian Government Launch of *Community Engagement and Benefit Sharing (CEBS) Guide*
- Star of the South Community Advisory Committee presentation in Gippsland, Victoria
- Re-alliance launch of *Building Trust for Transmission: Earning the social licence needed to plug in Australia's Renewable Energy Zones*
- Energy Charter launch *of Better Together Better Practice Landholder and Community Engagement Guide*, and
- Infigen Energy's 'Lunch and Learn' session.

Committees and reference groups

The Commissioner has participated in various industry and government committees to share best practice approaches and policies as well as address specific issues. The Commissioner is currently an active member of the following groups and committees:

- New South Wales Currandooley Coronial Inquiry Working Group
- Victorian Government Wind Farm Noise Council Reference Group
- Western Victoria Transmission Network Project Reference Group
- Standards Australia EL-048 Technical Committee Wind Energy Generation Systems and.
- NSW Government Renewable Energy Zone Reference Groups.

In addition to formal committee meetings and groups, the Commissioner meets regularly with the executive leadership teams for major transmission projects, including the Western Victoria Transmission Network Project, HumeLink, Marinus Link and others.

Universities and Experts

The Commissioner has continued to liaise with subject matter experts and university researchers to keep abreast of new approaches and findings.

In 2021, the Commissioner undertook the following activities:

- meetings with academics from Flinders University to discuss updates in relation to the progress of research being undertaken regarding audible noise from wind farms and effects on sleep
- presentations to the Independent Scientific Committee on Wind Turbines
- Presentation to the Australian Acoustical Society (Victoria)
- ongoing meetings with expert consultants in relation to a range of relevant disciplines required for the design, development, construction, operations and maintenance of projects.

Commissioner's Website

The Commissioner maintains a website which provides information about the Office, including our policies, how to make a complaint and various publications issued by our Office.

The website also provides information about wind farms, solar farms and energy storage projects. This includes links to resources about these types of projects as well as information on energy generation, health studies, emergency management, planning authorities and guidelines, compliance authority contact details and community engagement best practices. We continue to update the website and will be including further information specific to large-scale transmission projects.

Following the Minister's announcement on the expansion of the Commissioner's role in March 2021, our website was updated to reflect the new role title and updated Terms of Reference. The Office has now also updated all the relevant forms, policies and other documents to reflect the Commissioner's new role.

The Commissioner's website is available at www.aeic.gov.au.

LARGE-SCALE TRANSMISSION

In March 2021, the Minister announced the expansion of our role to include new major transmission projects, which includes large-scale projects such as HumeLink (NSW), Project EnergyConnect (SA-NSW), Marinus Link (Tas-Vic) and the Western Victoria Transmission Network Project (Vic). Since this announcement, the Office has received and handled a large number of new cases and has worked closely with industry and government on a range of activities.

Key activities

Some key activities undertaken in 2021 include the following:

- Site visits in Victoria and New South Wales to inspect various proposed transmission corridors as well as meet with a range of affected residents to understand their concerns and perspectives.
- Regular meetings with Ministers, government agencies, energy planning authorities and industry proponents to provide advice on community engagement and project governance.
- Providing suggestions and feedback to proponents on draft correspondence to landholders and affected community members.
- Assisted proponents review and refine their complaint handling processes
- Assisted both proponents and regulators to review and improve guidance and protocols relating to land access and easement acquisition.
- Mediated a number of land access disputes to help facilitate access to properties for the purpose of carrying out surveys and investigations.
- Prepared recommendations in relation to bushfire mitigation practices in constructing transmission lines as a member of the New South Wales Currandooley Coronial Inquiry Working Group.
- Provided information and clarity to landholders on a range of matters including planning processes, public exhibition and consultation periods and governance arrangements.
- Reviewed land access agreements, landholder communications, guidelines for living and working with transmission easements and other relevant fact sheets.
- Advocated for new, national guidelines relating to topics such as farming practices in transmission easements, including use of equipment on land subject to easements.
- Worked with various relevant stakeholders to understand and propose contemporary approaches to landholder compensation.
- Advocated for clearer planning guidelines for transmission, such as minimum setback distances for transmission lines from houses, public areas, schools, property boundaries, and roads.

We have been able to help initiate and implement several priority reforms and improvements to the conduct and engagement of large-scale transmission proponents, as well as the broader eco-system involved in transmission governance and planning – in a relatively short period of time. We look forward to providing further updates in relation to these important matters.

Initial observations

The energy transition, as proposed in AEMO's draft 2022 Integrated System Plan, together with various other state policies, requires a number of significant new transmission projects need to be designed, developed, built, operated and maintained. Our Office has made several initial observations in relation to potential systemic issues and challenges regarding the design, development and deployment of large-scale transmission lines.

Some of these observations include:

- It has been several decades since new, long-distance, large-scale transmission projects have been planned and deployed. Industry (and regulators) will likely have a steep learning curve as well as challenges in regaining and retaining the appropriate skills and expertise, including skills related to community and landholder engagement.
- There will be a need for clearly visible leadership and ownership of these major projects to enable achieving agreed project outcomes, delivering on the business case and ensuring ongoing clarity about the problem(s) to be solved by the project.
- In addition, there will need to be an appropriate, effective executive level governance of projects, including representation from major stakeholders, with material project decisions elevated to the executive.
- There should be careful consideration of design and route implications resulting from technology choices to deliver the project. Emerging and maturing technologies, such as underground cable options and large-scale storage solutions, may have a material impact and benefit in reducing the impact of the overall project on landholders and community.
- There is a need for updated contemporary planning processes and guidelines to assist with the design and assessment of projects. Guidelines need to consider a range of parameters – as an example, minimum setback distances for above ground transmission lines and towers from residences, property boundaries, public facilities, state and national parks, airfields and runways, and public roads.
- Landholder cooperation is a vital element in enabling a smooth process through the various development stages of the project. It is important that sufficient time and funding is dedicated by industry proponents to developing effective working relationships with landholders in the initial stages of project investigation.
- The effectiveness of community and landholder engagement programs and their ability to adapt to the diversity of community and landholder circumstances along the length of the proposed transmission line is essential. Affected persons can include suburban home residents, lifestyle property residents, hobby farmers, specialised breeders and primary producers through to broad-acre farming. Such diversity of impacted persons can also lead to a diverse array of community opposition groups to the project that have differing issues and objections to navigate.
- There may be unintended consequences, resulting in widespread project opposition from numerous landholders and communities, due to the current 'multi-corridor approach' to route selection and community consultation being used to select a final proposed transmission line route. An alternative approach may be to internally determine the preferred route corridor and then fully engage the community and landholders, taking on board feedback and insights to fine tune the actual final route.
- Current compensation arrangements for landholders hosting transmission and related infrastructure may be perceived be inequitable when compared with landholder arrangements for hosting wind

farms and solar farms, which could affect the success rate of negotiated agreements for hosting transmission lines and harm the ability to engender good will.

- The need for clear and consistent protocols for working with landholders, such as land access protocols that must be followed by proponents when accessing landowner properties for surveys/investigations, the process to negotiate and obtain easements from landholders, through to publishing consistent guidelines that clarify what activities a landholder can and cannot do near or within a transmission line easement.
- Other key issues of concern that have been raised community members and landholders include:
    - effectiveness, or otherwise, of current community/landholder engagement programs, including skills and abilities of landholder liaison personnel
    - perceived potential for increased bushfire risk and decreased firefighting capability due to the presence of above ground transmission assets
    - impacts of the transmission lines to visual amenity and the natural environment
    - the potential for new grid and substations to attract prospectors for new solar and wind farm deployments, which may lead to further concentrations of renewable assets
    - potential loss of property value, and
    - reduction of productive agricultural land and impact on farm and industry economics.

REFORMS AND ADVOCACY

Throughout 2021, the Office continued to pursue undertake a number of reform initiatives and other advocacies. Some of these reforms and advocacy activities are outlined below:

- To help landholders become more aware of matters they should consider before entering into long term hosting agreements with proponents, in 2021 we published the guidance document *Considerations for Landowners before Entering into Commercial Agreements*, available on the Commissioner's website.
- Media coverage to highlight the need for landholders to properly review 'host' commercial agreements and obtain good advice, including in-depth features in Stock and Land (*What to do if the solar or powerline company comes knocking*, 21 July 2021) and The Farmer (*Equitable Treatment on the Renewables Landscape*, 9 August 2021).
- Information awareness sessions for landholders, including 'Renewables in Agriculture' conferences and NSW Farmers Association panel sessions, to promote awareness of the need to review agreements and our guideline.
- Workshops to explore potential solutions relating to decommissioning of wind farms, including decommissioning costs, responsibilities, risks and logistics.
- Preparation of a discussion paper outlining processes for acquisition of transmission easements, including negotiation of voluntary agreements, land access protocols and options for compensation for consideration by industry proponents and transmission network service providers.
- Assisting the Victorian Government develop and implement an appropriate protocol for compulsory access to land, as required by the *Electricity Industry Act Victoria 2000.*
- Continuation of a Wind Industry Leaders Forum on safety matters hosted by the Clean Energy Council to improve industry transparency in relation to accidents, hazards and other incidents.
- Following on from our success in promoting reforms to the wind farm noise assessment and testing process, continuing to advocate for improved oversight of third-party consultant reports, including assessments relating to matters such as aviation safety, bushfire risk, environmental impacts and traffic management.
- Assisting in oversighting major reforms to the Victorian regulation of wind farm noise as a member of the Victorian Government reference group – advising on reforms to wind farm noise regulation within Victoria.
- Ongoing consultation as a referral agency for the Clean Energy Regulator's accreditation process for large-scale renewable energy projects.
- Meetings with various state and federal departments and agencies to discuss long-term transmission grid planning and management of cumulative impacts and other community issues across jurisdictions.
- Ongoing meetings with the Clean Energy Finance Corporation in relation to renewable project investments, including update briefings on projects and pipelines.
- Working closely with industry and government to review and provide advice for best practice internal complaint handling procedures.
- Encouraging increased transparency across the industry by:
    - advocating for improved transparency of information on planning processes and opportunities for public engagement

- regularly updating our observations and recommendations and making these public via our annual reports
- regularly engaging with media outlets, particularly in rural and regional areas, to provide views and insights on matters of local interest.

APPENDIX A: UPDATED OBSERVATIONS AND RECOMMENDATIONS - 2021

In previous Annual Reports, the Commissioner made numerous observations and recommendations regarding the large-scale renewable energy industry. These were derived largely based on direct experiences from handling complaints received, site visits, engagement with a wide range of relevant stakeholders and identifying systemic issues. These observations and recommendations covered many topics, including areas for potential improvement in project development, planning processes, governance of and operation of the industry.

Our Office continues to receive feedback from stakeholders on these observations and recommendations. Much of the feedback has been very supportive and aligned with the recommendations. Constructive feedback was also received suggesting further refinements and clarifications. Further, many of the recommendations have been duly considered by the relevant stakeholders and numerous recommendations have been implemented as a result.

The following sections are updates to our 2020 report's observations and recommendations, including additional observations since that report was published. These updates are based on our experiences from handling new complaints, further site visits and stakeholder meetings, as well as incorporating feedback received on our 2020 report. Further, as our role was expanded in 2021 to include new, large-scale high voltage transmission projects for the first time, we have provided specific observations and recommendations on this segment of our role.

For consistency, the following sections have utilised the same topic areas and numbering system employed in the 2020 report for ease of reference.

The recommendations detailed below are intended for consideration by the relevant stakeholders. The Commissioner has no formal powers to mandate the implementation of these recommendations. However, the Commissioner looks forward to the ongoing acceptance and adoption of the recommendations in the spirit of continuous improvement within the large-scale transmission and renewable energy industries.

Finally, as noted in previous annual reports, the large-scale renewable energy industry is still relatively new in Australia, with the first major wind farm developments commencing in the early 2000's and large-scale solar projects commencing in the last decade. However, these industries have developed rapidly, with a significant acceleration in new projects in the past few years.

Equally, the planning, development and deployment of large-scale transmission projects, while not new, have not been undertaken in Australia for around 40 years. The institutional memory on how to roll out such infrastructure has largely dissipated over time, and essentially, we are dealing with a rebuild of that industry and expertise.

Therefore, opportunities will continue to exist for further improvement in the governance and operation of these industries, from landholder relations through to work-place safety. Nevertheless, substantial progress has been made against these recommendations in recent times.

The updated observations and recommendations are also available on the Commissioner's website.

1. Host Landholder Matters

1.1. Observations

1.1.1 Wind and solar projects and related assets

Background

The following sections largely relate to landholder matters regarding wind and solar projects and their related assets (such as connecting transmission lines, substations etc.), however may also have applicability to large-scale transmission and storage projects.

Wind turbines and solar arrays are typically located on cleared primary production land owned by a landowner, often referred to as the 'host' landowner. The land's existing use is typically broad-acre agricultural production (for example, livestock or cropping). In general, a relatively small portion of the productive land is utilised for a wind farm's operation, such as turbine siting, access roads and other related assets such as transmission line easements, electrical substations, transformers and meteorological masts. The landowner usually continues to operate the agricultural production activities on the remaining land. By contrast, a solar array consumes most of the land that it resides on, with limited opportunities for co-located farming activities.

There is typically significant disruption during the construction phase of these renewable energy assets and ongoing access to the assets will be required by the operator for normal operations and maintenance.

Payments to Host Landholders

Host landholders for wind farms are typically paid a fixed amount per turbine per year under a long-term agreement (essentially a commercial lease arrangement) that mirrors the life of the wind farm – a term of 25 years with renewal options is common. The fee paid to the landowner may be a flat annual fee per turbine, regardless of size or capacity, or a fee based on the generating capacity of the turbine. The latter arrangement reflects the reality that modern on-shore turbines have much greater capacity (now in the order of 5 MW - 7 MW) compared with turbines available say five to seven years ago. These changes can result in less turbines being hosted by the landowner than originally envisaged with the smaller capacity turbines. By contrast, host landowners for solar farms are generally compensated on a fixed annual amount per hectare leased to proponent over a similar long-term leasing arrangement.

Fee pricing can become dated, especially if a landholder has entered into a fixed annual fee agreement. An issue that has emerged in more recent times relates to wind farm agreements that may have been entered into a number of years ago with a fixed annual fee per turbine, where the turbine capacity may have been in the order of 1.5 MW to 2 MW per turbine. However, given the rapid advancement in wind turbine technology, proponents have updated their designs to take advantage of the new, larger scale and more efficient turbines – changing their wind turbine layout to deploy the contemporary technology and requiring fewer turbines to achieve the same energy output.

Similar issues are emerging in the solar industry, where output capacity per hectare is increasing significantly with technology improvements, causing some landholders to seek an increase in the 'rent' per hectare being charged.

Many existing agreements did not contemplate the significant change in turbine capacity that has now occurred. As a result, the agreement fee per turbine payable to the landholder (based on the smaller capacity turbine) may not reflect the fee that may be more appropriate for say the much larger 5 MW to 7 MW capacity turbine. Further, the landholder's payment may be well less than expected due to the reduction in the number of turbines now required. Landholders should check their existing agreements in this regard and also ensure any new agreements have provision to adjust the fees in the event of a turbine (or solar panel/area) capacity increase and/or a reduction in number of turbines, as well as the ability to escalate fees annually with a either a fixed increase or based on the consumer price index.

There can also be a variety of arrangements regarding when the payment of fees to the landholder actually commence and cease. While this is a matter for negotiation between the developer and the landholder, it would appear that a fair and reasonable approach would be for payments to commence no later than the start of project construction and cease no earlier that the completion of decommissioning and restoration at the landholder's property. Fees may also be payable during the development phase in consideration for the option (often exclusive) to use the land that is granted to the proponent by the landholder.

Other fee arrangements/agreements may also be required for hosting electrical substations, batteries, transmission line easements, access to easements, road access, transportation of blades and towers across property boundaries, location of project offices and the like. Landholders hosting these ancillary assets may or may not be wind turbine or solar array hosts but are still integral to the project.

Emerging issues include 'blade trespass', where a turbine blade may need to traverse a landholder's property boundary when being transported around a bend in the road, powerline easements, where the landholder has agreed for a powerline to traverse their property for a one-time fee, and 'sway easements', where a project's connecting powerline may sway over a landholder's property boundary. The recent increase in blade lengths has increased the possibility of 'trespass' occurring. Developers and their contractors need to be cognisant of these types of issues and ensure they have appropriate agreements in place with landholders prior to submitting permit application plans such as the transport management plan or transmission route plan.

Development Process

Potential host landholders are typically approached by a developer very early in the development phase of a potential project to obtain the landholder's agreement to host turbines or solar arrays in the event the project is approved and proceeds. Landholders will typically enter into an initial agreement (often referred to as a 'License Agreement' or 'Access Agreement') that documents their willingness to host the assets and enter into the commercial arrangements that may be agreed to if the development proceeds to the permit application stage. Generally, these initial licence agreements provide the developer with exclusive rights over the landholder's property for a defined or undefined period of time. In most cases, the license agreement will need to be replaced with a lease agreement before any form of construction occurs, but the landholder may be bound to accept the lease agreement as presented.

It is essential that landowners obtain sound legal and financial advice before signing any agreement with the proponent. Agreements may contain terms and conditions that may not be acceptable to the landowner and the landowner should be provided with the opportunity to negotiate or strike out such clauses. During 2021, our Office released a guideline for landholders entitled ***'Considerations for Landholders before entering into Commercial Agreements'***, which is available on the Commissioner's website. The guideline has been well publicised and widely read – and is recommended reading for landholders potentially entering into host or related agreements.

There is a wide spectrum of developers active in the industry, with a variety of skills, resources, experience and business models. Many developers will progress the project to a stage where it is eligible to secure (or has secured) a planning permit, and then sell part or all of the project to another entity that will take the project forward through the construction and operation stages. Currently, developers are not licensed to prospect wind or solar farm projects, nor do they require approval to prospect in a location for a potential project site.

At the initial stage of the development process, it is not uncommon for a developer to propose more turbines or solar arrays than will be finally approved or installed. As a result, the developer often enters into preliminary agreements with landholders, some of which may ultimately 'miss out' on hosting assets or be offered to host a reduced number of assets. Even when the final number of wind turbines or solar arrays is confirmed, the planned location of these assets may be further revised, which can also result in landholders hosting less assets, potentially earning less fees than original expectations.

There are many reasons why a proposed project may reduce the number of turbines or solar arrays during the development phase. These may include increases in turbine or solar panel generation capacity and efficiency, transmission constraints, noise compliance setbacks, aviation safety, environmental and other planning requirements, financial constraints, community or neighbour concerns along with changes to policy, legislation or planning guidelines.

These various scenarios, observed in the Australian industry to date, can create a 'winners and losers' situation for landholders that may have had expectations of hosting assets. For instance, a landholder expecting to host say ten wind turbines (therefore expecting to receive payments for hosting ten turbines) may become aggrieved if the final approved wind farm has significantly reduced or eliminated the number of turbines to be hosted by the landholder, thereby materially reducing or eliminating the potential income stream to that landholder.

The landholder may not only perceive that they have 'missed out' on a significant expected income stream but may also raise concerns about the potential impacts of turbines located on neighbouring properties, including changes in amenity, audible noise, construction disruption, loss of property value and other effects of the wind or solar farm. The fact that the landholder's neighbours are hosting turbines or arrays and receiving payments can further aggravate the situation for the landholder that 'missed out'.

This situation can also be exacerbated by developers conducting confidential, individual discussions and negotiations with specific landowners, creating a level of distrust amongst neighbouring landholders and the developer from the outset.

The consequences of these scenarios can be severe, both in terms of fracturing support for the project within the community as well as dividing the community in economic and social terms. Developers need to be mindful of the consequences which may arise from their conduct in landholder negotiations and the magnitude of impact on landholders with regard to changes to proposed solar array areas or the number of turbines and turbine layouts.

