National Wind Farm Commissioner

Hawkesdale Community Meeting Presentation

22 September 2017

Andrew Dyer
National Wind Farm Commissioner

www.nwfc.gov.au

Agenda

- The role of the Commissioner
- Achievements to date
- Wind farm information
- Complaint statistics
- Annual Report Observations and recommendations
- Reforms and initiatives

Role

- Commenced in November 2015 for a three year term to:
  - ✓ Facilitate the handling of complaints from concerned community residents about planned and operating wind farms;
  - ✓ Identify and promote best practices for industry, government and related agencies to adopt with regard to the planning, operation and governance of wind farms; and
  - ✓ Improve information access and transparency about proposed and operating wind farms and the industry.
- National, independent role – reporting directly to the Federal Minister for the Environment and Energy.
- Commissioner's Terms of Reference at www.nwfc.gov.au.

Achievements to date

- Establishment of office and employment of staff
- Implementation of complaint policy, systems and process
- Independent website launched – www.nwfc.gov.au
- Extensive stakeholder engagement – more than 600 stakeholders including government, community, industry and experts
- Site visits to numerous operating/proposed wind farms and complainants
- Received and handling a wide variety of complaints
- Identification of systemic issues and their resolution
- Identification and promotion of best practices
- Developed a range of preliminary observations & recommendations – detailed in the Commissioner's 2016 Annual Report to Parliament.

Wind Farms Visited

*proposed

Victoria:

Ararat

Bald Hills

Cape Bridgewater

Hawkesdale*

Hepburn

Lal Lal*

Macarthur

Moorabool*

Oaklands Hill

Waubra

Wonthaggi

Willatook*

NSW:

Bango*

Collector*

Coppabella*

Crudine Ridge*

Cullerin Range

Gullen Range

Gunning

Jupiter*

South Australia:

Hallet

Palmer*

Snowtown

Waterloo

Tasmania:

Musselroe

Wind farms: overview

Operating wind farms

State	Number of wind farms	Number of turbines	Total Capacity
VIC	18	602	1250
NSW	12	361	668
SA	19	689	1595
QLD	2	22	13
TAS	7	124	310
WA	21	308	491
NT	0	0	0
ACT	0	0	0
TOTAL	79	2180	4803

Note: all data sourced from public domain

Wind farms: overview

Proposed wind farms - approved

State	Number of wind farms	Number of turbines	Total Capacity
VIC	21	1027	2850
NSW	8	929	3265
SA	9	189	601
QLD	5	258	965
TAS	1	49	144
WA	1	22	55
NT	0	0	0
ACT	0	0	0
TOTAL	45	2474	7880

Note: all data sourced from public domain

Wind farms: overview

Proposed wind farms – under assessment

State	Number of wind farms	Number of turbines	Total Capacity
VIC	5	183	451
NSW	4	258	863
SA	9	322	942
QLD	3	318	805
TAS	1	300	1000
WA	0	0	0
NT	0	0	0
ACT	0	0	0
TOTAL	22	1381	4061

Note: all data sourced from public domain

Wind farms: overview

- Industry in Australia began in late 1990s, most wind farms built after 2000.
- Approximately 79 operating wind farms in Australia.
- Total current capacity = 4,803 MW (2,180 turbines).
- Some 67 wind farms in the 'development' pipeline.
- Approximately 12,000 MW of capacity and 3,800 turbines in pipeline.
- Majority of wind farms proposed are for VIC (26), SA (18) and NSW (12).
- Additional 4,000 MW (approx.) required to meet the 2020 RET.
- Industry comprises both prospective developers and longer term owner/operators.

Key Development Tasks

Pre-permit processes

- Site Selection
- Landowner agreements (hosts)
- Landowner agreements (easements)
- Weather monitoring
- Preliminary design
- Grid availability analysis
- Expert assessments and management plans, including:
  - noise
  - environmental impact
  - amenity
  - aviation
- EPBC Act referral (and possible assessment)
- Community engagement
- Neighbour agreements
- Permit application
- Planning panel
- Permit approval

Key Development Tasks (cont.)