There is also a high risk that project prospectors, who may not have fully considered the implications of these scenarios, inadvertently conduct themselves in a manner that can result in long-term resentment to large-scale renewable developments within local and wider communities where the project is proposed. While these actions may lead to difficulties in relation to the success of the specific project, they also have the potential impact of creating difficulties for other project developers who may be undertaking development of neighbouring projects in the region. At times, insensitive conduct by developers have brought and still have the potential to bring the large-scale renewable industry into disrepute or lead to protracted litigation in an attempt to slow or stop projects.

The Commissioner has observed successful methods by developers of working with landholders who have ultimately missed out on hosting some or all of the expected assets on their property. Such methods recognise the landholder's long-term engagement and commitment during the project's development. Observed solutions include making a level of payment to the landholder that may be based on a range of parameters such as the number and type of assets that the landowner had been originally expecting to host.

Host Agreements

A host landholder agreement with a proponent is essentially a commercial property lease. Considerable time and money can be spent by developers in creating draft landholder agreements, which in turn should be reviewed by the landholder and their solicitor carefully before negotiating and subsequently executing. Both industry and landholders may benefit from a standard agreement document being produced and available for use that is fair and reasonable, complete and consistent with the relevant laws – similar in concept, as an example, to the Law Institute of Victoria's *Lease of Real Estate (Commercial)*.

Some landholder host agreements observed could be clearer in a number of aspects. Agreements should provide clarity on a wide range of day-to-day matters, including which party is responsible for paying rates, land taxes, emergency services levies and the like. The landholder host agreement also needs to be clear on termination provisions and the responsibilities regarding decommissioning of the project's (i.e. tenant's) assets.

Landholder agreements are not limited to hosting wind turbines or solar arrays – they may also be required to allow easements for high voltage transmission corridors, private powerline routes to connect the power station, substations, construction facilities, meteorological masts as well as construction and operational access roads for the project. Careful consideration of the approach and fairness to landholders in negotiating these additional agreements should also be required of the developer. As discussed earlier, landholders should also ensure they seek suitably qualified legal and financial advice before entering into any agreement.

There may also be innovative opportunities for landholders and other community members to have an ownership stake in the project, which could be in the form of a community-owned project through to equity or debt participation in the project's commercial ownership structure. It is understood that there are some examples of these approaches in Australia as well as in other overseas jurisdictions such as Europe.

Construction

The project's construction period can be a time of significant disruption for the landholder, with potential long-term effects. Typical issues can range from management of gates – gates being left open during construction activities can quickly lead to unplanned migration of livestock, often with challenging consequences – through to the impact of new roads and trenches being built throughout the landholder's property.

Firstly, construction itself can be a messy activity, particularly for wind farms. There is significant amount of civil works, components waiting to be assembled, large trucks and equipment moving around and a large number of construction staff requiring temporary office and kitchen/bathroom facilities. Construction typically consumes a material portion of the land area – a much greater area than when the project is completed. It is advisable to plan for the removal of any livestock or ceasing farming activities in the affected paddocks during the construction phase. Landholders should also be aware that additional areas of farming land may be required in the event that major components of a wind turbine need to be replaced during the operating and maintenance phases of the project.

Landholders should take the opportunity to visit an actual wind or solar farm site under construction and experience first-hand the extent of the works and impacts on the land.

A common frustration for landholders can be changes to the location and routing of internal roads and underground cabling. Project contractors and sub-contractors may inadvertently select a different route to the one that had been agreed to with the landowner, causing an unexpected loss of pasture or cropping capacity as well as difficulties in moving livestock across the paddock.

Internal road construction in hilly and ridge terrain may lead to large roadway cuttings and embankments that can make it difficult or impossible to move livestock around the remaining paddock areas. Project roads should also be designed to minimise the need for 'cut and fill' and vegetation removal, using the natural landscape wherever possible.

Best practice gate management is to design the road access and fencing in such a way to minimise degradation to farming land and minimise or eliminate the need for livestock gates.

A construction project typically has multiple contractors and sub-contractors. It is not always clear who the landholder should contact to resolve issues, as they inevitably arise, during construction. Developers should ensure there are clearly defined points of contact for landholders to raise and resolve issues during construction, as well as the ability to escalate concerns that remain unresolved. Regular meetings between the developer and the landholder before and during construction can also provide a forum to discuss and resolve the inevitable changes and issues that may arise along the way.

Developers should also be proactive and transparent with landholders regarding the status of the project during the development and permitting phase and consult with landholders on any planning amendment submissions that may affect the landholder and/or local community.

Outgoings

The addition of a wind or solar farm (and/or related assets) to a rural property is likely to incur increases in outgoings such as council rates, land taxes, insurances and other levies. For instance, a landholder may not be aware that primary production use land may be re-assessed as industrial use land once assets are installed. These asset installations may result in increased property valuation rates, increased levies, increased duties and be subject to land tax. As discussed earlier, landholder agreements should be precise and clear on which party is responsible for the cost and payment of outgoings and any increase in the outgoings due to the project. Ultimately, the landholder, as the landlord, is usually liable for the payment of outgoings in the event the project operator defaults or in the absence of any agreement about outgoings between the parties.

Approaches to calculate and levy items such as council rates, land taxes and other levies appears to be ad-hoc across various state jurisdictions. The lack of a consistent approach may result in a number of consequences, from revenue leakage through to surprises to developers in unforeseen levy charges. Some actions to clarify these matters are being taken, such as the NSW Valuer-General policy *Valuation of Land Used as a Wind Farm* (New South Wales Government, June 2019) but there may well be opportunities for tighter and consistent processes to correctly calculate, levy and collect these outgoing payments as a result of the deployment of wind turbines, solar arrays and other associated assets on the land.

Case law should also be monitored on these topics. A recent case, *AWF Prop Co 2 Pty Ltd v Ararat Rural City Council (judgment date – 16 December 2020)*, in the Supreme Court of Victoria, may provide some clarity around the valuation methodology for land and capital improved value of land that is occupied by wind farm assets. This decision was appealed to the Victoria Court of Appeal, however the Court of Appeal agreed with the original judgment that the above-ground wind farm assets of the Ararat Wind Farm were chattels and therefore excluded from the land valuation.

By contrast, in the matter of *SPIC Pacific Hydro Pty Ltd v Chief Commissioner of State Revenue* (judgment date 21 April 2021*),* the Supreme Court of New South Wales ruled that the wind farm assets affixed to the leased land were fixtures rather than chattels, resulting in a significantly higher valuation for the purposes of assessing landholder duty.

Decommissioning

At the end of the project's operating life, the clear expectation of all stakeholders is that the wind or solar farm (and associated assets) will be decommissioned, with all turbines, arrays and other infrastructure will be removed from the property. The property should be returned to its original condition – to the extent that can be done.

Most planning permits require decommissioning responsibilities rest with the project owner (i.e. the tenant). However, in the event of default by the project owner, the liability for decommissioning ultimately may rest with the landholder. Further, the landholder typically does not have title or ownership of the project's assets and, as a result, may be unable to recover the costs of any decommissioning activities from selling the assets remaining on the property. Project operators/owners may also change many times during the life of the project, putting at risk any funding arrangements to cover the costs of decommissioning and potentially eroding the enforceability of any verbal agreements made over time.

From a landholder's perspective, it is imperative that any commercial agreement to host assets and the related infrastructure clearly sets out the responsibilities for decommissioning and restoring the site and also provides the mechanism for security of the funding to pay for decommissioning costs.

A landholder may also wish to seek ongoing evidence that the project owner has the capacity to fund the decommissioning activity and that such funds are properly set aside securely for that purpose. Examples that could be considered include bank guarantees, a sinking fund, a trust fund or a security bond deposit held by the landowner. The Offshore Electricity Infrastructure framework requires licence holders to decommission all infrastructure and address environmental remediation at the end of a project's life. Developers are also required to provide financial security that covers the cost of decommissioning infrastructure to ensure these costs are not borne by the Australian Government.

While there are no documented examples of costs to decommission a contemporary wind turbine or solar farm in Australia, some published decommissioning plans have calculated costs that are approximately $400,000 per turbine. This cost could increase for larger turbines and could range up to $600,000 per turbine or more. If a turbine has a structural failure and is unstable, it could cost millions of dollars to safely remove the turbine from site.

To put these costs into perspective, the total fees earned for hosting a turbine for 25 years could be in the range of $250,000 - $750,000 (depending, typically, on the turbine capacity and when the wind farm commenced operations). It is therefore possible that the costs to decommission a turbine could be equal to or greater than the total income generated for the landholder over the 25 year lease period.

Some proponents are offering to deposit decommission funding into a trust fund, but typically not commencing until the later years of the project life, such as year 15 or even year 20. There are a number of risks with the timing of such an approach and would require the project owner to source significant funding in the declining years of the asset to achieve the funding requirements. It would be much more acceptable, and at far less risk to the landholder, for the developer to commence funding the decommissioning trust fund from commencement of the asset's operations.

We are about to enter a period where, for some of the initial wind farm projects around Australia, decommissioning activities will need to commence in the next few years. There will likely be increased focus on concerns about this topic, particularly from host landholders and community stakeholders. At a minimum, there needs to be clarity surrounding who is responsible for decommissioning, who pays and how those funds are secured to protect the landholder from default and ensure the work gets done.

Private Transmission Line Easements

We have received complaints from landholders that had agreed to allow an easement on their land (or had bought land where the previous owner had agreed) for the purposes of installing a private transmission line that would connect the renewable power station to the main transmission grid.

Landholders typically receive a one-off payment from the proponent for allowing the easement, unlike a wind or solar farm host, who typically receives an annual payment.

If the land is sold, the purchaser 'inherits' the easement and the prospect of a transmission line being built and operated on the land – and may often be surprised when the transmission contractor arrives at the property to conduct surveys and assessments, or even commence the works.

There are a range of emerging issues to address here, including fairness of the easement agreement and easement creation documents, the amount and method of compensation, the need for access agreements if the landholders' land needs to be accessed for surveys and assessments, or traversed to access the easement areas. There may also be a need for appropriate disclosures of the easement and any related agreements to a purchaser of the land during the sale of land process.

1.1.2 Large-Scale Transmission Projects

This subsection provides early observations of landholder related matters with regard to the development, planning, construction and operation of large-scale transmission lines.

Land Access

Project developers may need access to landholder's property at various stages of a large-scale transmission project. These may include:

- Assessing route options, including walking the route through the landholder's property
- Surveys and other environmental, cultural and technical assessments
- Design and layout of preferred route
- Final design and specific locations of towers, easements, underground trenches and associated assets.

Landholders are usually provided an opportunity to voluntarily grant consent to access their land and set out, in a written agreement between the parties, the arrangements for land access and protocols to be followed.

Some proponents pay a nominal fee to the landholder for the initial access requirements, typically in the range of $1,000 to $5,000, providing some level of compensation to the landholder for any disruption and inconvenience. Not all developers offer compensation at this stage of the project.

Once the transmission route is finalised, land access is usually covered by an 'Options Agreement' between the landholder and the proponent. This type of agreement is discussed later in this section.

In the event the landholder does not grant consent to land access, proponents may be able to rely on legislation that permits the proponent to access the land under certain conditions. Such legislation requires the need for a protocol or access code of conduct to be in place that the proponent must follow prior to and when accessing the land.

The protocol may either be developed by the relevant regulator or, in some cases, by the proponent – ideally, in the latter case, endorsed by the relevant regulator. The use of compulsory land access rights should be approved on a case by case basis by the proponent's senior executives or CEO and include a properly prepared assessment as to why access required and why compulsory powers are to be used and how.

Because it has been several decades since any long-distance, large-scale transmission projects have been developed within Australia, not all jurisdictions or proponents have protocols developed or in place. In some cases, this has led to inappropriate and disproportionate behaviour by proponents and their contractors when accessing land under legislative powers for survey purposes. These somewhat forceful actions by the proponent have caused great reputational and relationship harm to the proponents involved with their landholder community.

Land access is a vitally important part of the development process. An appropriate amount of time needs to be built into the project schedule to enable the proponent to establish effective relationships with landholders that paves the way for harmonious land access, along with sufficient budget to fund relationship-building activities and any fees payable to landholders.

Finally, the topic of land access for survey purposes can often be one of the first interactions between the landholder and the proponent. It is an activity that will set lasting impressions on the landholder cohort – better to make these impressions as positive as possible.

Easement Acquisition

Once the proposed transmission line route is well defined, proponents will seek to secure the required easements to build the transmission line upon.

Generally, landholders that would be hosting (or potentially hosting) the transmission line are asked to enter into an options agreement, which sets out the terms of the option, held by the proponent, that allows the proponent to undertake further surveys and investigations on the land as well as provides the option to create the required easement.

Option agreements are typically for three years, with a further term of say one year. Landholders are typically paid a one-time, non-refundable fee for entering into the Option agreement.

Prior to entering into the Option agreement, the landholder and the proponent would agree on the payment amount to be paid to the landholder in the event the option is exercised by the proponents. The payment amount has traditionally been paid as a one-off payment. The components of the payment can be quite complex depending on the agreed impacts on the landholder's property from the planned transmission line and the financial consequences of those impacts.

If the landholder and the proponent cannot agree on a payment amount, the proponent can seek to compulsorily acquire the easement. Such action is undertaken using legislation and accompanying regulations/procedures. It can be a lengthy, time-consuming process and there are no guarantees of an outcome, with the landholder generally able to appeal the offer to a court of law. One certainty is that, even if the easement is eventually acquired, the process itself may take a long time.

Therefore, it is certainly in the best interests of all parties that the proponent develops a good working relationship with the landholder and makes a genuine effort to negotiate in good faith the voluntary agreements for land access, payment for easement and the option agreement. The proponent may also need to demonstrate their efforts and attempts to negotiate if called to account during a compulsory access procedure.

Correspondence and Communications

The observed quality of correspondence and documents from transmission proponents to landholders is generally poor. Letters are written from the proponent's perspective, often rely on alleged legislative powers, can be cumbersome in their structure and may not succinctly convey the key facts that the reader would be seeking.

Proponent letters also often omit contact details for key contacts at the proponent, instructions for next steps or information on where to send documents when completed. As a simple example, we have observed correspondence form a proponent seeking a meeting with a landholder. Yet, nowhere in the letter are any next steps proposed that would lead to setting up the meeting, such as 'we will be in contact with you via telephone in the next few days with the view to schedule a meeting in the week beginning 14 February 2022'.

Finally, correspondence from proponents often cite alleged legislative powers, such as compulsory land access rights or compulsory easement acquisition rights as a threat to landholders. A letter may be inviting the landholder to negotiate an easement acquisition arrangement – but is perhaps too quick to point out to the landholder that if an agreement cannot be reached within a certain timeframe, the proponent can utilise legislative powers to compulsorily acquire the easement or obtain access to the land in any case. Such correspondence does not exactly portray a spirit of genuine negotiation.

Correspondence to landholders should be written from the landholder's perspective, be clear as to what the objective of the letter is and contain the appropriate content to achieve the objective. Encouragingly, transmission proponents have demonstrated that they are willing to review the content of their correspondence to landholders and are working with our Office to consider suggested improvements.

Project fact sheets and guidelines can also be quite mixed in their quality and content. Again, these documents should be written from the perspective of the landholder/community member and succinctly provide the key information that is required.

For example, if the fact sheet is about farming equipment that can or cannot be used underneath the transmission line, specifying an equipment height beyond which will require a permit from the transmission line operator, it should go on to explain how to obtain a permit, timeframes and any fees payable, along with the process to appeal a declined permit request. The height threshold should also be realistic and consistent with regulator standards.

Landholder Relations

Proponents typically employ or engage personnel to fulfil the role 'Landholder Liaison Officer' or similar titles. These roles are fulfilled either by proponent employees or contractors – with typically a contractor providing all of the required personnel under one contract with the proponent. The scope of these roles can vary, but may typically include:

- Establishing relationships with individual landholders.
- Understanding the landholder's situation, property and farming enterprise or other land-uses.
- Negotiating and managing access to the landholder's property for conducting surveys and assessments – which may be used to help in route selection decisions through to information used in planning and environmental applications.
- Facilitating the negotiation process for easement acquisition options and the final option agreement.
- Being the proponent's point of contact for the landholder and advocating for the landholder within the proponent's organisation.

Again, as transmission projects on this scale have not been undertaken for decades, the skills required for these critical roles are not easily found. As such, we have observed mixed results in the effectiveness of these essential relationship management roles so far.

Industry may well need to revisit how to ensure these roles are consistently effective and re-consider all aspects of the role from training, experience, location, scope of role and performance measurement and feedback and other parameters such as the number of liaison officers required per number of landholders.

1.2. Recommendations

1.2.1. The developer should ensure that landholder expectations are properly managed from the outset of negotiations and that potential host landholders are made fully aware of the risks of potential reduction in assets, such as turbines or solar arrays, and relocation of these assets during the long development process life-cycle.

1.2.2. License agreements that enable the developer to have the right to lease the landholder's property should have fair and reasonable provisions, including provisions for reasonable payments to be made to the landholder during the term of the agreement and the ability for the landholder to terminate the agreement if the project has not met expected milestones after a reasonable period of time. Prospective milestones set out in the agreement should have clearly stated expected time frames and dates for those events – such as submission of permit application, financial close, commencement of construction works and expiry of planning permit.

1.2.3. Where practical, developers should consider discussing the proposed project and negotiating agreements with all potential host landholders together as a group in an inclusive and holistic manner, rather than individual discussions with landholders.

1.2.4. A standard template lease agreement with consistent commercial terms and conditions should be considered by developers and supported by industry and the relevant legal association in each state.

1.2.5. Further to Recommendation 1.2.3, developers should consider offering some level of payment to all initially contracted host landholders if the project proceeds, regardless of final allocation of assets on individual properties.

1.2.6. Host landholder (i.e. 'lease') agreements should be fair, reasonable and written in plain English. The landholder should have access to and obtain appropriately skilled legal and financial advice before entering into any agreement. The New South Wales Government's *Wind Energy Guideline for State Significant Wind Energy Development* (New South Wales Department of Planning, December 2016) provides some discussion on this topic, particularly within Attachment B of the publication. NSW Farmers' Federation have also produced a *Renewable Energy Landholder Guide* (GHD Pty Ltd, updated in 2019) covering a range of relevant topics related to host landholder agreements. Specific areas of agreements requiring clarity in landowner lease agreements may include:

- fees payable to the landholder during the project development stage (pre-permit), financial close stage (post-permit), construction, operational and decommissioning stages
- timing of payment of fees and due dates for payments
- escalation of fees during the agreement, such as a fixed annual increase or CPI increase, and method of calculation
- considerations if the project is cancelled or materially delayed
- considerations if the project scope materially changes, particularly if the changes result in negative impacts for the landowner
- variations to fees in the event of changes to turbine or solar array layout, turbine specifications, turbine capacity and number of turbines or solar array area to be hosted
- agreed internal road and other infrastructure locations (cabling, construction offices, substations, transmission lines etc.)
- arrangements for use of additional land during construction and major maintenance activities
- process for making changes to location and routing of project infrastructure to the landholder's property (e.g. access roads, cabling) and responsibilities for maintenance of such infrastructure
- any creation of easements that may be required
- access agreements required for accessing easements via a landowner's property
- arrangements in relation to removal of ancillary infrastructure and the rehabilitation of disturbed land after the completion of construction works, such as replacement of soils over underground cabling or trenches
- responsibility for costs and payment of additional council rates levied on the landholder as a result of the project

- responsibility for costs and payment of additional land taxes levied on the landholder as a result of the project
- responsibility for costs and payment of additional emergency services or other levies as a result of the project
- required insurances to be taken out by the project operator in respect of the landholder
- required insurances to be taken out by the landholder in respect of the project
- additional insurances that may be required to be taken out by neighbours to the project (such as increased liability insurance)
- responsibility for the costs and payment of the various insurances
- landholder's responsibilities in regard to renting out the property and/or residence(s) to a third-party tenant
- sale or transfer of the land by the landholder
- any restrictions on further development on the property
- provisions in the event of subdivision of the property
- term of the agreement, options for renewal of the agreements and termination provisions by the parties
- financial assurance provisions to protect the landholder in the event the project defaults (such as a deposit or bank guarantee)
- decommissioning provisions, responsibilities of the parties and arrangements to ensure funding is assured and protected
- remedies available to the landholder in the event of default by the developer, and
- key contacts at the developer for the raising and escalation of issues and process for handling potential breaches of agreement.

The above items could be set out in a standard template of a commercial lease agreement that is managed and maintained by an appropriate legal, industry or government body.

Landholders and developers should also refer to the Commissioner's guideline: *Considerations for landholders before entering into agreements*, which was published in 2021 and available on our website.

Finally, landholders should be provided with an opportunity to visit a relevant project that is under construction to experience first-hand what is involved.

1.2.7. Councils and state jurisdictions should examine and audit current processes in place for the re-rating of properties that host wind and solar projects as well as related infrastructure and clarify how those properties are valued for the purpose of calculating land taxes, levies, duties and council rates. The process and calculations should be transparent to relevant stakeholders and be subject to audit and be auditable.

1.2.8. Other landholder agreements (such as agreements for transmission line easements, easement access or road access) should also be negotiated and finalised with the landholders in a fair and reasonable manner, with appropriate consultations engaging

affected landholders and neighbours in determining the final approach and routes to be taken.

1.2.9. Developers may wish to consider other forms of commercial engagement with landholders (as well as neighbours and community members) that may allow for equity and/or debt participation in the project.

1.2.10. The project's construction plan, transportation plan and overall project design should be developed in close consultation with the landholders and designed so to respect the landholder's need to be able to continue primary production operations during and following construction where applicable. Particular attention should be given to the internal road layout and minimising the impact of access roads to ongoing farming activities. Key contacts at the developer and/or its construction contractors should be provided to landholders to allow landholders to raise and escalate issues that arise during construction. Developers should also meet regularly with landholders during construction to proactively discuss and resolve issues as well as keep landholders informed of the project's status.

1.2.11. To ensure that professional conduct and standards are consistently adhered to by project prospectors and developers, state governments should develop mechanisms to promote and motivate best practice behaviour by project prospectors and the longer-term developers and owners. These practices range from preferred site selection for prospecting through to engagement with landholders and community. Some examples of programs include the NSW Government's 'Renewable Energy Zone' (REZ) designations, the Victorian Government's 'VRET' program, ACT's 'Reverse Auction' program and Queensland's 'RE400' program. A further approach would be the accreditation or licensing of developers (or adherence to an appropriate code of conduct) this is overseen by an appropriate industry or regulatory body.

1.2.12. Transmission proponents should review their landholder relationship management arrangements and ensure that personnel fulfilling those roles have appropriate experience, training, performance measures, landholder feedback mechanisms and there are sufficient personnel in place, appropriately located, to provide coverage of the landholder community.

1.2.13. Landholder relations need to be initiated and developed well before the need arises for land access or easement acquisition negotiations. If a proponent intends to rely on legislation to gain access or secure easements compulsorily, it must be prepared to have undertaken an appropriate level of genuine negotiation with the landholder and be able to demonstrate such efforts.

1.2.14. While much of the route options and analysis can be undertaken at a 'desktop' level, proponents should also 'walk the route', ideally with the landholder, to ensure the proponent has assessed the route form the ground. It is also a great opportunity to build a relationship with the landholder and gain their direct knowledge about issues and opportunities regarding the potential route.

1.2.15. State regulators should ensure that there are appropriate, enforceable protocols in place to govern any use of compulsory land access powers that may be available to transmission proponents or operators. A compliance regime needs to also be in place and penalties should be considered for material breaches of the protocols by the proponent and the use of compulsory access must be able to be properly justified.

1.2.16. Transmission project plans need to include an appropriate amount of time, funding and personnel for the land access, surveys and assessments to be carried out effectively. The plans also need to be flexible enough to accommodate situations where land access may not be achievable.

1.2.17. Transmission proponent correspondence and communications to landholders (such as guidelines, fact sheets, updates through to notices regarding land access or acquisition etc.) should be carefully reviewed before issuing and be written from a landholder's perspective wherever possible. Documents should have a clear purpose and objective that is well conveyed in the communication to landholders.

2. Neighbour Matters

2.1. Observations

Background

Most large-scale renewable energy and transmission projects will have neighbours. Neighbours are residents or owners of the neighbouring properties in proximity to the proposed project, either in adjoining properties or properties very close to the project. There may also be neighbours that are not in direct proximity to the project that could be affected by other related project infrastructure, such as high voltage power lines and roads used for transport to and from the project.

As discussed in Section 1 above, neighbours may have also been potential 'hosts' for the project and had expectations of a material income stream from the project. However, due to reasons beyond their control, have either had their hosting footprint reduced or withdrawn, potentially making them reluctant neighbours.

Neighbours may also include functional facilities, such as an airfield, where a proposed wind farm could have significant impact on the ongoing operation and safety integrity of the facility.

Neighbours can be materially impacted by the development, construction and operation phases of the project. Impacts can include land access for surveys and investigations, construction vehicles and traffic, construction noise and dust, travel disruptions, road damage, blocked roads, visual amenity, operating noise, shadow flicker, glare and glint, and economic loss – concerns in anticipation of these impacts as well as actual impacts once the project commences construction or is operating.

Consultation

While developers have generally engaged and consulted well with potential host landowners, developers have not always understood the importance of consulting and working with neighbours in proximity to a project. Typical complaints that the Office has received from project neighbours is that they were not consulted by the developer and only heard about the project from third parties. Often there is limited evidence to verify the degree and level of consultation and interactions between the developer and neighbours to the project.

Consultation may include a wide range of topics, such as:

- consulting with neighbours on the project's design and layout, especially during the early scoping and design stages, so to enable a fact-based discussion about landscape/amenity impacts
- consulting with neighbours to explain the planning process and opportunities for neighbours to engage in that process
- consulting with neighbours on the process and oversight of specific activities, such as site or route selection, predictive noise assessments, post construction noise testing, environment, aviation, transport management plan, shadow flicker and visual amenity assessments
- advising and consulting on subsequent proposed changes to the project's design, layout and equipment selection
- ensuring background and operating noise testing (for wind farms) is properly undertaken and results are provided in a timely fashion and appropriate format to neighbours
- providing factual information to address questions and concerns raised by neighbours

- facilitating site visits for neighbours to existing operating projects to allow the neighbour to experience a completed project farm first-hand. A site visit to a project under construction may also be helpful.

- alternately, devices such as wind farm noise simulators are available to enable neighbours and other stakeholders the opportunity to experience noise outputs of a wind farm in a wide range of scenarios.

Lack of effective consultation with neighbours can lead to a range of material issues for a project, including conspicuous opposition to the project (and any modifications to the proposed project), formal objections that may lead to planning/approval delays and appeals, legal actions against the project or planning authority, the project (or elements of the project) not being approved as well as widespread negative media coverage about the project and the industry more broadly.

Neighbour Agreements

In addition to more effective consultation with neighbours throughout the life-cycle of a project's development, some developers have introduced the concept of 'neighbour agreements'. These agreements can provide a commercial arrangement between the project and neighbour that recognises the possible impacts of the project on the neighbour and to gain the neighbour's support.

Agreements may also be mandatory to gain a permit approval in the event the neighbour is at a risk of experiencing impacts from the project that exceed permit/standards limits or if they reside within a default setback distance zone.

The content of a neighbour agreement is typically confidential to the parties, but may include one or more of the following:

- annual payments to the neighbour for the life of the project (including payments during the development, construction and operating phases of the project)

- a one-time payment at the commencement of the agreement

- reimbursement of reasonable legal fees incurred by the neighbour for the review of the agreement

- reimbursement for, or provision of, items such as visual screening, insulation, double-glazing, air-conditioning, energy efficiency programs, solar panels, electricity consumption, increased insurance premiums

- reimbursement for any increased insurance premiums levied to the neighbour as a result of any increases to the sums insured for public liability due to the presence of the wind or solar farm

- an option for the neighbour to request that the developer acquire the neighbour's property, and

- ability for a neighbour to terminate an agreement without penalty.

Most neighbour agreements are voluntary and it is up to the developer to propose and negotiate such an agreement with the neighbour. Some developers have designed neighbour agreement payments based on a formula of distance from a residence to the turbine(s) and the number of turbines located within that distance.

The Office has observed some proposed neighbour agreements that contain clauses which may not be fair and reasonable to the neighbour. Such clauses observed include the right for the project not to conform to the permit conditions that would normally apply to the neighbour (including noise levels and shadow flicker), the ability for the developer to terminate the agreement while the project is still

operating – either without cause or with questionable cause – as well as clauses that could be construed to restrict the neighbour's right to make a complaint.

Further, some neighbour agreements seek to impose stringent planning restrictions on the neighbour for any new development or construction on the neighbour's property. The Commissioner's view is that these clauses are unnecessary and the neighbour should simply be required to comply with the planning rules and laws of the jurisdiction.

Inclusion of perceived unfair clauses by the developer can significantly impair the ability to negotiate a fair and reasonable agreement, creating distrust and anxiety amongst neighbours towards the proponent.

Similar to host landholder agreements, all parties may benefit from a standard template agreement for 'neighbour agreements' that is established and maintained by an appropriate body and available for use by industry.

Visual Impacts and Screening

With the height and span of wind turbines ever increasing, so have the concerns about visual impacts such as impairment of views and shadow flicker. While not as tall, concerns about the visual impact of new, large scale transmission towers are also prevalent.

These impacts are commonly assessed during the planning process. However, due to the heightened concerns held by neighbours on these impacts, it is an area that may require special attention and focus by the developer to ensure that quality predictive assessments are undertaken and there is a high degree of consultation and communication with affected landholders and neighbours.

Screening of the visual impacts caused by the wind or solar farm by planting trees is commonly proposed by developers to reduce neighbour impacts and may also be a mandatory requirement of the permit. An often-cited issue is the predicted length of time for a newly planted tree to grow to provide sufficient screening, bringing into question the effectiveness of such mitigation.

Other mitigations, such as permanent screening, pergolas, blinds etc. may also be appropriate to consider. It should be noted that Appendix 2 of the New South Wales Government's *Wind Energy: Visual Assessment Bulletin* (NSW Department of Planning, 2016) outlines a range of potential mitigation measures that may be applied.

Further, the process of conducting visual screening assessments and designing and implementing the program and solutions can be a significant task and the results of the program may not meet perceived expectations.

An alternative approach is to provide the neighbour with the option of taking a cash payment in lieu of the screening program, thereby empowering the neighbour to decide how best to apply the funds to address the situation. This approach can also alleviate potential difficulties within a community, for instance if some residents have already, proactively, planted trees of their own accord, they may not require screening assistance and be ineligible for the program.

Transmission Considerations

Large-scale transmission projects can create unique neighbour scenarios. In the event that a transmission line is built along a property boundary line, the landholder hosting the line and towers would be compensated for granting the easement and for other impacts to the landholder and their farming enterprise. The landholder should also have the opportunity to provide input to the 'fine tuning' of the transmission line route and final placement of the towers.

However, on the other side of the property boundary may be a neighbour's residence and land. As the neighbour is not a host landholder, the neighbour (sometimes referred to as a 'first neighbour') is

currently not entitled to any compensation nor has a 'seat at the table' to negotiate line and tower locations to minimise impacts to the neighbour. Neighbours also typically do not have access to land liaison officers or equivalent as a point of contact with the proponent.

It has been observed that some neighbour's residences may be less than 100m from the transmission line easement – often closer than the host landholder's residence. While setback distance thresholds could avoid or improve this situation (see Section 5), proponents and other project stakeholders need to proactively identify and work with this category of neighbours and explore better approaches to communicate and establish relationships with the neighbours to find solutions to these issues.

2.2. Recommendations

2.2.1. Developers of projects should, where practical, proactively identify all potential neighbours at the commencement of the development activity and implement an effective, ongoing consultation program with all contactable neighbours throughout the project's development. While it may vary by project and geography, neighbours affected may include residents and landowners in a proximity range of 0 km to 5 km from potential project asset locations, as well as residents in close proximity to other project related infrastructure, such as power transmission or supply infrastructure. This indicative distance range for consultation may need to be greater in situations where, for instance, wind turbines are proposed to be erected on an elevated ridge.

2.2.2. Key stakeholders in the development of a project (for example, project buyers, planning authorities, investors, debt providers, local councils, regulators) should seek and consider evidence of neighbour identification and effective neighbour consultations as part of any due diligence and approval criteria.

2.2.3. Developers should consider the merits and use of appropriate neighbour agreements as a potential component of its overall neighbour and community consultations and project strategy. If utilised, neighbour agreements should be negotiable, fair and reasonable, written in plain English and the neighbour should have access to and obtain appropriate legal and financial advice before entering into any agreement. Standard agreements should not restrict the neighbour from being able to raise issues and concerns about the project, including subsequent proposed changes to the project design. Neighbours should be able to make complaints about the project and not be subjected to conditions that exceed normal planning standards and permit requirements. There may be existing operating projects where a retrospective neighbour agreement should be considered. Developers may, alternately, opt for a broader community support model that benefits a wider group of community members that may not include specific neighbour agreements.

2.2.4. Screening solutions proposed by developers should be realistic and effective. If trees are proposed, trees should be planted in a timely fashion and well maintained to provide effective visual screening within a reasonable timeframe. Other screening solutions, such as structures or shutter blinds, should also be considered when proposing and negotiating a visual screening agreement. Neighbours may also prefer a cash payment option in lieu of the developer designing and installing the screening solution.

2.2.5. The developer should recognise that some neighbours may have been potential host landowners for the project's initial design and should take the time to understand the neighbour's history of involvement with the project. Developers should document all conversations and interactions with neighbours and maintain such records in an appropriate system for future reference. Equally, neighbours who have been approached by developers

to offer an agreement should also ensure that they have documented all offers and agreements presented to them.

2.2.6. Neighbours should be appropriately represented in any project-related committees, such as Community Consultative Committees and Community Engagement Fund Committees, to help ensure that neighbours have a voice, as well as the opportunity to be positively engaged with the many and various aspects of the project across the community.

2.2.7. Special consideration should be given to large-scale transmission project neighbours that reside along host property boundaries – adjacent to the proposed transmission easement (or other infrastructure, such as a substation) – to ensure there is a relationship in place to identify the neighbours and develop solutions to manage real or perceived impacts arising from these situations.

3. Community Engagement

3.1. Observations

Background

Effective community consultation and engagement is essential for large-scale renewable energy and transmission projects to gain widespread support and earn the 'social license' to operate within the community. To be effective in community engagement, it is vital to actually 'engage the community' and involve the community wherever possible in the design and execution of programs related to the project (but not the project itself).

Conversely, poor or no community engagement can allow misinformation and community opposition to a project to gain momentum – which can ultimately lead to projects not proceeding as a result of planning objections through to endless delays from lengthy and costly legal actions taken out against the project.

The level of community engagement by developers can vary widely across projects observed to date. A key observation is that initiating project developers (who secure the landholders and permits, then 'on-sell' the project to a long-term developer or operator) may not invest appropriate time and resources into community engagement or neighbour relations to be effective. These more limited efforts can result in lower levels of community support and more divided communities, compared with projects where the project developers appropriately focus on effective community engagement from the very start of the development activity.

Community and Stakeholder Committees

In some jurisdictions, such as New South Wales, the planning guideline framework has provided for an early and continuing focus on community engagement, including the establishment of a Community Consultative Committee (CCC) or equivalent that is maintained throughout the life of the project. Further, feed-in tariff arrangements such as those established by the ACT and Victorian Governments, place a significant weighting on selecting developers and projects that have proposed and demonstrated effective community engagement programs, subscribing to community engagement as a high priority.

Many projects also establish Community Engagement Funds, funded by the developer, to support a wide range of initiatives that benefit the local community. In some jurisdictions, such funds are a condition of the permit approval, but largely these are voluntary arrangements proposed by the developer.

Committees such as CCC's appear to be most effective when there is an independent chair and an appropriate balance in the committee membership, with chair and committee appointments being made by an independent body where practical. Committees can play a vital role in the conveying of factual information about the project, identifying and resolving issues that arise that require multi-stakeholder cooperation to resolve and dispense with inaccurate perceptions about the project and related events.

Communications

The quality of and information provided by project developers, via their websites or other channels, such as printed newsletters through to public meetings, vary from project and/or developer.

There is still more work to be done by developers to provide up-to-date websites with clear transparency of information about the developer, the project, current news, how and who to contact in the organisation, how to make a complaint and access the complaint process procedure – along with access to all relevant project documents.

While most projects and developers now maintain reasonably effective project websites, some project websites remain difficult to find, are out of date or lack sufficient information and easy navigation. Not surprisingly, there is a high degree of correlation between poor communications/website quality and poor community support for the project.

Media relations and using media, such as local newspapers, to convey factual information and updates about the project can also be an extremely effective way to communicate with the broader community. Conversely, poor media relations and/or attracting the attention of mainstream and national media that report negatively about the project, can be hugely detrimental and may also further fuel the motivation of those opposing the project.

Coordination

Some regions of Australia are experiencing increased clustering of proposed and approved projects, which may result in multiple projects infiltrating and 'surrounding' communities. The concept of Renewable Energy Zones, while largely beneficial to opening new areas for projects, may also have this unintended consequence.

As a result, there is both the need and opportunity for individual project developers to communicate more effectively with each other and better coordinate engagement with the broader affected community. These activities could range from combined community engagement and communications initiatives by developers through to coordination of construction programs to minimise cumulative impacts on residents and townships.

Developers should also be aware of other key infrastructure projects that may be taking place within the region, such as major road works, and ensure that, where practical, project construction activities and schedules are planned and coordinated in a way to minimise unnecessary cumulative impacts to communities.

Guidelines

Several community engagement publications have been issued or updated in recent times, including publications by the Clean Energy Council and the Victorian Government. These guidelines are very useful resources to assist developers plan, prepare and execute effective engagement programs.

Community engagement plans are now also required in some planning permit applications as a prerequisite condition. Other stakeholders may also mandate the requirement for a well-designed and executed community engagement plan.

Overall, there continues to be a wide range of opportunities for developers to further broaden and improve their community engagement. Suggestions and recommendations gained from our observations of various practices across the industry are listed below.

Transmission Considerations

Transmission projects have different nuances to community engagement programs compared to say renewable energy projects. Most notably, they can be long, linear projects that traverse many communities, geographies, farming production areas as well as more urban settings along the transmission line route. These dynamics may well require some degree of tailoring the different programs and initiatives described above in this section to be effective in engaging and communicating with the affected communities.

While early engagement with the community is encouraged, there may be unintended consequences when developing a transmission project by going public too early by presenting a 'multi-corridor' option approach to the broader community to help select the final proposed transmission line route. This approach can, unfortunately, inflame a wide cross-section of the community and create animosity and division between community members as they lobby to eliminate candidate corridors that affect them.

An alternative approach may be to internally determine the preferred route corridor and then engage the community and landholders to help finalise the actual route design and details with their insights. This approach then allows that subset of the broader community to be focussed on optimising the solution, rather than the whole, broader community group being focussed in stopping the project altogether.

3.2. Recommendations

3.2.1. The developer should ideally commence and invest early in community engagement – well before the commencement of the permit approval phase. An acquirer of a project still in development should conduct detailed due diligence on the extent and effectiveness of community engagement activities undertaken by the existing developer, prior to finalising purchase of the project, and be prepared to make the necessary investments in community engagement going forward.

3.2.2. The developer should proactively identify and establish effective working relationships with key community stakeholders, including stakeholders that may be opposed to the project (including organised groups that are opposed to the project).