Post-permit processes

- Turbine selection
- Permit modifications
- Updates to assessments
- Background noise testing
- Construction plan
- Community Consultative Committee
- Approval of any modifications
- Grid connection application (Australian Energy Market Operator)
- Securing equity partners
- Securing debt providers
- Power purchase agreement and financial close
- Accreditation by Clean Energy Regulator
- Construction phase
- Post-construction compliance testing

The voice for Australia's clean energy industry
ecogeneration
Wind Map of Australia 2017
LEGEND
Place name
Under construction
Commissioned
WESTERN AUSTRALIA
NORTHERN TERRITORY
QUEENSLAND
SOUTH AUSTRALIA
NEW SOUTH WALES
VICTORIA
TASMANIA
Thursday Island
Weipa
Cairns
Ravenshoe
Exmouth
Denham
Geraldton
PERTH
Ravensthorpe
Esperance
Albany
Coober Pedy
Port Augusta
Peterborough
Port Pirie
Cowell
Clare
Burra
Waterloo
Port Lincoln
Yorketown
ADELAIDE
Kingscote
Victor Harbour
Naracoorte
Robe
Millicent
Mt. Gambier
Portland
Ararat
Maryborough
Seymour
Euroa
Mansfield
Ballarat
MELBOURNE
Warrnambool
Wonthaggi
Leongatha
Currie
Grassy
Smithton
Stanley
George Town
Musselroe
Devonport
Launceston
BRISBANE
Newcastle
SYDNEY
Blayney
Bathurst
Katoomba
Yass
Bowral
Goulburn
Queanbeyan
CANBERRA
Windy Hill Wind Farm has been operating since 2000.
Albany Wind Farm, near the town of the same name in Western Australia.
Boco Rock Wind Farm hosts 67 GE turbines.
The Toora Wind Farm in Gippsland, produces 21MW.
AGL's Macarthur is the largest wind farm in Australia.
QUEENSLAND
No. Project name, Owner, Commissioning year, Capacity (total), Number of turbines, Turbine manufacturer
63 Windy Hill Wind Farm, RATCH-Australia, 2000, 12MW, 20, ENERCON
WESTERN AUSTRALIA
No. Project name, Owner, Commissioning year, Capacity (total), Number of turbines, Turbine manufacturer
1 Albany Wind Farm, Synergy, 2001, 35MW, 18, ENERCON
2 Collgar Wind Farm, UBS Global Asset Management, 2011, 206MW, 11, Vestas
3 Denmark Community Wind Farm, Denmark Community Wind Farm, 2013, 1.6MW, 2, ENERCON
4 Emu Downs Wind Farm, Stanwell Corporation, 2006, 80MW, 48, Vestas
5 Hopetoun Wind-Diesel Project, Synergy, 2004, 1.2MW, 2, ENERCON
6 Kalbarri Wind Project, Synergy, 2007, 1.6MW, 2, ENERCON
7 Mt Barker Community Wind farm, Mt Barker Power Co Ltd, 2011, 2.4MW, 3, ENERCON
8 Mumbida Wind Farm, Synergy, TBA, 55MW, 22, GE
9 Nine Mile (Esperance) Wind Farm, Synergy, 2003, 3.6MW, 6, ENERCON
10 Ten Mile Lagoon (Esperance) Wind Farm, Synergy, 1993, 2MW, 9, Vestas
11 Walkaway Wind Farm, Infigen Energy, 2004, 89MW, 54, Vestas
SOUTH AUSTRALIA
No. Project name, Owner, Commissioning year, Capacity (total), Number of turbines, Turbine manufacturer
12 Canunda Wind Farm, International Power, 2005, 46MW, 23, Vestas
13 Cathedral Rocks Wind Farm, Acciona Energy and EnergyAustralia, 2005, 66MW, 33, Vestas
14 Clements Gap Wind Farm, PacificHydro, 2010, 58MW, 27, Suzlon
15 Hallett 1 (Brown Hill) Wind Farm, Palisade Investment Partners, 2007, 94MW, 45, Suzlon
16 Hallett 2 (Hallett Hill) Wind Farm, Infrastructure Capital Group, 2007, 71MW, 34, Suzlon
17 Hallett 4 (North Brown Hill) Wind Farm, Energy Infrastructure Investments, 2011, 132MW, 63, Suzlon
18 Hallett 5 (The Bluff) Wind Farm, Eurus Energy, 2012, 52MW, 25, Suzlon
19 Hornsdale Wind Farm, Neoen and Megawatt Capital, TBA, 102MW, 32, Siemens
20 Lake Bonney 1, Infigen Energy, 2005, 80MW, 46, Vestas
21 Lake Bonney 2, Infigen Energy, 2008, 159MW, 53, Vestas
22 Lake Bonney 3, Infigen Energy, 2010, 39MW, 13, Vestas
23 Mt Millar Wind Farm, Meridian Energy, 2006, 70MW, 35, ENERCON
24 Snowtown Wind Farm Stage 1, TrustPower, 2008, 270MW, 90, Siemens
25 Snowtown Wind Farm Stage 2, TrustPower, 2014, 99MW, 47, Suzlon
26 Starfish Hill (Cape Jervis) Wind Farm, RATCH-Australia, 2003, 34MW, 23, NEG Micon
27 Waterloo Wind Farm, EnergyAustralia, 2010, 111MW, 37, Vestas
28 Wattle Point Wind Farm, Infrastructure Capital Group, 2005, 91MW, 55, Vestas
NEW SOUTH WALES
No. Project name, Owner, Commissioning year, Capacity (total), Number of turbines, Turbine manufacturer
52 Blayney Wind Farm, Eraring Energy, 2000, 10MW, 15, Vestas
53 Boco Rock Wind Farm, Wind Prospect CWP, 2014, 113MW, 67, GE
54 Capital Wind Farm, Infigen Energy, 2009, 141MW, 67, Suzlon
55 Crookwell Wind Farm, Eraring Energy, 1998, 4.8MW, 8, Vestas
56 Cullerin Range Wind Farm, Origin Energy, 2009, 30MW, 15, REpower
57 Gullen Range Wind Farm, Beijing Jingneng Clean Energy and Goldwind, 2014, 165MW, 73, Goldwind
58 Gunning Wind Farm, Acciona Energy, 2011, 46MW, 31, Acciona Windpower
59 Hampton Wind Park, Hampton Wind Park Company, 2001, 1.3MW, 2, Vestas