3.2.3. The developer should, in consultation with the responsible authority and the community, consider establishing a CCC (or equivalent) with an appropriate charter and membership (noting that in some jurisdictions, a CCC may be mandated). The CCC Chair should, where practical, be a respected and representative member of the community at large as well as independent of any direct impact or beneficiary of the proposed project. Ideally, the CCC should meet monthly during critical stages of the project's development, approval, construction, post-construction testing and initial operations.

3.2.4. Many developers provide a range of information and education opportunities for community members to better understand the benefits and impacts of wind or solar farms as well as address any questions and concerns raised. Initiatives to consider include:

- establishing a 'shop front' in the community town centre that provides project/permit information, a map and model of the project, information about wind and solar farms and an ability to address questions or concerns raised by community members
- providing an informal channel for community members to ask questions, for example, by utilising a social media platform, and provide feedback about the project, and be able to do so anonymously, if required
- providing opportunities for community members to visit operating projects and/or projects under construction
- providing access to a wind farm noise simulator to demonstrate wind farm noise to community members, enabling participants to experience simulated noise scenarios
- maintaining an easily found, up-to-date project website with full transparency on contacts, complaint process, project details, the project's current status along with planning permit details and documentation
- briefing local members (federal, state and local government) on the project and providing them with timely updates and information
- developing effective relationships with local media and providing the media with factual information to assist their reporting of the project and any perceived or real impacts
- providing information sessions about the project, as well as about wind farms and/or solar farms more generally, at convenient locations for community members, including

presentations from key stakeholders, to complement regular project newsletters and updates

- ensuring transparency for employment and contractor opportunities that arise from the project's construction and operational phases
- publishing the minutes, where applicable, of CCC (or equivalent) meetings and allowing observers to attend CCC meetings, and
- understanding and assessing the impacts on local accommodation and catering during construction. Opportunities may exist for developers to construct accommodation which may, in turn, be utilised for long-term accommodation for people in need of housing arrangements. It is also essential that contractors pay invoices and accounts on time that may be rendered for accommodation and meals/catering consumed by construction workers.

3.2.5. The developer should establish a formal complaints/enquiry process, including a system to record and manage complaints, as well as provide a transparent register of complaints/enquiries information (note: actual complainant details can be masked for privacy). The complaints process should ideally commence at the initial stage of the development activity, to allow community members to formally raise concerns and have those concerns addressed in a timely, consistent and transparent manner, and continue on throughout the life of the project.

3.2.6. The developer (and CCC if it exists) should consult widely and communicate effectively and extensively on the proposed construction and related transport plan. The developer should also ensure appropriate restoration and 'make-good' actions are in place to remedy damage that may occur and seek, where practical, to leave local infrastructure in the same or better condition than prior to the construction. The developer should also proactively provide communications during construction using all forms of relevant channels, such as text messaging, to advise community members in advance of impactful activities. Where more than one construction project is occurring concurrently in the same area, collaboration should occur between the projects to proactively identify and resolve issues, such as constrained supplies such as gravel, tradespeople, accommodation, meals as well as road access issues.

3.2.7. Further to Recommendation 3.2.6, the developer may wish to seek out opportunities to help facilitate improvements to other related community/local infrastructure. Initiatives could include improving mobile phone coverage, utilising the 'imported' project workforce to help upgrade local facilities (such as parks, playgrounds) and other practical activities which could benefit the overall community for years to come.

3.2.8. Local council(s) should proactively engage with the project and community, clearly communicating the council's level of support for the project as well as its role in facilitating and promoting effective community consultation and project compliance. Council should participate in any CCC or equivalent. If there are multiple large-scale infrastructure projects concurrently in development within a council's jurisdiction, it would be advisable to appoint a council liaison resource(s) to coordinate relations and issue resolution between council, community members and developers. Where appropriate, other planning and approval agencies should ensure that local councils are provided sufficient opportunities and support to effectively engage in consultation and approval processes for projects that may impact the relevant local government area.

3.2.9. Where possible, the developer should engage staff locally (or relocate them locally) to lead community engagement activities and respond to community concerns and complaints.

The developer should also seek to hire local tradespeople, contractor staff and suppliers where practical.

3.2.10. Once a project is in operation, the developer should continue to proactively provide information and updates about the project as well as provide opportunities for the community to visit the project site (such as an 'open day').

3.2.11. The developer should consider establishing and maintaining a community engagement fund and ensure there is appropriate community involvement in the governance and management of the fund. In some jurisdictions, such a fund is mandated. The fund should allow for appropriate opportunities for community originated submissions to obtain funding for project proposals. Prioritisation of funded projects that may be of benefit to those community members more directly affected by the presence of the project should be encouraged. The community fund should clearly include and benefit community members that live in proximity to the wind or solar farm rather than only supporting projects related to a regional centre.

3.2.12. Developers may wish to consider providing offers for community members to become shareholders in the project, which can provide a practical sense of ownership within the community. Developers may also decide to offer beneficial arrangements to community members such as reduced/subsidised electricity bills, gift cards for use at local vendors or other practical benefits to the local residents within the immediate community.

3.2.13. Stakeholders to the project, including the responsible authority, council, bankers, investors and regulators, should seek relevant evidence of both the project's community engagement plan and outcomes from the plan's execution as input to decisions or requirements that the stakeholder may wish to place on the project and developer.

3.2.14. Industry bodies, such as the Clean Energy Council (CEC) and the Renewable Energy Alliance (REA), should continue to promote effective community engagement and publicly recognise individuals and organisations achieving excellence in positive community engagement outcomes. Appropriate priority should continue to be given to this topic when designing industry forum programs.

3.2.15. State governments can continue to play a key role by prioritising the promotion of effective community engagement in projects. Examples include initiatives such as community engagement plans as a key selection criterion for eligibility to be awarded state government 'feed-in tariff' programs as well as utilising formal permit conditions to mandate preparation, endorsement and execution of the plan.

3.2.16. Project developers should ensure that all contractors, sub-contractors and other project stakeholders are aware of their responsibility to engage well with the community and minimise community impacts. If there are multiple infrastructure development projects occurring within a region, developers should also be aware of potential cumulative impacts to a community and should liaise with local councils and other developers to proactively plan to avoid or minimise unnecessary impact on the community.

3.2.17. Transmission project proponents should carefully consider minimising the number of route options that it announces for public review and consultation. Too many route options may generate widespread opposition to the project, much of which may be unnecessary if, in fact, there is ultimately only one viable route and design to pursue.

4. Planning Permits – Time Limits and Scope Changes

4.1. Observations

Background

Once approved, a project planning permit is typically granted for a period of five years. The developer then has that period to fulfil and complete the various plans and assessments required by the permit in order to commence construction of the project, consistent within the permit conditions. It is quite common that construction is not completed within this five-year period (or even commenced), whereby the developer then typically applies for an extension or renewal of the permit.

There have been numerous cases of projects where the permit has been repeatedly extended or renewed for further periods, often with significant changes to the project's design due to the ongoing technological evolution of wind turbines and solar arrays.

Elongated Timeframes

As a hypothetical example, design and development activities for a proposed wind farm may have commenced in the 2001-2002 timeframe, submitting a planning permit in 2003. In 2005, an approved planning permit with a five-year expiry term may have then been issued to the wind farm. If construction of the wind farm had not commenced or been completed by the time the approved permit expired in 2010, upon request by the developer, the planning authority may have then approved the permit to be renewed for a further five years until 2015, with the renewal approval usually based on some minor level of commencement of the project, such as a shed or a roadway.

Changes in turbine technology may lead the developer to modify the wind farm's design and layout, typically requiring preparation and submission of a planning amendment application for approval. This process may further delay the project from commencing construction, requiring yet another planning permit extension out to say 2020. By this time there are no guarantees that the project will be completed by the permitted timeframe, resulting in a further possible permit extension beyond 2020.

Therefore, it is feasible that a period spanning 20 years or more can occur between the original prospecting at the project site, permitting approvals and the project being constructed.

Delays between the time of obtaining a permit approval for a wind farm and the actual commencement of construction works can occur for a variety of reasons. Typical reasons include undertaking and obtaining approval for the various reports and plans required by the permit prior to construction commencement, changes in turbine/solar panel selection and turbine/solar array layout (which may be a consequence of issues uncovered by fulfilling the permit conditions), delays in obtaining financial close and changes in government policy.

These lengthy timeframes for projects are significant and can raise several issues for consideration, including:

- Standards, such as noise standards, which may change during this lengthy timeframe of the development process. For example, at the time of initial project development and permit approval, a wind farm project and permit conditions may have been based on the NZS 6808:1998 noise standard. Although the standards may have been revised in the ensuing period, the project and permit will still be based on the 1998 standard, rather than the updated NZS 6808:2010 noise standard – even though the wind farm may have been built more than 15 years after the initial project's permit approval and well after the more recent noise standard came into effect.

- Setback distance policies (e.g. the minimum distance between a wind turbine or solar array and a residence) can also vary over time. As an example, a number of Victorian wind farms with still

current, renewed permits have no default minimum setback distance provisions as the original permit was approved prior to 2011, when no default minimum setback distance was required in Victoria. In 2011, a 2 km turbine to residence setback distance was introduced into Victoria. The current default turbine setback distance in Victoria is 1 km.

- Changes in standards and planning guidelines for renewable energy projects could therefore conceivably take many years from the time they are introduced by planning authorities to when they are written into planning permits for proposed projects.

- Technology also changes over the project timeframe. The original project design and permit conditions may have been based on wind turbines of a certain energy capacity (for example, the original proposed turbine may have been 1.5 MW, whereas the current contemporary turbine in the market may be say 6.5 MW, which will be much more efficient and a lower costs per MWh produced) resulting in changes to physical size dimensions (for example, higher turbine hub and tip heights and longer blade lengths). As a result, the developer is likely to take advantage of the new technology and propose to change their turbine selection during the elongated time period. This change may potentially alter a number of material characteristics and impacts of the wind farm, including reduced number of turbines, turbine layout, visual amenity, noise and shadow flicker. Such changes will likely result in the need for a formal modification (or amendment) to the planning permit, re-opening the proposed wind farm to potential objections and community concerns about the changes.

- Further, there are consequences and impacts as a result of the significant increases in wind turbine dimensions, such as transport routes and vegetation clearance along roadways – often leading to the need for a planning modification and/or landowner negotiations along the route. Apart from taking time itself, the modification process may well reignite original debates and issues with the project, adding further delays to project start or completion.

- The transport plan itself also needs to be holistic and be carefully planned and mapped from port to project, requiring appropriate consultation with all relevant stakeholders that have jurisdiction along the proposed route. This consultation will need to be repeated if there is a change to the route and/or the impacts on related matters such as vegetation clearance and property access.

- The current requirements on the developer to qualify for the ability to request a renewal of the permit for a further period may be minor relative to the total project scope (for example, the building of a simple shed or road access to the site) so to demonstrate some level of commitment to construct the project. These relatively minor works, when compared to the total proposed project, may be viewed as not substantial enough to demonstrate that the project has materially commenced within the permitted timeframe nor obligate the project in a way that it has no choice but to proceed.

- The community affected by the wind or solar farm (including host landowners and neighbours) can be subjected to very long periods of uncertainty as to whether the project will proceed. This uncertainty can affect a range of individual landowner and stakeholder decisions as well as discourage or prevent other potential development within the project's planned footprint and surrounds.

- Community engagement may also not be sustained by the developer over long periods of uncertainty and may deteriorate during the elongated time frame.

- During an elongated development cycle, other projects may have been subsequently planned and/or constructed in the area, which may result in possible unforeseen cumulative impacts occurring for nearby residents and the broader community that are then caused by the original project when it proceeds.

Precedence

Depending on the jurisdiction, a developer may not need to assess potential impacts on a dwelling that is yet to be constructed, even though the dwelling has a valid, current planning permit and building permit. In effect, the layout of a potential wind or solar farm may take precedence over existing planned dwellings, resulting in the possibility of the planned dwelling being too close to turbines to meet noise limit criteria and other setback requirements.

The situation can be further complicated in the scenario where a property owner has an 'as of right' claim to build a dwelling on the property – without needing a planning permit.

In Victoria, the Planning Provisions were amended in 2021 to introduce new planning permit requirements for dwellings and other types of accommodation. Planning permits are now required for all uses if they are within one kilometre of a title boundary, where the land beyond the boundary is subject to a permit or planning application for a wind farm. This requirement is regardless of whether the property has an 'as of right' claim.

In the broader scenario, it would seem reasonable to expect that a legitimate proposed dwelling, that has proper and current permits in place, needs to be considered as a potential dwelling for project planning purposes, where the dwelling permits are already approved and in place prior to a wind farm permit application being submitted.

If the dwelling is subsequently not constructed and/or the permits expire, then the developer may choose to adjust the wind farm design accordingly.

Further, once a development is approved or constructed, persons wishing to build a dwelling or infrastructure within proximity of the wind farm should have their plans referred to the developer to check whether the dwelling is within the compliance criteria for matters such as noise and shadow flicker. In reviewing building permit applications for new dwellings, local government councils should also advise applicants of any submitted or approved projects in the vicinity.

Other Infrastructure

In some jurisdictions, planning permits are not required for connecting transmission lines and other associated infrastructure to connect the power station to the grid. This gap in review and oversight can lead to a wide range of community issues related to the design, routing and installation of the transmission line and related assets. The prospect also exists for duplicative assets separately connecting each generator to the grid, with no mandatory requirement to seek consolidation of the transmission infrastructure so to minimise community impact and promote a more efficient use of capital.

Responsible Authorities

In general, state governments are the designated responsible planning authority for large-scale renewable projects. However, some exceptions exist. For example, Tasmania's responsible authority for approval of wind farms is currently local government (although there are some proposed planning reforms which may change this framework). Queensland's planning scheme also has delegated large-scale solar farms to local government as the responsible authority, as was the case in Victoria until recent changes.

Given the skills, resources and expertise required to properly assess and manage the planning process for these large-scale energy assets, it is strongly preferred that state governments retain responsibility for the planning process and approvals, along with compliance enforcement. Further, council may avoid decision-making by simply declining the proposed project, resulting in an appeal to the appropriate state planning and environment court or tribunal, adding further delays and costs in the process.

4.2. Recommendations

4.2.1. A project's planning permit should only be renewed for one further term as a maximum, unless there are exceptional circumstances that have caused a delay in commencement. Approval of permit renewals (or extensions) should require the developer to demonstrate the likelihood of the project commencing and being completed prior to the end of the requested/approved renewal or extension period.

4.2.2. Requests for material changes to a project's proposed design and technology need to be scrutinised through an appropriate and rigorous process by the responsible authority. The process should be transparent to all stakeholders and include re-assessments of key impacts such as noise, visual amenity, environmental considerations, aviation, transport route, transmission requirements, shadow flicker and construction impacts. Planning amendment applications for material changes should be subject to public exhibition and the ability for community members to raise concerns and objections.

4.2.3. The responsible authority should be able to reasonably introduce and apply current/updated planning guidelines, applicable standards and updated permit conditions when assessing a request to renew/extend a permit or when approving a planning permit amendment. For example, a developer seeking to renew a permit issued on 1 January 2017, expiring 31 December 2022, should be reasonably required to comply with any contemporary guidelines and standards currently in force that could be expected to be complied with, and the developer should prepare the renewal submissions in accordance with the contemporary guidelines and standards.

4.2.4. Evidence of ongoing community engagement for the project should be submitted to the responsible authority when seeking a renewal approval or permit modification request. Submissions should include evidence of current community consultation efforts regarding any proposed changes in the project design and layout subsequent to the original permit approval.

4.2.5. In considering a renewal/extension or permit amendment application, the responsible authority should assess any compounding effects of other proposed or constructed projects in the vicinity – with respect to residents who may experience cumulative effects that may be exacerbated by the proposed project that is seeking permit renewal or amendment approvals.

4.2.6. Further to Recommendation 4.2.5, the responsible authority should assess the impacts of any other planning approval requests or confirmed approvals in the vicinity that have arisen after the project's original permit approval when considering the permit renewal/extension application. These could include dwellings that had legitimate planning approvals prior to the project's original permit being approved that have subsequently been built and are inhabited.

4.2.7. If the project is seeking a renewal/extension of the permit period to allow a commenced project further time for construction completion, the responsible authority needs to be fully satisfied that material construction has already commenced and provide extensions only for the period where it would be reasonably expected for the remaining construction to be completed. For example, the project should have reached financial close and commenced actual construction of wind turbines or solar arrays. A roadway or shed should not be considered as material commencement of construction.

4.2.8. State governments should consider including relevant questions for prospective rural property purchasers to ask about potential projects in the vicinity of the property – to be included in any due diligence 'checklist' that may accompany a contract of sale or vendor statement document.

4.2.9. Planned dwellings within proximity to a proposed project that have existing, approved and current planning and building permits, should be treated and assessed as an existing dwelling by developers when preparing and submitting permit applications. Planned dwellings that subsequently are not constructed within the specified time limits and/or have expired permits, can be removed as a constraint to the planning layout. See also recommendation 4.2.10 regarding development plans after a project planning permit being approved.

4.2.10. Neighbours to projects, where the project is in either development or in operation, should be allowed to submit development plans to the responsible planning authority for new development on their property, such as a dwelling or a shed. Development proposals within at least 1.5 km of a proposed or operating wind turbine, within 300 m of a proposed or operating transmission line, or within 100m of a proposed or operating large scale solar array, should be referred to the project developer by the responsible authority. The developer should then assess and verify potential impact levels of the project at the neighbour's proposed development site. Development proposals in locations where the project is likely to exceed prescribed standards and limits may require written agreements to be reached between the neighbour and the project before the neighbour's development can be granted final approval by the responsible authority.

4.2.11. Private transmission lines, substations and other related electrical infrastructure should all be subject to and require an appropriate planning permit, ideally as part of the overall permit for the project. Careful consideration should be given to the design and routing of the transmission line. Developers should collaborate wherever possible to optimise use of shared transmission facilities. Relevant governance bodies (transmission planning, electrical safety, road safety, local councils etc.) should be properly consulted on the planning application and exercise their oversight responsibilities accordingly.

4.2.12. State governments are best placed to be the responsible authority for large-scale renewable energy and storage projects. Local governments have a very important role to play in the planning process, road access, community engagement, construction and operation of the project, but should not be burdened with the overall planning and compliance responsibilities.

4.2.13. Developers should provide evidence that they have landholder consent for the development application and any subsequent planning permit amendment applications. If the developer is declaring they have obtained such consent, the declaration should be subject to an audit.

4.2.14. Major new long-distance, large-scale transmission projects that form part of the strategic integrated system plan and transformation of the network grid, should be designated as 'State Significant' and/or 'National Significant' projects and be required to be assessed under the corresponding planning assessment process consistent with the project's importance to the broader community.

5. Governance and Compliance of Standards and Permit Conditions

5.1. Observations

Background

The governance of standards related to the design, construction, operations and maintenance of large-scale energy projects relies on a range of standards, regulators, responsible authorities and various compliance mechanisms to monitor and enforce those standards.

Standards are often set and maintained by the responsible authority (for example, a state planning department or environment department) and there are a variety of arrangements in place for enforcing compliance with the standards. Standards may be 'borrowed' from other jurisdictions (for example, Victoria uses the New Zealand (NZ) wind farm noise standard, the NSW noise standard is based on the South Australian standard), set by the planning function or set by the state agency responsible for environmental management and regulation.

Enforcement of standards and permit conditions also varies by jurisdiction and the type of standards. For the most part, there are no proactive compliance audit regimes in place – rather, compliance relies on authorities receiving and investigating complaints or alleged breaches of permit or license conditions. The pathway to make a compliance complaint or allegation again varies by jurisdiction and type of complaint – in some cases the state environmental regulator can receive and investigate noise or environmental complaints, in other cases it may be a local council, state planning department or the relevant Australian Government department.

Compliance Complaints

It is often unclear to community members where or who they should lodge a complaint to regarding compliance. Planning permits may not always clearly state the accountability and responsibilities in regard to compliance oversight, nor may they prescribe a process for handling potential or actual non-compliance. Further, local councils and state planning functions may not have the necessary skills and expertise to handle and investigate a compliance complaint. Federal agencies, such as the Clean Energy Regulator, rely on a clear understanding of the responsible, state-based compliance authority and the authority's advice if the Regulator is to consider acting on allegations of non-compliance or breach of a law.

Interpretation and Consistency of Standards

"Borrowed" standards can be difficult to administrate or enforce if a protocol has not been developed for the local jurisdiction. As an example, the NZ noise standard (used in Victoria and Tasmania) has a concept of low and high amenity areas for determining the appropriate noise limits for a wind farm. Victoria's planning scheme does not define such areas, making it difficult to interpret and apply the NZ standard 'as is' in the Victorian context (see *Cherry Tree Wind Farm Pty Ltd vs Mitchell Shire Council – VCAT – P2910/2012*).

Issues have also arisen regarding the application of tonal noise penalties provided for in the NZ standard. The application of the standard is open to interpretation in that regard, and Victoria/Tasmania must rely on interpretations from New Zealand court proceedings to clarify the standard's application. This can be a difficult matter to resolve, particularly in the event the interpretation has also been a topic of debate in New Zealand itself (see *Decision of Hearing Commissioners re Palmerston North City Council v New Zealand Windfarms Ltd* – November 2017).

Typical standards and permit requirements relevant to a project's development and operation can include matters such as audible noise, shadow flicker, visual amenity impacts, setback distances, environmental matters related to flora and fauna, vegetation clearance as well as noise and dust levels during construction.

It was pleasing to observe that, in 2021, the Victorian Government recognised these issues. The Victorian EPA now has responsibility for wind farm noise regulations in Victoria, including the interpretation and application of the NZ Noise Standard as it applies in Victoria.

Noise Limits and Criteria

Noise standards relating to wind farms currently vary by state. For example, the wind farm noise limit standard in Victoria and Tasmania is 40 dB(A)* measured outside the residence. South Australia varies between 35 dB(A)* and 40 dB(A)* based on the location of the wind farm, Western Australia is 35 dB(A)*, New South Wales is 35 dB(A)* and Queensland's standard is 37 dB(A)* during the day and 35 dB(A)* during the night. The approach to measuring both the background noise levels at a proposed wind farm site as well as the noise emitted from an operating wind farm can also vary by project and jurisdiction, which can lead to debate over the veracity of the noise assessment results.

The World Health Organization's (WHO) noise guidelines released in 2018 recommended a 45 dB (Lden) limit for wind farm noise, as measured outside the residence, to prevent negative effects on sleep and health. However, the report noted the lack of research or evidence available to conclusively support this new guideline limit. Previous WHO guidelines were based on an inside measurement limit of 30 dB(A), although it can be difficult and intrusive to carry out wind farm noise testing inside a residence, particularly over a long period of time.

Current wind farm noise criteria therefore rely on the effects of attenuation of the noise by the residence structure and would assume that a noise level of say 40 dB(A) measured outside the residence should be less than 30 dB(A) measured inside, based on an expected attenuation in the order of 10-15 dB(A). This attenuation may be greater if the dwelling's windows are closed and the residence is of solid construction and well insulated, however, the effective attenuation may be less if windows are open and/or construction and insulation of the residence is less robust.

Issues can also arise where a wind farm is tested for noise and the result exceeds the limit by a marginal amount, for example 40.2 dB(A) against a limit of 40 dB(A). The Commissioner's understanding is that a difference of up to 2.0 dB(A) would not be discernible by the human ear and is the result of the complex mathematical calculations that assess multiple noise data points. There may be some merit in allowing for a small, reasonable tolerance level to avoid wind farms being in technical breach of compliance while not materially exceeding the stated limit criteria. It should be noted that our Office now receives very few complaints about audible wind farm noise – nearly all noise complaints relate to proposed wind farms and the perceived concern that the proposed wind farm wind farm will be noisy.

Debate continues as to whether or not a low frequency standard should also be introduced, such as a dB(C) and/or dB(G) weighting. The prevailing argument to date is that the 'A-weighted scale', which has been designed to replicate the human ear's sensitivity to noise, accommodates a sufficient proxy for low frequency noise – noting that low frequency noise can be difficult to detect at levels that would breach threshold targets.

However, based on complaints received, the possibility remains for annoyance for some people living in proximity to a wind farm and perceiving low frequency noises or vibrations while inside their residence. More work is still required to determine whether or not the low frequency noise or vibration source in question is from the wind farm or some other source.

That said, the Office's case data has seen a significant reduction over time from complainants citing concerns about low frequency noise or vibrations emanating from operating wind farms. Further, recent research from Flinders University indicates that the source of vibrations being sensed by persons living

* or background noise plus 5 dB(A), whichever is the greater amount. Measurements of A-weighted sound pressure level are generally taken on the basis of LA90, 10-min.

near wind farms is unlikely to be from the wind farm's turbines (see *Human Perception of Wind Farm Vibration, Duc-Phuc Nguyen, Kristy Hansen and Branko Zajamsek*).

There may be other sources of noise as a result of the project's operation, in particular noise that would emanate from the electrical infrastructure, including power substations, transformers and back-up generators. The potential impact of such noise sources should be assessed during the design phase and tested for compliance during any post-construction noise testing.

Finally, the Independent Scientific Committee on Wind Turbines has derived a suggested wind turbine noise limit of 35 dB(A) (LA90,10-min) to ensure minimal annoyance. This suggested limit approximately equates to a LAeq,10-min of 37 dB(A) or a Lden of 43 dB(A).

Setback Distances

A setback distance (also known as a 'veto' distance) is a default distance that, if a residence (dwelling) is within that specified distance from a proposed infrastructure, such as a wind turbine, solar array or potentially a large-scale transmission line, that the resident can either veto the asset or enter into a commercial agreement with the developer to allow the asset to be sited within the setback distance limit.

Setback distances from an asset to a residence also vary across states. For example, Victoria originally had no setback distances for wind turbines, then introduced a 2 km setback distance in 2011 and subsequently amended it to 1 km in 2015. Queensland has a setback distance of 1.5 km, while the New South Wales framework is currently based on a merit assessment of each project against the criteria and performance standards in the framework. Western Australia has now also recommended a 1.5 km setback in their *Position Statement: Renewable Energy Facilities* (Western Australian Planning Commission, March 2020). Turbines can be closer to a residence than the default setback distance, however, typically require an agreement to be reached between the resident property owner and the developer.

Setback distances for large-scale solar arrays are still largely being developed and refined by state governments. We would expect default setback distances to be in place for distances between neighbouring residences, property boundaries and roads and the nearest solar array.

Current setback distances for wind turbines have been predominately set based on legacy turbine dimensions and expected outcomes from noise standards. As a rough rule of thumb, a 40 dB(A) noise contour should be just less than about one kilometre from the turbine(s), whereas a 35 dB(A) noise contour is typically less than 1.5 km from turbines, although these distances can vary with topography and terrain. Turbines installed during the last decade have mostly been at tip heights in the order of 150 metres and around 2 MW to 3 MW in capacity.

New projects are now proposing turbines with tip heights in excess of 220 metres and capacity of up to 6 MW or more per turbine. Improvements in turbine design have mitigated the noise effects and, generally speaking, the noise contours have not materially changed for these larger turbines, despite increased hub and tip heights as well as generating capacity. However, there may well be effects of increased visual amenity and shadow flicker impacts that may give rise for a need to revisit current set back distances and increase them accordingly.

While setback distances are typically based on the distance from the wind turbine to the residence, there may also be circumstances where the distance of the turbine from the neighbour's property boundary should also be a consideration. Such circumstances could include the potential effect of wind turbines on animals such as horses, driving distractions on nearby roads or other situations where turbines may impact neighbouring properties due to their proximity to land use activities on a property.

The British Horse Society recommends a minimum setback distance from wind turbines to horses of 200 metres or three times the blade tip height – whichever is greater – on the basis that horses could

potentially react to noise, blade rotation and shadow flicker impacts from wind turbines (see the Society's *Wind Turbines and Horses – Guidance for Planners and Developers*, 2015). The Society's report notes that, while there have been anecdotal reports of livestock such as horses being impacted by turbines, no formally recognised studies have established demonstrable causality.

Upper Lachlan Shire's Development Control Plan specifies that turbines shall not be located within a distance of two times the tip height of a turbine from a formed public road or a non-involved property boundary. For example, a tip height of 150 metres would require a setback of 300 metres from a road or property boundary according to these guidelines (see *Upper Lachlan Development Control Plan 2010*, page 93).

Further, there is the possibility of a turbine blade 'dropping' or being 'thrown' from the turbine while in operation. The Commissioner is aware of five such events in Australia in recent times. As discussed in further detail in Section 9 (Health and Safety), the Commissioner has facilitated meetings with industry to discuss wind farm safety incidents, agreeing to adopt measures to ensure full transparency and sharing of incident information across the industry. Corrective actions and mitigation strategies are in the process of being implemented to avoid future incidents, however these recent events also support the need for a default setback distance from roads and boundary fences in the order of 200 metres to allow for a safety margin in the event of a blade drop or throw.

Electrical infrastructure required for the project, such as new high voltage transmission lines to connect the generator to the grid, may also cause a change in visual amenity for community members and have other impacts. Consideration should be given for those impacts and require setback distances as they may also be appropriate to mitigate visual amenity loss and noise issues arising from the infrastructure.

Guidelines for setback distances between a large-scale, high voltage transmission lines and say neighbouring residences, parks, schools, roads etc. currently do not exist and rely on the best efforts of the route plan to avoid conflicts where possible. A typical design guideline is a setback distance of 300 metres between the transmission line and a residence.

Shadow Flicker

Consideration should also be given to review the current standards for wind turbine shadow flicker. A typical standard at present is a limit of 30 hours of shadow flicker per year at a resident's external window or garden area. This standard, used across Australia, has been sourced from shadow flicker standards developed and used in Europe, where setback distances to residences are typically less restrictive. At, say, a 1 km distance from a turbine, the residence would be highly unlikely to receive 30 hours of actual shadow flicker.

A more appropriate standard in the Australian context may be no more than a total 15 hours of actual shadow flicker per year at a residence and no more than 30 minutes of shadow flicker should be experienced on a given day. Neighbours experiencing (or likely to experience) shadow flicker that is annoying should also be provided with the opportunity for having visual screening installed.

However, to date, shadow flicker complaints about operating wind farms have been minimal. Given the other standard setbacks and turbine noise contour requirements, there may be merit in discontinuing the requirement for modelling and predicting shadow flicker impacts beyond a threshold distance (e.g. 1 km).

Solar Farms

Solar farms have their own specific parameters requiring standards and criteria to assist in assessing potential projects and recommending mitigations to predicted impacts. Examples include impacts related to visual amenity, glare and glint, reduction in productive agricultural land, hydrology and water flows, environment and biodiversity, 'heat island' effect, health and contribution to cumulative impacts of neighbouring projects on nearby residents and communities.

Most jurisdictions have prepared draft solar guidelines in recent times – a good example is the New South Wales Government's *Draft Large-Scale Solar Energy Guideline*, published in December 2021.

This is still a work in progress area as jurisdictions move to develop and refine their large-scale solar guidelines. Our Office will contribute to these developments during 2022, with the view to providing best practice guidance in our 2022 Annual Report.

Harmonisation of Standards

The opportunity exists for a clearer framework of standard setting and enforcement of standards, whereby there is independence in the setting and enforcement of standards from the planning function. Such independence allows for increased community confidence in the objectivity of setting standards and assessing compliance. It also allows the relevant independent agency to acquire and maintain the appropriate skills and expertise to fulfil its standards and compliance responsibilities.

The opportunity also exists for increased harmonisation of key standards across state jurisdictions, such as noise, visual amenity, shadow flicker and setback distances, providing a consistent approach and expectations for governments, industry and the community. Consistency across the states will not only provide a more equitable outcome for residents potentially affected by projects, but may also result in the additional benefit of driving improvements in the technology across the entire market based on the more stringent, while appropriate, standard.

While there may be a number of ways to address these issues, best practice appears to be assigning responsibility for the setting and compliance oversight of environmental-related standards with the state environmental regulator, while the application of the standards to specific projects rests with the state or local government planning authority. The current arrangements in place in New South Wales and South Australia generally reflect practices along these lines.

While standards and categories of standards for wind farm projects is reasonably mature, more work is required to detail the equivalent set of planning and environmental standards for solar farms.

Large-scale Transmission (new build)

For new major transmission projects, guidance should be provided on appropriate setback distances from residences, schools, public buildings, parks etc. to the transmission line easement boundary Guidance may also be required for other impacts including visual amenity, cumulative assets, environment and biodiversity, noise, health and safety.

These topics are very much work in progress and further direction may arise as a result of environmental impact studies underway for major transmission projects currently being developed.

Deemed Compliance

Finally, once a wind or solar farm commences operations, it may not have achieved formal compliance of all conditions until the project is completed, commissioned and all the post-construction compliance testing has been completed and accepted. Typically, formal post construction testing, such as noise testing of a wind farm, can only commence once all turbines are operating. The testing itself may take up to 12 months to complete and report. There may be a period of two or more years where the wind farm is partially or fully operating but is yet to be confirmed as compliant.

A project may therefore effectively default to being deemed as compliant in some jurisdictions, even though post-construction assessments have not commenced or been completed, relying on the predictive assessments undertaken prior to construction as the basis of being 'compliant'. There may be an opportunity to introduce more formal processes to properly clarify the 'deemed' compliance period and then clearly state when a project is confirmed as compliant (once all the required post-construction testing is complete and the results confirm compliance with the criteria) and the timeframes for when that must occur.

The interim period of compliance uncertainty can cause a range of community concerns, particularly at, say large wind farm projects that may have a two year plus construction cycle followed by a 12-month post-construction testing/reporting program.

Anecdotally, some wind farms have been described as being 'not non-compliant' when unable to confirm compliance with required permit conditions, highlighting the difficulty of declaring a wind farm to be 'non-compliant' when its default status is compliant. Again, it may be appropriate to consider that a wind farm is deemed to be operationally compliant during the construction, commissioning and testing periods, but ongoing compliance is subject to final confirmation by the responsible or regulatory authority after compliance testing is completed.

From the Commissioner's observations, one solution to this issue is for a wind farm to be licensed by the appropriate environmental regulator. Under this scenario, the wind farm would need to confirm and maintain its compliance with the applicable license and permit conditions or risk losing its license to operate in the event of unrectified material breaches of the license and/or permit conditions. The license conditions could include conditions to be met during the period prior to post-construction testing, particularly regarding handling abnormal or mechanical noise issues that can arise.

The license or approval to operate may also require the asset operator to carry out periodic post-construction noise testing on the wind farm to be able to confirm ongoing compliance of the asset. Victoria has recently introduced such a requirement on all operating wind farms in that State.

Measurement approaches for measuring compliance with the standards can also vary between projects and jurisdictions. Given the extraordinary number of variables to be measured, consideration needs to be given to the consistency of measurement, calculations and reporting for assessing environmental measures such as noise and flora and fauna impacts when setting permit or license conditions.

For example, there is much scope for variability when selecting the noise data points to be included in a noise compliance assessment and determining the 'line of best fit' for those set of noise data points – such variances could mean the difference between compliance or otherwise when assessing the results of a noise testing program. Section 6, which follows this section, discusses the merits of an independent audit regime to check the accuracy and integrity of environmental assessments, such as noise.

5.2. Recommendations

5.2.1. State governments should review and clarify their arrangements for the setting of and maintaining environmental standards, along with the arrangements for oversight and confirmation of compliance with those standards. It is preferred that the department(s) or agency setting and maintaining the various standards is independent of the authority responsible for planning and applying those standards.

5.2.2. The compliance authorities for a project should be clearly defined, transparent, accessible to the community and able to receive and investigate allegations of compliance breaches. Where compliance oversight currently rests with local government, appropriate support and resources should be made available to the council/shire to enable them to effectively perform their compliance and investigative responsibilities. This includes being equipped with the appropriate policies, processes and procedures to handle alleged breaches of permit/license compliance and/or laws.

5.2.3. Based on the outcome of the review outlined in Recommendation 5.2.1, state governments should consider whether the current arrangements are appropriate, effective and consistent with best practices for the independent development, maintenance, compliance management and governance of environmental standards applicable to energy projects.

5.2.4. In considering the above recommendations and possible reforms, the potential roles of an appropriate independent, state based, standards and compliance agency (such as a state environmental protection or regulatory authority) could include responsibility to:

- Set and maintain the environmental standards applied to wind and solar farms, including setback distances, noise, shadow flicker, visual amenity, flora and fauna, environment and heritage (noting the role of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* with regard to Matters of National Environmental Significance including protected flora and fauna), along with specifying the methods and procedures for measurement of the prescribed standards.

- Review planning applications for projects and recommend/require permit conditions related to the environmental standards. Environmental standard conditions in permits should clearly state the process for how the measurements are to be undertaken and reported as well as provide the opportunity for peer review of the process, calculations and results.

- Provide or facilitate peer review and audit of expert reports, including review of testing and modelling programs, submitted by the developer to the relevant planning or statutory authority (see also Section 6).

- Where appropriate, license the facility once it is constructed and issue and monitor license conditions for the operation of the asset that may be subject to review and renewal. State governments should also receive and review regular reporting against those licence conditions from the project operator and may withdraw licences in the event of unrectified material breaches of applicable license and permit conditions.

- Receive and investigate complaints related to environmental standards, including alleged breaches of non-compliance with permit requirements or relevant laws.

- Confirm as required the compliance or non-compliance of an operating project regarding environmental standards, related permit conditions and relevant laws.

- Report material compliance breaches and investigations to the Clean Energy Regulator and other relevant agencies.

- Liaise with other agencies (e.g. Civil Aviation Safety Authority, Australian Government Department of Agriculture, Water and the Environment) on assessments and compliance matters that involve such agencies.

5.2.5. Planning permits (and/or applicable licenses) for projects should clearly state:

- The oversight organisation(s) or person(s) accountable for determining compliance of a project with its permit (and/or license) conditions, during construction, post-construction and ongoing operational stages.

- The process and contact details for lodging a complaint or alleged breach of permit (and/or license) compliance.

- The process to be followed if an operating project is found to be non-compliant with one or more of the permit (and/or license) conditions.

- A requirement for the developer or operator to publish transparently, on the project website, the process and contact details to make a complaint or alleged compliance breach to the designated oversight organisation.

5.2.6. During the period between the commencement of a project's commissioning/operation and the completion of any required post-construction assessments, the project could be designated to be in 'provisional' or 'deemed' compliance, pending the results of the assessments. In this scenario, a project can only move from 'provisional compliance' status to being confirmed as 'compliant' once the responsible authority has confirmed it is satisfied that the project is compliant as a result of any post-construction assessments. While the project is in 'provisional compliance' it is deemed to be compliant. Once a project has completed its post-construction assessments and confirmed to be compliant by the responsible authority, ongoing compliance is then overseen by the designated agency or responsible compliance authority. For the avoidance of doubt, a project that has been constructed in a way that is consistent with the requirements of any predictive assessments would be deemed compliant unless proven otherwise.

5.2.7. If a project's facilities are deemed by a responsible authority to be in an unrectified material breach of compliance, the project should be required by the responsible compliance authority to cease operating or curtail the non-compliant facilities until the non-compliance root causes are determined, rectified and compliance is then achieved.

5.2.8. The Federal Government could review the compliance enforcement powers and actions that may be taken by the Clean Energy Regulator in the event of a suspected or confirmed unrectified material breach of compliance, including the Regulator's ability to directly take punitive actions against a non-compliant project.

5.2.9. Governments should consider reviewing the primary standards across all jurisdictions for noise limits and setback distances for renewable energy projects and associated infrastructure.