60 Taralga Wind Farm, CBD Energy/Banco Santander, 2015, 107MW, 51, Vestas
61 White Rock Wind Farm, CECEP Wind Power and Goldwind, TBA, 175MW, 119, Goldwind
62 Woodlawn Wind Farm, Infigen Energy, 2011, 48MW, 23, Suzlon
VICTORIA
No. Project name, Owner, Commissioning year, Capacity (total), Number of turbines, Turbine manufacturer
33 Ararat Wind Farm, RES Australia, TBA, 240MW, 75, GE
34 Bald Hills Wind Farm, Mitsui, 2015, 107MW, 52, Senvion
35 Challicum Hills Wind Farm, PacificHydro, 2003, 52MW, 35, NEG Micon
36 Chepstowe Wind Farm, Future Wind, 2015, 6MW, 3, Senviron
37 Codrington Wind Farm, PacificHydro, 2001, 18MW, 14, AN Bonus
38 Coonooer Bridge, Windlab Limited, 2016, 20MW, 6, Vestas
39 Hepburn Community Wind Farm, Hepburn Community Wind Park Co-operative, 2011, 4MW, 2, REpower
40 Macarthur Wind Farm, AGL and Morrison & Co, 2013, 420MW, 140, Vestas
41 Mortons Lane Wind farm, CGN Wind Energy, 2012, 19.5MW, 13, Goldwind
42 Mt Gellibrand Wind Farm, Acciona Energy, TBA, 132MW, 63, Acciona Windpower
43 Mt Mercer Wind Farm, Meridian Energy, 2014, 131MW, 64, REpower
44 Oaklands Hill Wind Farm, AGL, 2012, 67MW, 32, Suzlon
45 Portland Wind Farm (Cape Bridgewater Stage 2), PacificHydro, 2008, 58MW, 29, REpower
46 Portland Wind Farm (Cape Nelson South Stage 3), PacificHydro, 2009, 44MW, 22, REpower
47 Portland Wind Farm (Cape Sir William Grant and Cape Nelson North) Stage 4, PacificHydro, 2015, 54MW, 23, REpower
48 Portland Wind Farm (Yambuk Stage 1), PacificHydro, 2007, 30MW, 20, NEG Micon
49 Toora Wind Farm, RATCH Australia, 2002, 21MW, 12, Vestas
50 Waubra Wind Farm, Acciona Energy, 2009, 192MW, 128, Acciona Windpower
51 Wonthaggi Wind Farm, Regional Wind Farms, 2005, 12MW, 6, Repower
TASMANIA
No. Project name, Owner, Commissioning year, Capacity (total), Number of turbines, Turbine manufacturer
29 Bluff Point Wind Farm, Woolnorth Wind Farm Holdings, 2002, 65MW, 37, Vestas
30 King Island (Huxley Hill) Wind Farm, Hydro Tasmania, 1998, 2.5MW, 3; 2, Nordex; Vestas
31 Musselroe Wind Farm, Hydro Tasmania, 2013, 168MW, 56, Vestas
32 Studland Bay Wind Farm, Woolnorth Wind Farm Holdings, 2007, 75MW, 25, Vestas
0 100 200 300 400 500
kilometres
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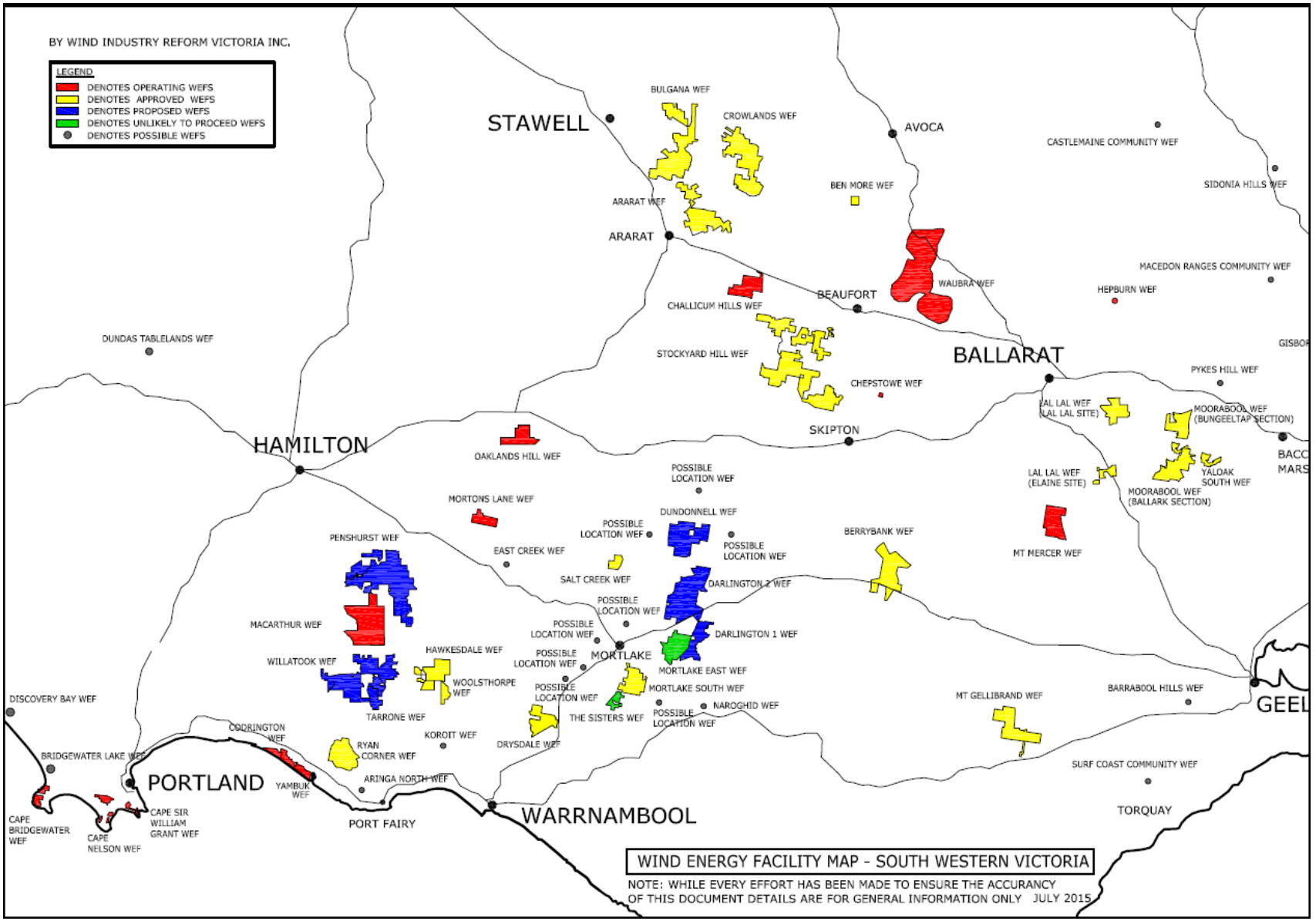
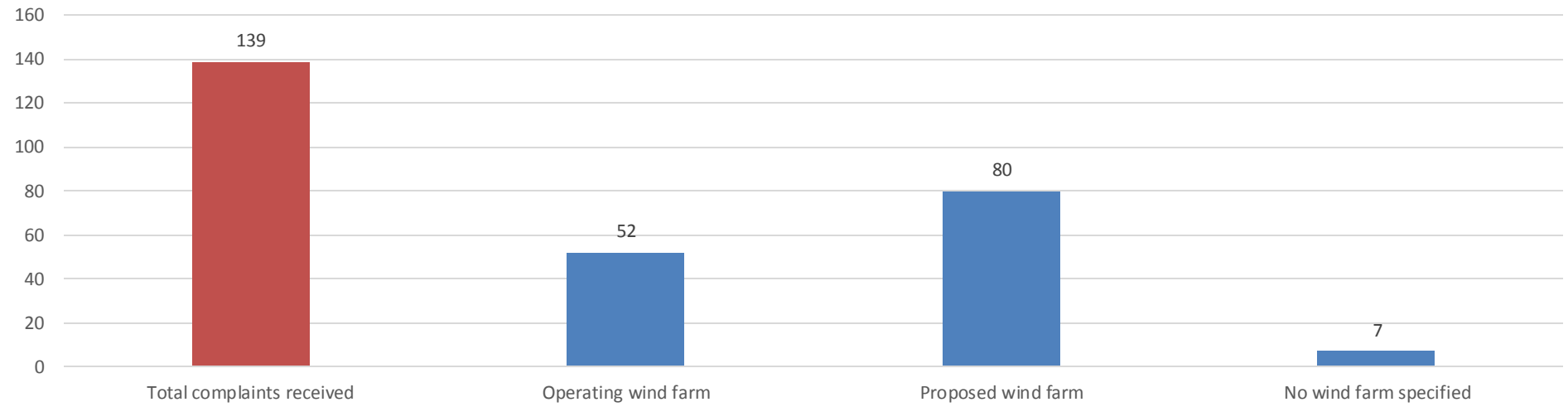