5.2.9.1. Based on current observations and the findings of the World Health Organization, it would appear that an appropriate level for a consistent wind farm noise limit would be 35 dB(A)[*], measured outside of the residence. Noise standards that specify 'high' and 'low' amenity noise level limits must have clear guidance that define where those limits are applicable.

5.2.9.2. Applied penalties for specific noise conditions such as tonality and special audible characteristics continue to be set at 5 dB(A), however such noise complaints should also be assessed on a subjective and reasonableness test at the receiver's location by an approved, independent expert. Protocols should be developed and in place to clarify interpretation of 'borrowed' noise standards from other jurisdictions.

5.2.9.3. A default setback distance of 1.5 km between a residence or dwelling and the nearest wind turbine – for turbines with a tip height of 200 metres or more. A longer setback distance may be more appropriate to accommodate increased visual amenity impacts. Local topography, existing trees and vegetation as well as terrain need to be also considered when applying any default setback measures.

5.2.9.4. In addition to a setback distance between a turbine and a residence, a minimum default setback distance of 200 metres (as measured at ground level from the centre of the tower or 150 metres from the extended horizontal blade tip, whichever is the greater) and a neighbour's boundary fence line or public road carriageway, should also be considered to mitigate potential amenity impacts safety risks. An appropriate risk assessment should be considered for setbacks from roads, particularly for low use roads, which may support a reduced setback distance.

[*] LA90, 10-min; or background noise plus 5 dB(A), whichever is the greater amount

5.2.9.5. In relation to connecting to private transmission lines (typically private power lines connecting the generation/storage asset to the grid), a transmission line that is 66kV or less than 220kV should have a minimum setback distance of 100 metres from a residence, while a transmission line that is 220kV or greater should have a minimum setback distance of 200 metres. In the event that the connecting transmission line is 500kV, the minimum setback distance should be 300 metres. The setback distance should be measured from the edge of the transmission line easement to the residence. Transmission line towers should also be set back from public roads, with the suggested setback distance of the transmission line towers measured as the tower height plus 20 metres.

5.2.9.6. Consideration should be given to setback distances between large-scale renewable energy projects and a materially populated township or city boundary. A distance of 5 km may be appropriate to preserve amenity and provide some flexibility for planning growth of the township Consideration of reducing these suggested setback provisions may be appropriate in the case of a small-scale, community-supported and owned wind energy facility.

5.2.10. The noise assessment design and compliance testing conditions should include assessment and testing of the project's electrical infrastructure (transformers, substations, back-up generators etc.) and noise levels from these sources need to be compliant with the applicable standards.

5.2.11. A setback distance between a residence and other infrastructure associated with the project, should also be considered to help alleviate visual amenity, noise and other environmental impacts. These would include a setback distance between a residence and major transformer or generation infrastructure, such as a terminal substation. Where possible, transmission related infrastructure should be placed underground and/or well away from residences and road reserves.

5.2.12. Power poles installed in the road reserve must comply with relevant road safety standards and guidelines for setback distances from the carriageway, comply with any other road safety treatment requirements and barrier specifications. Power pole locations must be pre-approved by the responsible authority.

5.2.13. Consideration should also be given to the current standards for wind turbine shadow flicker. A typical standard at present is a limit of 30 hours of shadow flicker per year at a resident's external window or garden area. A more appropriate standard could be no more than a total 15 hours of actual shadow flicker per year at a residence and no more than 30 minutes of shadow flicker should be experienced on a given day. Neighbours experiencing (or likely to experience) shadow flicker that is annoying should also be provided with the opportunity for having visual screening installed as early as possible.

5.2.14. Final siting adjustments for turbines during construction ('micro-siting') should be limited to a distance of no more than 100 metres from the approved site location and be no closer to a residence (or materially closer to a property boundary as per Recommendation 5.2.7). Siting adjustments should be properly documented, including the reasons for the change. Micro-siting of a distance greater than 100 metres should require prior written approval from the responsible authority.

5.2.15. Large-scale overhead transmission lines and towers (new build) for the electricity grid should have clear setback distances between the edge of the easement of the transmission line and nearby residences. Proposed setback distances should be consistent with Recommendation 5.2.9.5:

- 66kV up to <220KV – 100 metres
- 220kV up to <500kV – 200 metres
- 500kV – 300 metres

Where a setback distance cannot be achieved due to a constrained route corridor, the proponent must negotiate a fair and reasonable agreement with the owner of the residence to allow the transmission line to be within the prescribed setback distance.

5.2.16. Other transmission line setback distances should be established for public roads, schools, public parks (including state and national parks) and be included in planning guidelines for new large-scale transmission lines.

5.2.17. Further to 5.2.15 and 5.2.16, setback distances also need to be established for underground transmission lines, which may differ depending on if the line is AC or DC. Underground transmission lines still require a range of above ground infrastructure to be implemented – such infrastructure should also be suitably setback from residences and other public areas.

5.2.18. Transmission line planning guidance should also be developed to accommodate identification and mitigation of other impacts, such as visual amenity, noise, health, safety, environment, biodiversity, cumulative, community and safety.

6. Use and Selection of Experts

6.1. Observations

Background

The design and approval of a proposed energy project relies heavily on third-party consultants (or 'experts') to prepare a range of reports including assessments related to noise, visual amenity, shadow flicker, aviation, flora and fauna, hydrology, vegetation and various other environmental assessments.

Experts are selected and paid for by the developer. The expert reports are typically included with the developer's planning permit submission to the responsible authority when seeking approvals for the project. Many of the assessment reports rely on complex calculations or results from predictive computer modelling. These reports also rely on assessing the project against standards that are not always clearly defined.

Some expert reports are inputs to the broader assessment process. For example, background noise assessments are primarily undertaken to set the noise criteria at specified locations, where the noise criteria are, say, '40 dB(A) or background noise plus 5 dB(A), whichever is greater'. The background noise must be obtained during the development phase to complete the formula and set the criteria levels.

The accuracy of the assessment reports and recommendations is therefore highly dependent on the quality and precision of the assumptions used, correct application of calculations, the integrity of computer modelling applications, the accuracy of the data used and the skills of the expert in interpreting the output of the resulting analysis.

Once the project is built, experts are then engaged to carry out any required post-construction assessments. These assessments, and resulting reports, utilise actual data from the operating project, however, may still rely on assumptions and modelling to collect and analyse the data and to then present in a format to support the conclusions.

It is very common practice that experts engaged to perform the design and predictive assessments during the planning phase are the same experts engaged by the developer to perform the post-construction assessments. Developers may also often use the same experts on multiple projects, establishing long-term relationships between the parties.

Process and conflicts

The selection and use of the same expert in both the design and then post-construction phases of a project may give rise to perceived or real conflicts of interest between the developer and the expert, as well as client (i.e., the developer) expectations effectively placed upon the expert to confirm the project's compliance.

As a hypothetical example, an acoustician engaged to assess a proposed wind farm's design and layout for compliance with the noise standard – is then subsequently engaged to assess the constructed, operating wind farm to confirm operational compliance with the noise standard. The expert acoustician may then be placed in a difficult situation if the acoustician discovers some aspects of the operating wind farm are potentially non-compliant, particularly if those areas of non-compliance may be a result of errors or assumptions made in the acoustician's predictive assessment. Enormous pressure could potentially be placed on the expert acoustician to measure and/or interpret the post-construction operating noise data in such a way that would demonstrate compliance, rather than non-compliance, of the operating asset.

Expert reports submitted to the proponent and, in turn, submitted by the proponent to the responsible authority and other relevant agencies, would be assisted greatly if such reports were subject to an independent audit carried out by an accredited independent auditor.

There is certainly scope for a clearer separation between the experts used for the predictive assessments, during the design/application stage, versus the experts used for the post-construction assessments of a project, along with the inclusion of independent audits of the expert's reports. A more rigorous process would yield a range of material benefits, including minimising costly expert errors made during the assessment phase, minimise or eliminate perceived or real conflicts of interest and give all stakeholders greater confidence in the integrity and reliability of the expert's advice and reports.

Best practices

Best practices that have been observed are as follows:

- A suitably qualified expert be appointed by a developer to carry out the relevant predictive assessment as required for the planning application. The appointed expert must be free of any real or perceived conflicts of interest and/or declare any potential conflict of interest and advise how it will be managed.

- Before submitting the project's design or planning application, an independent, accredited auditor is appointed to scrutinise and review each expert's assessment/design report. The auditor's reports and findings/recommendations are provided to the developer, the developer's expert, the responsible planning authority and other relevant agencies for the subject matter (e.g. Civil Aviation Safety Authority, Country Fire Authority, Environment Protection Authority, Australian Government Department of Agriculture, Water and the Environment, local Council etc.).

- Decisions to approve the planning application then include review of the expert's predictive assessment reports together with the accompanying audit reports. An unfavourable audit report may require the expert to revise their report – or for the proponent to engage a new expert – before permit approval can be granted.

- Once the project is constructed, a different expert (that is, different and unrelated to the 'predictive assessment' expert) be appointed to carry out required post-construction compliance assessments, as specified by the planning permit or equivalent instruments.

- The post-construction compliance report is then reviewed by a different, independent, accredited auditor (that is, no association with the auditor of the 'predictive assessment' report) to confirm the accuracy and integrity of the post-construction report. The post-construction auditor's findings/recommendations are issued to the developer, responsible authority and other relevant agencies.

- Project compliance is confirmed once the responsible authority is satisfied with the findings of the experts, accompanied by unqualified, independent audit reports.

These additional steps and appropriate separation of experts and auditors will go a long way to facilitate confidence for all stakeholders in the significant decisions that are made based on expert reports. The process will also provide better protection for industry from very costly errors and risks of subsequently being found to be non-compliant.

This type of approach for noise assessments was piloted, on a voluntary basis, at a proposed Victorian wind farm. In applying a more conservative approach than the initial assessment, the process found that a material number of turbines at that wind farm were at risk of breaching compliance if deployed as planned. Early identification of these issues allowed the proponent to adjust the operational design and parameters accordingly to ensure compliance – before construction commenced.

The Victorian Government has now formally adopted the accredited noise assessment auditor framework for all new and modified wind farm planning permits. Other states have implemented or are considering implementing variations on the above. In some cases, industry proponents have also

adopted some or all of these best practices, even if not required, to ensure integrity and accuracy of the expert reports they are relying on. The practice of utilising a different expert to undertake the post-construction compliance testing program is also being increasingly adopted by industry and recommended by auditors.

In addition to predictive noise assessments, other expert disciplines that have led to material issues in recent times included aviation safety assessments, flora and fauna assessments, measurement of turbines from dwellings and vegetation clearing assessments for transportation routes. Errors and/or omissions in those assessments lead to significant project delays, project cost overruns, litigation or non-approval/cancellation of the project as a result.

Finally, it is expected that these reforms will increase the market opportunities for additional experts and auditors as well as help facilitate growth of skills and firms in the relevant disciplines.

6.2. Recommendations

6.2.1. Given the heavy reliance on advice and assessments provided by experts in a project's design, planning, construction and compliance decision-making, qualified experts used for assessment engagements should be ideally selected from an accredited panel or list. The panel or list could be maintained by the relevant responsible authority (or environmental regulator), or recognised referral agency, such as CASA. Alternately, the panel or list could be maintained by a relevant industry body or association.

6.2.2. To ensure independence and remove any real or perceived conflicts of interest, the expert organisation (or expert) selected to perform post-construction compliance assessments of a project should be a different expert organisation (or expert) to the one engaged for the design and predictive assessment planning phases of that project.

6.2.3. Expert reports, assessments and techniques used for planning submissions, such as the predictive noise assessment, should be reviewed and assessed by an independent auditor, appointed or accredited by the responsible authority and/or relevant regulator. Further, expert reports prepared with respect to post-construction compliance should also be reviewed and assessed by a different, independent auditor, also appointed or accredited by the responsible authority and/or relevant regulator.

6.2.4. The appointed independent auditors (refer to Recommendation 6.2.3) should be suitably qualified, experienced and accredited, have the ability to assess the integrity and accuracy of the expert's report and be able to identify and confirm compliance or non-compliance with the relevant permit conditions and/or prescribed standards.

6.2.5. Planning permit approval processes should carefully take into account the advice of independent auditors and/or referral agencies, such as CASA, before deciding on whether to approve a project. Where appropriate, designated authorities (e.g. the relevant road authority), may be deemed to be a statutory referral agency, whereby their advice and recommendations must be adhered to by the responsible planning authority.

7. Complaint Handling and Emergency Procedures

7.1. Observations

Complaint handling

It is inevitable that major infrastructure projects will attract concerns and complaints from community members and other stakeholders – particularly during the development and construction phases of the project.

Rather than being perceived as an indicator of failure or a nuisance to have to respond to, complaints should be embraced by developers as an opportunity to correct a misperception, provide helpful information, or rectify a real issue. Further, it is a terrific opportunity to build a positive relationship with the complainant moving forward.

The clear majority complaints received by our Office about proposed projects in the development or construction phase. Most of these complaints are resolvable by the provision of factual information to address the concern.

Projects are typically required to establish a complaint handling procedure, together with supporting systems and processes, to comply with planning permit conditions. It is also best practice that a project can properly receive, investigate and resolve complaints during all phases of the project – from initial development through to mature facility operations.

Complaint handling procedures are generally required to be submitted and endorsed by the responsible authority. However, in many cases, limited guidance is provided in permit conditions as to the process, scope, requirements and standards that the complaint handling procedure should adhere to.

While many projects are likely to be compliant with the requirement to submit and have an endorsed complaint handling procedure, our observations have been that several projects (or proponents) have not published the procedure or communicated the procedure to the community. Further, it is often not clear as to how community members can contact the developer to make and lodge a complaint or concern.

This lack of transparency can make it difficult for community members to know how to make a complaint and the process by which they should expect their complaint to be handled.

It is pleasing to see that many projects have adopted the Commissioner's suggestions, making their complaint handling procedures transparent and demonstrating compliance with their processes for complaint handling. However, there are still further opportunities for developers to ensure they are following their own documented procedures when handling complaints and avoid situations including:

- projects not following their own published procedure for handling complaints
- projects failing to internally escalate the complaint for review when the complaint has not been resolved
- multiple complaints from a resident about the same issue or issues – with no visible action being taken by the proponent to investigate or resolve
- a lack of rigour or process in complaint investigations
- poor content and lack of clarity in developer correspondence responding to the complainant
- complaints remaining open when they could have been closed, and
- a lack of clarity regarding next steps in the complaint handling process – leading to numerous complaints that remain unresolved and/or not closed.

There is also a wide range of project complaint handling procedures in place that vary by developer and project, often resulting in a mix of consistency in the quality and effectiveness of the procedures. Also, developers may possess varying degrees of complaint handling skills. There are opportunities to improve the capability of staff and effectiveness of the industry's complaint handling procedures.

The Commissioner has successfully encouraged a number of developers and operators to voluntarily publish their complaint handling procedures on their project website. Many proponents have now complied with this request. Some proponents have also revised their complaint handling procedures as a result of discussions with the Office. The Commissioner continues to make suggestions to improve existing complaint handling procedures to many industry representatives who have sought assistance from the Office. Developers also often seek assistance from the Office on suggestions for handling specific complaints that they may be dealing with.

Noise considerations

While objective measures and standards are used to determine compliance with noise restrictions, it is also evident that there is further scope to investigate complaints relating to noise emissions from wind turbines and other infrastructure. In assessing noise-related complaints, the objective 'tests' currently in place do not necessarily capture the tonal character of noise emissions that a complainant may be experiencing. For instance, maintenance or operating issues with infrastructure (such as a turbine or a substation transformer) may lead to harmonic frequencies that produce a harsher tone to the human ear. While this is not typically represented in noise assessment data, contemporary noise measurement or recording devices can be used to indicate that the tonal character of a particular noise emission may reasonably be disturbing or offensive to a complainant.

Other events can cause abnormal noise annoyance from wind turbines. These include loose bolts, whining gearboxes, lack of greasing of the rotating nacelle causing a screeching noise during the yaw breaking process, and lightning strike of a blade tip (piercing a hole in the turbine blade that causes a high-pitched whistling sound). These situations require a rapid response to the complaint, and it is in everyone's interest that the asset be repaired, and the noise emission rectified as soon as possible.

If a resident has concerns about experiencing audible noise being inside their residence, the suggested approach is for a suitably qualified acoustician to attend the property, witness the alleged noise, determine root causes and source of the noise, and, finally, prescribe a solution to the issue.

Permit requirements and complaint avenues

Following the Commissioner's discussions with the relevant Minister and Department, the Victorian Government moved quickly to introduce additional permit conditions related to complaint handling procedures and transparency based on the Commissioner's initial observations and recommendations. It is understood that these additional conditions have been applied to both new, renewed and modified planning permits issued for wind farms in Victoria.

There may also be other avenues for complaints to be lodged by residents in proximity to a project. Until around July 2021, complaints about wind farm 'noise nuisance' in Victoria were able to be lodged with local government under the *Public Health and Wellbeing Act 2008 (Victoria)*. While wind farms are now exempt from that legislation, Councils should still be fully aware of their responsibilities under this Act and ensure they have appropriate documented procedures to receive and handle complaints in the case they were lodged under this legislation.

Further, the *Environment Protection Amendment Act 2018 (Victoria)* came into force in 2021 and provides additional options for residents to raise complaints about 'unreasonable noise' and allege breaches of the general environmental duty by the developer/operator.

Victoria has also initiated changes to wind farm noise regulation, moving investigative responsibilities from local councils to the state-based Environment Protection Authority, effective 1 July 2021. These new arrangements are similar to the regime that has been in place in New South Wales since 2013.

With these regulatory changes in place as of July 2021, community members in Victoria can lodge noise complaints about operating wind farms to the wind farm operator, the EPA, our Office or pursue legal action in the courts for a breach of compliance.

Finally, industry bodies such as the CEC and ENA may have key roles to play in leading the development and promotion of consistent, best practice complaint handling models and procedures for the renewable energy ad transmission industries that can be adopted by industry members, configured for their specific operations.

Emergency procedures

The Commissioner has observed opportunities for clearer protocols to be put in place between project operators and emergency response agencies, in particular as they relate to ground and aerial firefighting, the ability to direct a rapid shutdown of assets, such as wind turbines and high voltage transmission lines, activating aviation safety lighting, and the positioning of turbine blades during the shutdown to minimise the obstacle's interference with aircraft (the preferred position being a 'Y' shape, with one blade aligned with the turbine tower, also known as the 'rabbit ear' position).

Not all turbine manufacturers or specific turbine models, have the ability to remotely lock the turbine blades into the ideal position for safe aerial firefighting. Some blades will continue to drift with the wind, further increasing the risks to pilots and reducing the workable airspace between turbines for planes to fly and drop retardants.

Other potential obstacles to aerial firefighting, such as meteorological masts, radio towers and powerlines may also exist around the project site and pilots need to be well aware of this infrastructure. A consistent standard for the visible identification of meteorological masts should be considered and adopted into planning guidelines and aviation safety assessments.

Turbines equipped with aviation safety lighting should ensure there are procedures in place to quickly activate the lights during a bushfire or fog event to increase transparency of those obstacles to pilots. Ultimately, pilots will need to make their own assessments and decisions about whether it is safe to fly in and amongst a wind farm or transmission line, based on the weather, smoke, fog, wind conditions and any other relevant considerations or constraints.

7.2. Recommendations

7.2.1. Planning permit conditions for projects should stipulate that the complaint handling procedures should support all types of concerns and complaints raised about the project and also meet minimum best practice standards for complaint handling procedures (such as the *Australian/NZ Standard for Complaint Handling – AS10002:2014*). The developer should implement appropriate systems and processes to support the procedures and maintain an appropriately detailed complaint register.

7.2.2. Planning permits should include a condition requiring the endorsed complaint handling procedure and the complaints register to be published on the project's website. The website should include a direct, toll-free, telephone number and an email address to contact the project operator to make an enquiry or complaint. Developers should also proactively implement these provisions from the very commencement of development as part of best practice transparency and community engagement.

7.2.3. Planning permits should include a condition requiring that the endorsed complaint handling procedure be followed and complied with by the proponent. Failure to comply could be deemed as a material breach of permit compliance.

7.2.4. The responsible authority should have the powers and capability to audit a project's complaint handling process, activities and the complaints register – to monitor compliance with the endorsed procedures and the planning permit conditions.

7.2.5. The complaint handling procedure and the project operator should have the capacity to accommodate handling of urgent or emergency complaints. These complaints may be related to safety issues as well as unacceptable environmental impacts, such as damage to a turbine caused by external events such as lightning strike or mechanical failure resulting in unacceptable noise emissions. The project operator should respond immediately, on-site, to assess, address and rectify such issues. While objective measures and standards may be in place for assessing matters such as noise emissions, a subjective, reasonableness test should also be applied when assessing environmental conditions, such as abnormal noise emissions, tonality, special audible characteristics and low frequency noise.

7.2.6. Complaint handling bodies such as developers, local councils, state governments and compliance authorities should ensure they are able to receive and process complaints – and that their complaint handling procedures are relevant for the types of projects covered by this report. Further, these complaints need to be closed out at the appropriate time with the complainant being advised accordingly.

7.2.7. For extreme emergency conditions, such as a bushfire or flood, the project operator should have appropriate controls, protocols and procedures in place, consistent with the emergency response requirements, to ensure the assets can be rapidly shut down. Power network operators should be aware that the wind or solar farm capacity may need to be shut down quickly in the event of an emergency event.

7.2.8. Projects should also work closely with the relevant firefighting (and/or emergency services) agency to review and agree on protocols and procedures to be followed in the event of an emergency.

7.2.9. The project should also use appropriate marking devices to ensure transparency of other aerial obstacles such as meteorological masts, radio towers and powerlines in consultation with the firefighting agency. Material obstacles should require planning permits. If the obstacle is a potential risk to aviation safety, the obstacle should be assessed as part of the overall aviation impact assessment, with the audited assessment being provided to the responsible planning authority.

7.2.10. Wind turbine design standards should be reviewed in light of their capability to remotely position and lock turbine blades in the event of a bushfire. Developers should strongly consider selecting turbines that conform to this standard going forward. There would also be a strong advantage if turbines were delivered with the capability to install aviation lighting even if this is not a permit requirement or intended for use under normal conditions, as the ability to quickly and remotely activate safety lighting on turbines may assist greatly in the event of any bushfire or other emergency.

7.2.11. The industry peak bodies (CEC and ENA) should continue to provide leadership to the industry by developing and promoting best practice standards for complaint handling, along with community engagement and quality assurance of member companies. The CEC and ENA could also encourage or mandate (via a code of conduct) that its industry members voluntarily publish their project's complaint handling procedure and contact details, and their staff are properly trained and skilled in effective complaint handling.

7.2.12. Policies and procedures for handling noise and other environmental complaints lodged with government agencies, including local councils, should be in place where the possibility exists for complaints to be made either as an alleged breach of compliance and/or under other governing legislation, such as the Victorian *Public Health and Wellbeing Act 2008* and the *Environment Protection Amendment Act 2018*. Overlapping legislation may well need to be adjusted to avoid unnecessary duplication of process and the prospects of vexatious complaints and litigation.

8. Site Selection

8.1. Observations

Background

The selection criteria for a potential site for a proposed project may be based on a wide range of factors including the available wind or solar resource, proximity to existing transmission infrastructure, potential for securing landowner arrangements and other approved development in the area. It should also include the likelihood or, conversely, the degree of difficulty, of engaging with the community and gaining community support.

Current transmission infrastructure was originally planned, designed and built many years ago based on the location and availability of the then existing energy resources (such as coal, gas and hydro) which, at that time, did not envisage the significant shift to large-scale renewable resources such as wind and solar energy. These relatively new resources are often optimally (in all other respects) best located in different geographies and often well away from existing grid infrastructure.

Prospecting developers are not generally restricted in initiating a new project on a particular site and almost always pursue sites that are very close to existing transmission infrastructure. Developments often commence by prospectors initiating discussions with adjoining landowners at a transmission optimal site to seek their agreement to host the project. However, because existing transmission infrastructure is often located near communities, lifestyle dwellings and primary producers, prospective and developed wind and solar farms are more likely to be located in areas that will cause friction with neighbours and communities.

AEMO's Integrated System Plan (ISP) provides a detailed roadmap for the transition of the electricity grid. However, there is no corresponding plan for electricity generation that details preferred location, type and scale for proposed generation plants. The Renewable Energy Zones (REZs) being pursued by some states go part way to address the location dimension of a generation plan but may not specify the type and scale of the asset. Further, there are no guarantees that a prospector-developed project site within a REZ area will actually be developed into a generation asset within a required timeframe or at all. Meanwhile, the prospector will likely still have control of the land.

Similar to the mining industry, the offshore electricity infrastructure legislation, recently passed in the Federal Parliament, requires the Minister to first declare an offshore area to be suitable for offshore electricity infrastructure projects, which includes offshore wind farms and other renewable energy generation infrastructure. In deciding whether an area is suitable for development, the Minister will consider the potential impacts of such activities on other industries, the environment, the electricity generation capacity, and the potential demand for such projects in state and territory planning.

Potential proponents may then, via competitive process, apply for a feasibility licence to undertake exploratory and scoping work. Once feasibility work is completed, the licence holder can apply for a commercial licence which permits the licence holder to construct, install, operate, maintain, and decommission commercial scale offshore renewable energy generation projects (such as wind farms).

All things being well, the proponent is then issued with an operation license to build, operate and decommission the project. But if the proponent fails to meet key milestones in, say, the feasibility stage, they may well lose their right to the site and have their license terminated – making way for another proponent to step in.

Site impacts

The Commissioner's experience to date indicates that there is a much higher likelihood of community issues and concerns to contend with when a proposed or operating project is located near or amongst more populated areas. Often, the more populated areas correlate with accessibility to transmission

infrastructure, however, they can also result in a very large number of neighbours who will ultimately reside in close proximity to multiple turbines or solar arrays.

Further, there may be multiple proposed (and/or existing) projects in a given area, with the potential for residents to be 'surrounded' by projects – if such projects were to proceed. These scenarios could lead to a range of compounding issues for residents including construction impacts, impacts from noise, visual amenity and potential economic disparity or loss. There is also the possibility that large-scale projects may be proposed adjacent to environmentally sensitive areas, such as designated areas of high value habitat, National Parks or World Heritage Areas.

Impacts may be further compounded if project construction timeframes overlap, placing enormous pressure on local resources and infrastructure, in addition to the usual annoyances such as construction noise, traffic, road damage and dust. There can also be other severe cumulative effects during construction of more than one project in a specific locality, such as placing enormous pressures on roads, resources (such as gravel), meal providers, accommodation and skilled tradespersons.

Based on our complaint handling experiences, the Commissioner has found that locating wind turbines on the top of hills or ridges, while optimum for capturing the wind resource, can have greater impacts on visual amenity, may lead to specific noise and shadow flicker scenarios for residents in the valley beneath and may have other associated impacts on the community. Access roads for hill and ridge wind farms can also be obtrusive and significantly damage and constrain the remaining available farming land in the area.

Conversely, there appear to be minimal issues raised to date about wind farms that are located on large land holdings, or on flat or slight to moderate undulating land and sites that are well away from neighbours and towns (noting comments made earlier regarding landowner and neighbour agreements in subsections 1 and 2).

Similarly, solar farms are best sited on flat ground, where the surrounding topography is also on minimal undulation. Such siting can avoid visual impacts, including glare, glint and view impacts on prospective neighbours.

Location, capacity and availability of accessible transmission lines remains a significant challenge for the renewable energy industry. A number of more recently completed projects have discovered, upon connection to the grid, that there is insufficient available capacity in the existing transmission line for the project's generational output to be delivered – resulting in significant curtailment of the generation asset. A number of large-scale solar projects have experienced this situation, as these projects tend to be in more remote locations in order to capture the optimal solar resource.

Again, it may be prudent for developers to engage early with AEMO and transmission operators to ensure that the planned project's output can be fully accommodated and taken into consideration for AEMO's Integrated System Plan. But, fundamentally, there needs to be an integrated approach to grid and generation planning and mechanisms to execute on that combined plan in a coordinated way.

Optimising site locations

There may be opportunities to select and prioritise projects in the current pipeline based on an increased likelihood of acceptance of the project by the surrounding community. With the increase in development and construction costs, the ongoing grid connection/capacity issues and the declining value of large-scale generation certificates, not all projects in the development pipeline are expected to go ahead. There is an opportunity to select projects that meet other key parameters, including economic and regional development goals, while also selecting sites that are optimal from a community impact perspective.

Recent state and territory government initiatives, such as the identification of Renewable Energy Zones (REZs) in New South Wales, Queensland and Victoria as well as the VRET Program (Victoria), Reverse

Auction Program (ACT) and Renewables 400 (Queensland) have enabled governments to become more proactively involved in selecting projects that are located in more optimal sites. These programs also provide a level of oversight to help mandate community engagement programs through to ensuring minimal or no cumulative effects occur from neighbouring projects. Upgrades to the grid system at a national level may also provide opportunities to explore new locations for renewable projects.

REZs may need to contend with the issue of cumulative effects as developers concentrate their efforts in the REZ geography to leverage the transmission hub that is to be established. REZ administrators have the opportunity to license or select developers/projects that are most likely to achieve community acceptance as well as minimise cumulative effect issues as an unintended consequence of a REZ.

Given that existing projects have most likely already selected sites for their location, management and selection of appropriate new sites from remaining site options may become more difficult. A more 'top-down' approach to selecting proposed projects, together with appropriate long-term planning and deployment of the transmission grid, should assist greatly in managing this challenge going forward.

8.2. Recommendations

8.2.1. State/territory and local governments should consider assessing proposed wind, solar and storage energy projects on a wider range of criteria (including ability for power output to be transmitted and consumed, the suitability of a location from a community impact perspective and the degree of community support) and then prioritising projects for approval or progression accordingly. 'Reverse auction' feed-in tariff schemes, such as the schemes deployed by the ACT, Queensland and Victorian governments, and Renewable Energy Zones are examples of how governments can prioritise and incentivise projects to be developed in preferred locations. These schemes can also promote and motivate best practice community engagement by proponents. Visual amenity guidelines such as the *Wind Energy Visual Assessment Bulletin for State Significant Wind Energy Development* introduced in New South Wales in 2016 can also restrict development in more populated areas, including assessing the acceptability of multiple wind farms in a given location.

8.2.2. State and local governments may also consider other criteria in assessing and prioritising wind and solar energy projects, including economic development and the ability to both support regional and industry development through improved local electricity supply and infrastructure in regional communities. Appropriate zoning for renewable energy development and overlays for clarifying where it would be appropriate or not appropriate to build and operate projects should also be considered.

8.2.3. Prospecting for new wind, solar or storage development sites could be subject to an 'approval (or license) to prospect' requirement issued by the responsible authority before formal prospecting commences. Similar to the recent Offshore Electricity Infrastructure legislation, the approval to prospect a specified potential site would be granted on a range of criteria, including the suitability of the proposed site, alignment with the State's renewable energy zone strategy, transmission capacity/availability as well as the credentials of the developer and key personnel. See also Recommendation 1.2.10.

8.2.4. As part of the assessment suggested in Recommendation 8.2.1, the responsible authority should have processes in place to obtain and verify clear evidence of the developer's consultations with affected landowners and residents and be able to assess the likelihood of strong community support for the project.

8.2.5. Once an approved project has materially commenced construction, the responsible authority may need to check other pending or approved projects in the area which are yet to commence construction, to ensure any compounding effects on residents, including noise, shadow flicker and visual amenity, have been properly considered in those

applications/permits. If necessary and where reasonable, the responsible authority should also have the ability to require a modification to the approved planning permit and layout of those projects that have yet to be approved or not already materially commenced construction. Background noise level assessments should exclude any noise contribution from a neighbouring operating wind farm for the purposes of applying the noise standard.

8.2.6. State governments should publish and maintain a map of all operating and proposed wind, solar and storage projects, including the location of the project, location of wind turbines or solar arrays, the status of the project (proposed, permitted, in construction or operating) as well as information about the project's design, including number and size/rating of wind turbines, solar arrays or storage units and information about the proponent. This can be assisted via having appropriate links to the project website.

8.2.7. State governments, in conjunction with the appropriate Australian Government departments/agencies and the Australian Energy Market Operator (AEMO), should review current and planned transmission infrastructure to ensure it allows for new large-scale renewable generation facilities to be connected in the most optimal locations for renewable resources. AEMO's Integrated System Plan has identified a number of potential renewable energy zones that provides insight and direction for long-term transmission planning. The resulting new and/or augmented transmission infrastructure needs to be planned, built and commissioned and in place in a timely manner. If state government REZ programs are executed well, they should address this recommendation along with the major backbone grid deployments currently in plan.

8.2.8. State/territory governments should consider licensing arrangements for onshore generation projects along similar lines as has been recently legislated for offshore generation development. Prospectors and developers should have time limits for achieving milestones and should not have the ability to control an undeveloped generation project site *ad infinitum*.

8.2.9. Transmission easements required for actionable projects under AEMO's Integrated System Plan should be acquired well ahead of time.

8.2.10. There may be opportunities for regulators to clearly outline specific guidance and expectations for project prospectors to comply with in relation to site selection for projects that are likely to impact environmentally sensitive areas.

9. Health and Safety Matters

9.1. Observations

Health

Much has been and continues to be written and researched on the topic of wind farms and health effects. Debate continues around the world as to whether a wind farm causes physiological harm to residents living within its vicinity.

In 2016, the NHMRC announced the funding of two research studies into wind farms and health. One study is focused on the effects of audible wind farm noise on sleep and is led by Professor Peter Catcheside at Flinders University. The other study is focused on measuring the effects of infrasound impacts on humans and is led by Professor Guy Marks at the University of New South Wales.

In addition, the Australian Government established the Independent Scientific Committee on Wind Turbines – which operated from 2015 to 2021 – to provide advice on a range of matters including wind farm noise levels and the relationship to health effects.

A number of complaints about wind farms received by the Office included references to health impacts as a result of wind farm operations. Health conditions cited in complaints include sleep disturbance, headaches, ear-aches, 'pounding' in the ears, tinnitus, tachycardia, high blood pressure, sight impairment, diabetes, chest-tightening, nausea and general fatigue. The complainants generally state that such conditions are caused by audible noise and low frequency noise, including infrasound, along with vibration sensations allegedly attributable to the operation of nearby turbines. In some cases, complainants have stated that some health conditions are persisting even when the turbines are not operating.

Numerous invitations have been extended to complainants to provide evidence of their medical conditions. Complaints regarding health concerns received by the Office have, in the main, provided only anecdotal evidence regarding stated health issues and perceived causality. It has therefore been difficult to form an opinion on whether or not the stated health conditions reported by complainants are valid and, if valid, whether or not the health conditions are possibly a result of the wind farm's operations or from some other known or unknown cause.

The Office will continue to receive complaints, with supporting evidence, from community members regarding potential health effects from operating wind farms. Since the Office has commenced, 92 complaints about operating wind farms have been received. These complaints relate to 22 operating wind farms out of a total of more than 100 operating wind farms across Australia. Of these 92 complaints, approximately half of the complainants cited concerns about health impacts from the operating wind farms. Of these, a very small number of complainants agreed to work with the Office and provide evidence of the stated health issues. In all of these cases, the root cause of the stated health issue was not attributable to the wind farm.

Further, in 2021, 14 complaints about operating wind farms were received whilst the clear majority of complaints received were about proposed wind farms. On the basis that a wind farm has to be built and operating before it could possibly cause a physiological health effect, the potential cohort of potential physiological health complaints is very small.

It should also be noted that, for the last four years, the Office has not received any complaints regarding allegations of vibration sensations being caused by a wind turbine's operation. The Office's findings could not confirm any actual evidence of vibrations at a residence with causality from a turbine – findings which are consistent with advice received on this topic from Flinders University (see page 57). The Office's complaint data further substantiates these findings.

It is possible that stated health conditions that exist may be as a result of other known causes not related to the wind farm's operations. Of material concern is the potential situation whereby a resident may fail to seek and obtain appropriate medical advice and treatment for a treatable health condition, due to the possibly incorrect assumption that an operating wind farm is the perceived cause of the condition. For example, if a resident is experiencing sleep difficulties, they may be advised by their general practitioner (GP) to consult a sleep specialist for a proper diagnosis of the root cause and advice on treatment to remedy the condition. If the GP's advice is not followed, the cause of the condition may persist unnecessarily.

Health conditions may also arise as a result of stress, annoyance or anxiety related to the presence of an operating wind farm or concerns about the potential effects of a proposed wind farm. Further, uncertainties in relation to whether a proposed wind farm will actually proceed (a period which may extend for several years) may also contribute to stress and anxiety. Again, affected residents may need to seek appropriate medical treatment for these ancillary health conditions as well as seek ways to resolve their concerns.

In November 2019, the South Australia Supreme Court handed down its decision in relation to the proposed Palmer Wind Farm. The Court concluded that claims that the turbines would cause sickness and health issues for residents were unsubstantiated. Of note, the objectors did not provide sufficient evidence of causality from any expert medical witness. The Court's finding has been consistent with the Commissioner's observations and recommendations based on actual complaint experience.

The Office will continue to monitor relevant decisions that explore evidence about wind farms and health in consultation with the Independent Scientific Committee on Wind Turbines, such as the guidelines issued by the World Health Organization in 2018, as well as hearing outcomes, such as the Palmer Wind Farm decision and the Administrative Appeals Tribunal decision in *Waubra Foundation v Australian Charities and Not-for-profits Commission*. The Office will also monitor and continue engagement regarding any results of the NHMRC funded studies (which are expected to publish in 2022) and the work of the Independent Scientific Committee on Wind Turbines. We will continue to assess any further evidence gathered through complaint handling activities.

The Office has also observed the need for clearer, streamlined legislation that provides a balance of protecting the community while also providing a degree of certainty for the proponent. In Victoria, complaints made under the *Public Health and Wellbeing Act 2008 (Victoria)* have utilised the nuisance provisions under the Act to allege that wind farms are creating a 'noise nuisance', even when a wind farm has been deemed compliant with its permit conditions. Councils should have in place clear procedures for investigating and determining whether or not a wind farm is causing a noise nuisance under the Act. The Act was amended in 2021 to remove wind farms from the nuisance provisions of the Act.

Safety

There have been an increasing number of safety related incidents occurring in relation to large-scale renewable projects.

Some of these incidents have resulted in serious injuries to project workers, while others had the potential to inflict severe impacts on personnel and asset safety. A number, but not all incidents have been reported to the relevant workplace safety regulator.

Further, while some incidents remain under investigation to determine the root cause analysis, other incidents may have not been subject to the same rigour of process.

Examples of incidents that the Office is aware of include:

- Turbine blades falling to the ground during operations (three incidents in Victoria, one in NSW and one in WA)

- A construction worker's hand being severed while cleaning a concrete pump at a wind farm site (NSW)
- Roll-over of blade transportation vehicles on public roads (Tasmania and Victoria)
- Blade transportation vehicles colliding with power lines or other infrastructure (Victoria)
- Blade transportation vehicles colliding with other moving vehicles (NSW)
- Roll-over of on-site cranes (three incidents in Victoria)
- Workers falling from significant heights inside wind turbine towers (NSW and Tasmania)
- Inability for emergency responders to quickly locate injured worker on site (Tasmania)
- Workers involved in vehicle accidents to or from the project site (Tasmania)
- Fires allegedly caused by connecting transmission lines (NSW)
- Inappropriate or illegal use of firearms causing damage to transmission lines and turbines (Victoria).