BY WIND INDUSTRY REFORM VICTORIA INC.
LEGEND
DENOTES OPERATING WEFS
DENOTES APPROVED WEFS
DENOTES PROPOSED WEFS
DENOTES UNLIKELY TO PROCEED WEFS
DENOTES POSSIBLE WEFS
STAWELL
BULGANA WEF
CROWLANDS WEF
AVOCA
CASTLEMAINE COMMUNITY WEF
SIDONIA HILLS WEF
BEN MORE WEF
ARARAT WEF
ARARAT
MACEDON RANGES COMMUNITY WEF
WAUBRA WEF
HEPBURN WEF
BEAUFORT
CHALLICUM HILLS WEF
DUNDAS TABLELANDS WEF
STOCKYARD HILL WEF
BALLARAT
CHEPSTOWE WEF
PYKES HILL WEF
LAL LAL WEF (LAL LAL SITE)
MOORABOOL WEF (BUNGEELTAP SECTION)
SKIPTON
HAMILTON
OAKLANDS HILL WEF
LAL LAL WEF (ELAINE SITE)
YALOAK SOUTH WEF
MOORABOOL WEF (BALLARK SECTION)
POSSIBLE LOCATION WEF
MORTONS LANE WEF
DUNDONNELL WEF
POSSIBLE LOCATION WEF
POSSIBLE LOCATION WEF
BERRYBANK WEF
PENSHURST WEF
EAST CREEK WEF
MT MERCER WEF
SALT CREEK WEF
DARLINGTON 2 WEF
POSSIBLE LOCATION WEF
MACARTHUR WEF
POSSIBLE LOCATION WEF
DARLINGTON 1 WEF
HAWKESDALE WEF
POSSIBLE LOCATION WEF
MORTLAKE
WILLATOOK WEF
WOOLSTHORPE WEF
MORTLAKE EAST WEF
POSSIBLE LOCATION WEF
MORTLAKE SOUTH WEF
DISCOVERY BAY WEF
MT GELLIBRAND WEF
BARRABOOL HILLS WEF
NAROGHID WEF
TARRONE WEF
THE SISTERS WEF
POSSIBLE LOCATION WEF
CODRINGTON WEF
KOROIT WEF
DRYSDALE WEF
RYAN CORNER WEF
BRIDGEWATER LAKE WEF
PORTLAND
YAMBUK WEF
ARINGA NORTH WEF
SURF COAST COMMUNITY WEF
CAPE BRIDGEWATER WEF
CAPE SIR WILLIAM GRANT WEF
CAPE NELSON WEF
PORT FAIRY
WARRNAMBOOL
TORQUAY
WIND ENERGY FACILITY MAP - SOUTH WESTERN VICTORIA
NOTE: WHILE EVERY EFFORT HAS BEEN MADE TO ENSURE THE ACCURANCY OF THIS DOCUMENT DETAILS ARE FOR GENERAL INFORMATION ONLY JULY 2015