Given the seriousness of these incidents and the potential increase in new incidents as the industry grows, along with the growth in scale and size of equipment, the industry and the broader community would benefit greatly from an industry convention and forum that encourages:

- Full transparency of material safety incidents to the industry body as soon as they occur
- Reporting of the incident to the relevant workplace safety regulator (even if no injuries occur)
- Ensuring that a proper investigation is conducted that determines the actual root causes of the incident
- Sharing the results of investigations so that other industry participants and regulators can learn from the experience and assess their own exposures and risks to a similar incident
- In the event of systemic or mechanical or operational failure, ensuring that other affected operators are aware and can take specific corrective actions on their fleet
- More broadly, implementing corrective actions as necessary across industry that arise from recommendations as a result of incident investigations
- Facilitate a culture of continuous improvement and zero harm across the industry through transparency and proactive actions
- Updating and/or developing appropriate guidelines regarding safety aspects of wind, solar, storage and transmission projects.

These important matters have been raised and discussed with the leaders of the industry and our Office looks forward to improvements in both transparency of incident information along with an improved safety record for the industry as a result.

Finally, large-scale renewable projects do not currently require a building permit as the structures do not correlate to the existing National Construction Code. Therefore, the regular checks and balances provided for by a building permit, that are in place when building say a 50-storey building, are currently not present when constructing a fleet of 280 metre tip-height wind turbines. The rationale for excluding large-scale renewable power stations from requiring a building permit should be re-assessed to determine whether a revision is appropriate.

9.2. Recommendations

9.2.1. Federal and state governments should continue to assess the outcomes of research into wind farms and health, including outcomes of the two NHMRC funded wind farm health studies and findings of the Independent Scientific Committee on Wind Turbines. Environmental standards, such as noise standards, should be monitored and reviewed in line with any recommendations arising from these programs.

9.2.2. Residents living in the vicinity of an operating or proposed wind farm that are experiencing health conditions should be encouraged to seek appropriate medical advice to properly diagnose and treat any health-related conditions accordingly. GP's receiving patients from wind farm locations should maintain an awareness of wind farm and health matters through bodies such as the Australian Medical Association and assist patients in understanding the need for appropriate testing, diagnosis and remedies for the presented health conditions or concerns.

9.2.3. Medical practitioners who identify potential causational links between a patient's health condition and their proximity to the operation of a wind farm should report such incidences in an appropriate way to the relevant professional body, association and/or government agency.

9.2.4. Residents who are experiencing unacceptable noise levels from a wind farm should be encouraged to report such incidents to the wind farm operator, the compliance authority and/or the appropriate regulator to initiate the appropriate investigation and resolution of the noise incidents.

9.2.5. Residents lodging health-related complaints with the Office should assist with providing and sharing any evidence regarding their stated health conditions and any medical assessments that identify possible causality of the wind farm as a contributor to the health conditions.

9.2.6. State governments may need to identify and address potential overlapping regulations and/or legislation with regard to noise emissions from a wind farm and ensure clear procedures are in place to handle, investigate and resolve such complaints raised under the various avenues.

9.2.7. The large-scale wind and solar industry commit to being a leader in workplace safety and will share and be fully transparent about safety incidents, incident root causes and corrective actions. The CEC can play a major role in ensuring and facilitating such information sharing with industry participants and safety regulators.

9.2.8. In light of the risks involved in constructing and maintaining large-scale renewable infrastructure, state and federal governments should give due consideration to introduce a requirement for such projects to obtain a building permit.

9.2.9. Updated guidelines and/or fact sheets need to be urgently developed for a range of matters related to generation, storage and large-scale transmission projects. High priorities include safely working and living around high voltage transmission lines and bushfire/fire-fighting procedures and protocols. These documents should be developed/updated by appropriate industry regulators or bodies, such as Energy Safe Victoria, Energy Networks Australia, AFAC, National Farmers Federation.

Glossary

A-weighted scale	A scale that is applied to instrument-measured sound levels to replicate the relative loudness perceived by the human ear.
Amenity	The visual impact a wind farm has on the landscape.
Australian Government	The Government of the Commonwealth of Australia (also referred to as Federal Government).
Australian Wind Alliance (AWA)	A not-for-profit organisation that supports the wind energy industry in Australia, with the objectives of boosting regional economies and reducing pollution and greenhouse emissions.
Clean Energy Council (CEC)	The peak not-for-profit organisation supporting the clean energy industry in Australia. The CEC represents a range of clean energy sectors and works with governments and other organisations to promote the industry.
Community Consultative Committee (CCC)	A CCC is a membership that is set up to facilitate consultation between wind farm developers, the community, local councils and other stakeholders that may be involved in the development phase or operation of a wind farm.
Community Association	A non-government association of participating members of a community who facilitate representative community engagement in the development process.
Community Engagement	The consultative process of wind farm developers supporting the participation of community members in the development process.
Commercial Dispute	An issue regarding the contractual goods or services of a wind farm whereby financial compensation has been sought by a party (for example, a host or a neighbour).
Complainant	One or more resident(s) from a residence who has contacted the Office for the purpose of making a complaint.
Concerned Resident	A person who resides in a dwelling within proximity to a proposed or operating wind farm facility, who holds concerns about potential impacts of the proposed or operating wind farm and may make a complaint to the Commissioner.
Construction	The stage in which the wind farm including access roads is being built. The construction stage may last a number of years.
dB	Decibels, a measurement unit used to describe the level or intensity (loudness) of a sound.
dB(A)	A-weighted decibels, a measurement unit that used to express the relative loudness of sounds in air as perceived by the human ear.
dB(C)	C-weighted decibels, a measurement unit that is used to measure low-frequency noise.
dB(G)	G-weighted decibels, a measurement unit that is used to measure to infrasound.
Economic Loss	The potential negative economic impact that a proposed or developed wind farm may have on a particular community or individuals within a community. This is typically the loss or perceived loss of property values or business within proximity to a proposed or operating wind farm.
Expert	A person who has special skill, knowledge or authority in a particular field of study.
Health	General physical or mental condition of a concerned resident.
Hz	Hertz, a unit which measures the frequency of sound waves, perceived by the human ear as pitch. The typical range of human hearing is 20-20,000 Hz.
Industry Association	An organisation founded and funded by businesses and other parties that have an interest in the wind energy industry.
Industry Member	Employee or other party who is involved as a member of an industry association.
Infrasound	Sound that is lower in frequency than 20 Hz or cycles per second, the 'normal' limit of human hearing.
Independent Scientific Committee on Wind Turbines	An independent, multidisciplinary, expert group established in 2015 by the then Minister for the Environment, the Hon Greg Hunt. The Committee was primarily established to investigate and provide advice on the potential impacts of sound from wind turbines on health and the environment.
$L_{A90,10min}$	The A-weighted sound pressure level, obtained by using the fast time-weighting, that is equal to or exceeded for 90% of a 10 minute time interval. The values for individual 10 minute time periods are highly variable and a function of the hub height wind speed. The actual value for a particular hub height wind speed is determined by best fitting a polynomial function of hub height wind speed, which can be up to fourth order, to the individual 10 minute time period $L_{A90,10min}$ values when the wind turbines are operating. It is corrected to remove the effect of the background noise by subtracting a background noise function determined in the same way when the wind turbines are not operating.

	For example, for a particular hub height wind speed, the $L_{A90,10min}$ function determined as described above must be less than the greater of 35 dB and the background noise function determined as described above plus 5 dB.
Micro-siting	The process whereby the specific location of a wind turbine is determined.
National Health and Medical Research Council (NHMRC)	An independent statutory agency and expert body that promotes the development and maintenance of public and individual health standards. NHMRC provides research funding and development of advice, drawing upon a broad range of resources.
Natural Environment	The land, water, biodiversity, flora and fauna and the naturally occurring ecological processes that may be impacted by the development or operation of a wind farm.
Neighbour	A resident of a property that is within close proximity to wind farm turbine/s, but does not host the turbine.
NZS 6808:1998	A recognised standard in New Zealand introduced in 1998 that provides methods for the prediction, measurement and assessment of sound from wind turbines. This standard was based on the United Kingdom 1996 Energy Technology Support Unit (ETSU) report *The assessment and rating of noise from wind farms* (ETSU-R-97, 1996). However the New Zealand standard introduced the L95 measurement used to describe background sound in New Zealand. The standard limit was 40dB, with a 'background +5 dB' variable. This standard was used for all wind farms in New Zealand until the introduction of the 2010 standard and was also adopted in Victoria prior to 2010. This standard is now succeeded by NZS 6808:2010.
NZS 6808:2010	A recognised standard in New Zealand introduced in 2010 that provides methods for the prediction, measurement and assessment of sound from wind turbines. This standard succeeded the 1998 version (NZS 6808:1998). While the 1998 version was introduced prior to significant wind farm development in New Zealand, a number of technical refinements and incremental enhancements were included in the 2010 standard. Notably, the standard also provided for a more stringent 'high amenity noise limit' in special local circumstances.
Ombudsman	Appointed authority to assist the public by investigating and resolving complaints on a specified issue.
Planning Process	A local, state or Federal Government process to determine whether a proposed project will be approved.
Responsible Authority	The planning authority responsible for the project from a planning/approval/compliance perspective.
Safety	The potential for the wind farm to cause danger, risk or injury to residents of a community within proximity to a wind farm. May include issues such as sleep deprivation, fire hazard, or any personal well-being.
Shadow flicker	The shadow cast by the sun over the rotating blades of a wind turbine that results in a rotating shadow affecting neighbouring properties.
Supportive Member	A member of the community that is in favour of a proposed or operating wind farm, including persons who reside in a dwelling within proximity of a proposed or operating wind farm
Terms of Reference	The specifications that outline the scope and limitations of the Office of the National Wind Farm Commissioner. See Appendix A.
Vibration	The oscillatory motion of an object or parts of an object. One of its possible causes is infrasound from a wind turbine.
Wind Farm Maintenance/Operations	Related to the ongoing process of ensuring the upkeep of the wind farm turbines for the life of the project.
Wind Turbine	Device with at least one moving part called a rotor assembly, which is a shaft or drum with blades attached, which is used to convert the wind's kinetic energy into electrical power.

APPENDIX B – TERMS OF REFERENCE 2021-25

Australian Energy Infrastructure Commissioner Terms of Reference 2021-25

The role of the Australian Energy Infrastructure Commissioner was announced by the Australian Government on 26 March 2021 expanding the role of the existing National Wind Farm Commissioner.

The Commissioner will work collaboratively with all levels of government, scientists, experts, industry and the community to resolve complaints from community members about proposed and operational wind farms, large scale solar farms (5 MW or more), energy storage facilities, such as large-scale batteries (1 MW or more) and new major transmission projects.

The Commissioner will refer complaints about wind farms, large scale solar farms, storage facilities and new major transmission projects to relevant authorities and help ensure that they are properly addressed.

The Commissioner will lead efforts to promote best practices, information availability, and provide a central, trusted source for dissemination of information.

The Commissioner, supported by the Australian Government Department of Industry, Science, Energy and Resources will report to the Minister for Industry, Energy and Emissions Reduction and provide an Annual Report to the Australian Parliament on delivering against these Terms of Reference.

The Commissioner's role will not duplicate or override the important statutory responsibilities of other jurisdictions, such as those relating to the planning and approval of wind farms, large scale solar farms, storage facilities and new major transmission projects.

The Commissioner is to draw on the work of the Independent Scientific Committee on Wind Turbines.

The role of the Commissioner has been extended until 31 October 2025. The role will be re-evaluated by the Australian Government prior to that date.

APPENDIX C: SUBMISSION TO AEMO'S DRAFT 2022 INTEGRATED SYSTEM PLAN

21 February 2022

Daniel Westerman
Chief Executive Officer
Australian Energy Market Operator
GPO Box 2008
MELBOURNE VIC 3001
via email: isp@aemo.com.au

Dear Mr Westerman

Re: Australian Energy Market Operator – *Draft 2022 Integrated System Plan*

The Office of the Australian Energy Infrastructure Commissioner welcomes the opportunity to provide feedback on AEMO's Draft 2022 Integrated System Plan.

The Australian Energy Infrastructure Commissioner fulfils a national, independent role in Australia's energy sector and responsibilities include:

- facilitating the handling of complaints from concerned community residents about planned and operating wind farms, solar farms (5 MW or more), energy storage facilities (1 MW or more) and new large-scale transmission projects
- identifying and promoting best practices for industry, government and related agencies to adopt with regard to the planning, operation and governance of such projects, and
- improving information access and transparency about proposed and operating projects, and relevant government and industry information more broadly.

Our Office understands the importance of a 'whole of system plan' that provides a pathway for the timely and efficient development of the electricity system in eastern Australia. We recognise that the Integrated System Plan will play a crucial role in managing the various challenges in the planning and management of the energy grid in the coming transitional period.

We are pleased that you have released this draft document for consultation. In particular, our Office strongly encourages the development of a clear roadmap for the transformation of the energy grid – one that recognises the importance of a long-term vision for grid architecture, planning and deployment – whilst also considering the potential direct and indirect impacts to regional communities and landowners are appropriately managed and mitigated.

Further, our view is that it is essential to integrate long term grid planning and deployment with electricity generation planning to ensure availability of transmission to connect and transmit appropriate supply-side assets while ensuring that the utilisation of the grid represents an appropriate return on investment over the longer term.

Our Office offers the following information and comments below for your consideration.

Initial observations on the development of proposed large-scale transmission projects

For the draft ISP to become a reality, a significant number of new transmission projects need to be designed, developed, built, operated and maintained.

In anticipation of this significant transmission activity, in March 2021, the role of our Office was expanded to include new large-scale transmission projects.

Since taking on the expanded role, we have made a number of initial observations in relation to potential systemic issues and challenges regarding the design, development and deployment of large-scale transmission lines. Some of these observations include:

- It has been several decades since new, long-distance, large-scale transmission projects have been planned and deployed. Industry (and regulators) will likely have a steep learning curve as well as challenges in regaining and retaining the appropriate skills and expertise, including skills related to community and landholder engagement.

- There will be a need for clearly visible leadership and ownership of these major projects to enable achieving agreed project outcomes, delivering on the business case and ensuring ongoing clarity about the problem(s) to be solved by the project.

- In addition, there will need to be an appropriate, effective executive level governance of projects, including representation from major stakeholders, with material project decisions elevated to the executive.

- There should be careful consideration of design and route implications resulting from technology choices to deliver the project. Emerging and maturing technologies, such as underground cable options and large-scale storage solutions, may have a material impact and benefit in reducing the impact of the overall project on landholders and community.

- There is a need for updated, contemporary planning processes and guidelines to assist with the design and assessment of projects. Guidelines need to consider a range of parameters – as an example, minimum setback distances for above ground transmission lines and towers from residences, property boundaries, public facilities, state and national parks, airfields and runways, and public roads.

- The effectiveness of community and landholder engagement programs and their ability to adapt to the diversity of community and landholder circumstances along the length of the proposed transmission line is essential. Affected persons can include suburban home residents, lifestyle property residents, hobby farmers, specialised breeders and primary producers through to broad-acre farming. Such diversity of impacted persons can also lead to a diverse array of community opposition groups to the project that have differing issues and objections to navigate.

- There may be unintended consequences, resulting in widespread project opposition from numerous landholders and communities, due to the current public 'multi-corridor approach' to community consultation being used to select a final proposed transmission line route. An alternative approach may be to internally determine the preferred route corridor and then engage the community and landholders to finalise the actual route with their insights.

- Current compensation arrangements for landholders hosting transmission and related infrastructure may be perceived be inequitable when compared with landholder arrangements for hosting wind farms and solar farms, which could affect the success rate of negotiated agreements for hosting transmission lines and harm the ability to engender good will.

- The need for clear and consistent protocols for working with landholders, such as land access protocols that must be followed by proponents when accessing landowner properties for surveys/investigations, the process to negotiate and obtain easements from landholders, through to publishing consistent guidelines that clarify what activities a landholder can and cannot do near or within a transmission line easement.

- Other key issues of concern that have been raised by community members and landholders include:

    - effectiveness, or otherwise, of current community/landholder engagement programs, including skills and abilities of landholder liaison personnel

- perceived potential for increased bushfire risk and decreased firefighting capability due to the presence of above ground transmission assets
- impacts of the transmission lines to visual amenity and the natural environment
- the potential for new grid and substations to attract prospectors for new solar and wind farm deployments, which may lead to further concentrations of renewable assets
- potential loss of property value, and
- reduction of productive agricultural land and impact on farm and industry economics.

These and other observations, together with best practice recommendations for the sector and government, will be provided in our 2021 Annual Report.

Planning and governance

The Office considers that it is crucial to have a clearly articulated strategy and governance framework for the planning, deployment and ownership of the large-scale transmission grid. These mechanisms will enable a sustainable approach to generational planning and oversight of the grid's design, deployment and operation. Key considerations include:

- Clarifying and agreeing on the appropriate authority to approve the long term, large-scale transmission grid plan and ensuring its successful deployment to agreed milestones.
- Clarifying and agreeing on the respective roles and responsibilities (with regard to the design, development and deployment of the grid and the associated funding mechanisms) of the various Federal and State agencies/organisations, including the AER, AEMO, AEMC, ESB, DISER, TNSPs, VIC Grid, Energy Corp of NSW, Essential Services Commission (VIC), Energy Safe Victoria, DELWP, DPE and other state government equivalents.
- Given the scarcity of remaining land options in some key corridors, action should be taken sooner rather than later for the relevant bodies to secure and acquire easements likely to be required for future transmission corridors. A new funding mechanism will likely be required to fund this initiative.
- The agency responsible for the overall planning of the electricity grid should ensure there are regular reviews in place (incorporating impacts of new and emerging technologies) at least every five years to adjust the plan to meet changes in circumstances and technology.

Managing project risks and social licence

One of the more complex issues for new grid deployments will be gaining acceptance of large-scale transmission projects by affected communities and landholders. Further, community expectations as well as the ability to successfully galvanise opposition to projects through social media have increased significantly since the last generation of large-scale transmission projects were deployed.

It is vitally important that appropriate investments in building and maintaining effective relationships with landholders and community members are appropriately funded – noting that the costs of being burdened with ineffective relationships are quite severe.

Under the current regulatory framework, our Office understands that recovery of projected costs for public infrastructure is a matter that is of key concern for TNSP's when it comes to management of social licence and consideration of community benefits and compensation for landowners.

The current framework appears to be weighted on minimising risks related to 'overbuilding' or 'gold-plating' of transmission projects at the expense of the electricity consumer. Conversely, the framework does not appear to fully consider the risks of new major transmission projects being seriously delayed or halted as a

result of material actions taken by groups opposed to a project (such as legal actions challenging the planning process or planning decisions).

Given the above, it would be beneficial to consider enhancing the regulatory funding framework to include risk assessments that considers factors such as risk of project delays that may result from planning objections/appeals, unsuccessful or inconclusive land acquisition negotiations along with well organised, impactful opposition to the project.

Funding models

It may be timely to consider whether the current RIT-T arrangements are appropriate as a mechanism for the efficient and effective delivery of new, large-scale transmission projects that are to be built to transform the grid (as opposed to augmentations to the existing grid).

In particular, the current cost recovery arrangements and expectations of the RIT-T process may impair the ability for TNSP's to fund and deliver new large-scale transmission projects within the normally expected costs and benefits to the electricity consumer.

Major, new transmission projects may, instead, need to be funded by a hybrid of funding sources, e.g. from the RIT-T process (i.e. the consumer) plus additional funding from governments that reflect the transformational nature of such projects – and not place the entire burden of funding these projects on the consumer. Further, insufficient funding may lead to sub-optimal solutions being implemented, which may result in substantial costs later to rectify.

Further information

Thank you again for the opportunity to make a submission on this important draft plan. I would be delighted to discuss these matters with you and your colleagues in further detail and expand on the background to our various observations and suggestions above.

In the meantime, if you have any questions about this submission or require additional information, please contact us via email at aeic@aeic.gov.au or on 1800 656 395.

Sincerely

Andrew Dyer
Australian Energy Infrastructure Commissioner