Wind Farms – Hawkesdale region

Wind Farm	Proponent	Status	Number and capacity of turbines	Tip height of turbines (max)	Comments
Hawkesdale	Global Power (Union Fenosa)	Permit approved, modification under assessment	26 x 4 MW (104 MW)	180m (proposed)	• Modification proposal to reduce to 26 turbines from 31 turbines. • Commissioner seeking briefing with proponent.
Macarthur	AGL	Operating	140 x 3 MW (420 MW)	140m	• Commissioned in 2013
Penshurst	RES Australia	Permit under assessment	223 x 3.4 MW (758.2 MW)	186m (proposed)	• Proposal announced in 2010, a number of media articles over years have highlighted community concerns • Variation request made in 2013 during assessment process.
Ryan Corner	Global Power (Union Fenosa)	Permit approved, modification under assessment	56 x 4 MW (224 MW)	180m (proposed)	• Permit approved 2006, modification allowed in 2010 • New modification proposal to reduce to 56 turbines from 68 turbines. • Community submissions to Council open in June 2017.
Willatook	Wind Prospect	Proposed	98 x 3.6 MW (352.8 MW)	220m (proposed)	• Proposal announced in 2010, planning permit application expected to be submitted December 2017 • Modification proposal to reduce to 98 turbines (220m tip height) from 145 turbines. • Commissioner meeting with proponent on 12 September for briefing of project.
Woolsthorpe	Wind Farm Developments	Approved	20 x 3.1 MW (68 MW)	168m	• Permit approved 2006 • Permit modification approved in May 2017, no current details as yet on construction schedule. • Commissioner met proponent in August 2017

Complaint statistics

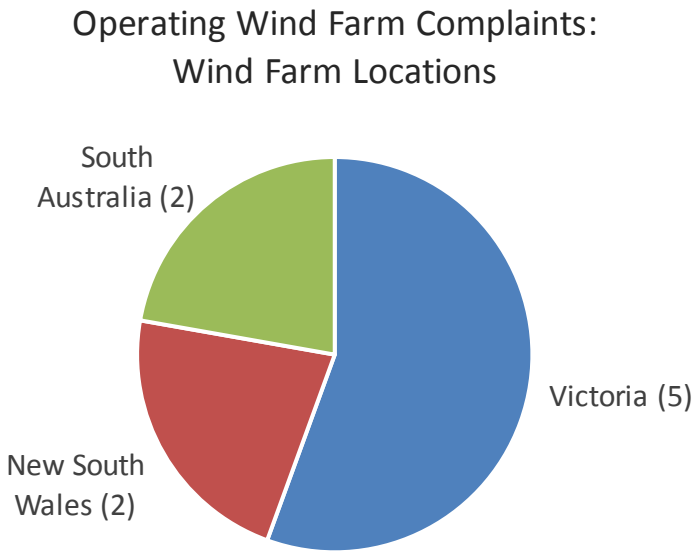
(as at 18 September 2017)



- 139 complaints received
- 52 complaints are from 9 operating wind farms
- 80 complaints are from 27 proposed wind farms
- 7 complaints did not specify a wind farm
- 106 cases closed, remaining 33 cases at various stages of our complaint handling process.

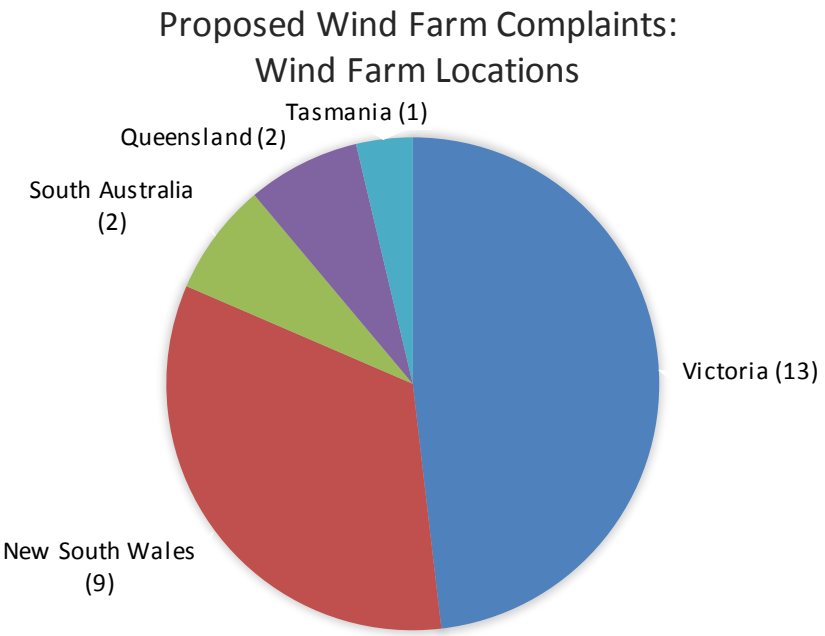
Complaint statistics – operating wind farms

- 52 complaints about nine operating wind farms:
  - Victoria – 29 complaints
  - NSW – 6 complaints
  - South Australia – 16 complaints.
- 48 of these cases have been closed.



Complaint statistics – planned wind farms

- 80 complaints about 27 proposed wind farms:
  - Victoria – 45 complaints
  - NSW – 25 complaints
  - South Australia – 7 complaints
  - Queensland – 2 complaints
  - Tasmania – 1 complaint.
- 52 of these cases have been closed.



Top 8 complaint issues

- Complaint issue type in order of prevalence:
  - Noise and annoyance from operations (including noise testing process and noise standards)
  - Health concerns
  - Planning process and transparency
  - Economic loss (property & opportunity)
  - Amenity and impact on views
  - Vibration
  - Natural environment
  - Community engagement.
- Resolutions range from provision of helpful information through to commercial settlements.

2016 Annual Report
Observations and Recommendations

1. Host landowner negotiations
2. Neighbour consultation and agreements
3. Community engagement
4. Length and renewal of planning permits
5. Governance and compliance of standards and permit conditions
6. Selection and use of experts
7. Complaint handling and emergency procedures
8. Site selection
9. Health matters

Observations and Recommendations
1. Host Landowner Negotiations

- Landowner expectations should be properly managed from the outset (eg. advised of risks of reduction of turbines).
- Agreements should:
  - be fair and reasonable (landowner should also obtain independent advice prior to entering agreement)
  - be written in plain English
  - clearly outline responsibilities relating to liability insurance, decommissioning (including sources of funding for decommissioning) and other applicable rates, taxes and levies.
- Developers should consider providing a level of compensation to all potential host landowners, regardless of final turbine layout.

Observations and Recommendations
2. Neighbour agreements

- All neighbours within a vicinity of 5km of the wind farms proposed turbines should be identified and consulted.
- Planning authorities and investors should require evidence of effective neighbour consultations as part of due diligence and approval criteria.
- If used, neighbour agreements should:
  - be negotiable
  - be fair, reasonable and in plain English
  - not restrict neighbours from making complaints about the wind farm
  - not allow the wind farm to subject neighbours to conditions that exceed permit limits (unless neighbour is an involved participant).
- Proposed mitigation measures such as screening solutions should be realistic and effective.

Observations and Recommendations
3. Community Engagement

- Developers should invest in community engagement as early as possible. Operators considering purchasing established wind farms should also assess effectiveness of community engagement undertaken by the original developer prior to purchase.
- In developing an engagement plan, proponents should consider the following:
  - establish relationships with key community stakeholders
  - establish a Community Consultative Committee (CCC)
  - establish a range of information opportunities for the community
  - establish a transparent and effective complaints handling process
  - assess appropriate 'make-good' activities and beneficial improvements in local infrastructure (eg. mobile phone services)
  - establish and maintain a community engagement fund
  - provide evidence to planning authorities and other stakeholders of community engagement plans and outcomes.
- Councils and State Governments should also proactively engage with community and promote community engagement initiatives.

Observations and Recommendations
4. Planning Permits

- Developers should require a licence to prospect and develop a wind farm project.
- Developers should be transparent about requested permit changes in cases where there are material changes to wind farm design and provide updated impact assessments where necessary.
- Planning authorities should carefully review pre-construction assessments and apply current policies and standards when assessing renewals of permits.
- Planning authorities should carefully consider cumulative impacts of other wind farms when assessing permit renewals and modifications.
- Vendors selling properties should disclose known wind farm proposals that are in proximity.
- Maximum period between issue of a wind farm permit and completion of construction should be 7.5 years (based on an initial permit period of 5 years plus an extension period of 2.5 years to complete construction).

Observations and Recommendations
5. Governance and Compliance

- State Governments should review current arrangements for setting environmental standards and how compliance is enforced.
- States should consider the role of independent compliance authorities, such as the EPA, to include:
  - Set and maintain the noise and environmental standards applied to wind farms
  - Review planning applications and recommend permit conditions
  - Where practical, issue and monitor license conditions for the operation of the wind farm
  - Facilitate peer review/independent audit of reports, testing and modelling programs (e.g. noise testing, shadow flicker, environmental impact) that are required for permit
  - Receive and investigate noise and environmental complaints as well as other alleged breaches of compliance
  - Confirm, or otherwise, compliance of a wind farm with regard to noise and environment permit requirements to the appropriate bodies.

Observations and Recommendations
5. Governance and Compliance (cont.)

- Permits should outline responsible authorities for compliance, processes for lodging alleged breach complaints and processes to be followed if wind farm is found to be non-compliant.
- Opportunity to also harmonise noise and environmental standards across jurisdictions – yielding consistent approach for industry, experts, planners as well as standards to be expected by the community.
- Recommended standards and limits include:
  - noise - 35 dB(a) or background noise plus 5 dB(a)
  - shadow flicker - 15 hours per year and no more than 30 minutes on a given day
  - set-back distances - 1.5km from residence and 200m from property boundary
  - infrastructure set-back distances – 100m from a residence (eg. transmission lines).
- New NSW Visual Amenity Guidelines will also contribute to planning outcomes.

Observations and Recommendations
6. Experts

- Process relies on predictive modelling during the planning phase (to obtain the permit) and then post-construction testing to confirm accuracy of models and therefore compliance. Experts are often the same for both pre-assessments and post-construction testing.
- Can create the perception of conflict of interest, both in the commercial arrangements between proponent and expert, as well as the fact that the expert tests their own modelling for accuracy.
- States should consider:
  - Independent selection of experts used during the planning phase (e.g. from an approved panel)
  - Requirement to use a different expert to assess the operating wind farm (post-construction) from the predictive modelling expert
  - Peer review of expert's process and reports by an independent government-appointed auditor at both design and post-construction stages
  - Ability of auditor to identify and determine compliance or non-compliance and advise the primary compliance authority.

Observations and Recommendations
7. Complaint Handling and Emergency procedures

- Typically, complaint management conditions and permits are limited to noise and construction complaints only.
- Our Office has observed that, while complaint handing procedure documents do exist, few have been published on websites and procedures are not being followed by wind farm operators.
- We have approached a number of wind farms and requested their complaint handling procedure be published – all have complied/agreed to date.
- States should consider modifying permit conditions to reflect:
  - Expanding complaint handling procedure requirements to include all complaint types in a prominent section of the permit
  - Introducing a permit condition requiring the complaint handling procedure to be published
  - Introducing a permit condition requiring the complaint handling procedure to be followed
  - The ability and powers to audit a wind farm's complaint handling activities and complaints register to confirm compliance with the procedures and therefore the permit.

Observations and Recommendations
7. Complaint Handling and Emergency procedures (cont.)

- Operators should have capacity to handle emergency complaints and have appropriate controls, protocols and procedures in place.
- In developing emergency procedures and protocols, operators should consult emergency services authorities.
- Wind farm access roads to turbines provided to be both an effective firebreak and enabled on the ground access to fight the fire.
- Turbines not likely to present a hazard to aerial fire-fighting – they can be clearly identified by pilots.
- Turbines should be locked in the 'rabbit ear' or 'Y' position to maximise air space for low level flight between the turbines.
- Communication protocols between the wind farm operators and emergency response need to be clear with regard to wind farm shut down instructions.
- While wind turbines can be readily identified, other assets such as meteorological masts, transmission lines and radio towers are more difficult to identify and need to be transparent from the air.

Observations and Recommendations
8. Site Selection

- Our experience so far indicates there is a much higher likelihood of issues and community concerns when proposed or operating wind farms are located near or in more populated areas.
- There can be also multiple proposed wind farms in a region, having the potential to surround a resident – leading to compounding noise, amenity and other issues.
- Conversely, there are minimal issues with wind farms located on large land holdings or land areas well away from neighbours and residents
- According to CEC/CEFC data, there is approximately 3-4x the amount of wind generation capacity in the project pipeline versus capacity required to meet 2020 RET targets.
- Prospectors should obtain prior approval from planning authorities before initiating a potential project in a community.

Observations and Recommendations
8. Site Selection (cont.)

- States and stakeholders should consider:
  - A review of wind farm project pipelines and prioritising those projects which are least likely to affect residents and communities.
  - Once a wind farm has been approved and has commenced construction, re-review the appropriateness of adjoining proposed wind farm projects for any compounding affects on residents and reserve rights to vary permit approvals.
  - Processes to obtain clear evidence from the proponent and other sources of consultations with affected landowners and that appropriate host and neighbour agreements are in place.
  - Adopting a wider range of criteria in assessing and prioritising site selection, including consideration of benefits to local industries and improved power and infrastructure.
  - A review of current and planned transmission infrastructure and grid augmentation to provide grid locations/connections in more appropriate locations for wind farm development.
  - Use of 'reverse auction' schemes (e.g. ACT) to encourage and support wind farm projects in preferred locations as well as promote best practice community engagement.

Observations and Recommendations
9. Health Matters

- Governments should continue to review and assess health research outcomes to inform standards and policies.
- Residents with health issues should be encouraged to seek appropriate medical advice to treat their condition and ensure that the known causes of the conditions are being addressed.
- Medical practitioners should report any possible causational links between diagnosed health conditions and wind farm operations.

Questions?