

17 AUG 2011

ICRS305

SHIRE OF KOJONUP				
FILE:	DB.BDA.8			
CEO	EC or HC	NFA	MCS	MRCS
RGR	SFO	WM	CDPO	PB
NISM	SHM	PLAN	✓	

The President, Shire Councillors & CEO  
Shire of Kojonup  
PO BOX 163  
Kojonup WA 6395

PO Box 88  
Kojonup WA 6395

12<sup>th</sup> August 2011.

Dear Jill, Councillors and Steve

I write to you with regard to the development application by Moonies Hill Energy to site and construct industrial wind turbines (TWT'S) in the Kojonup Shire.

I was very grateful for the opportunity to speak to the Shire Council on 15<sup>th</sup> March of this year. You will recall that I spent a considerable amount of time reflecting on the statements by the National Health & Medical Research Council (NHMRC) in their 2010 document titled "Wind Turbines and Health- A rapid review of the evidence". I spoke of my concerns about the way in which this document was being used by wind developers to allay community and policy makers fears of health issues associated with living in close proximity to Wind Turbines.

The senate inquiry into "The Social and Economic impact of Wind Farms in Rural Australia" which reported on 23<sup>rd</sup> June 2011 also spent time examining the true intent of that document as well as the manner in which it was being used.

Extract...Senate Inquiry Public Hearing 31<sup>st</sup> March 2011, Perth. Hansard page 86

Reply to a question from Senator Fielding regarding the literature used to formulate the "Rapid Review".

Professor Warwick Anderson, CEO of NHMRC .. We have kept it under pretty continuous review since the original public statement.

As I said in my opening statement, we are very aware that the high-quality scientific literature in this area is very thin. That is why we were at pains to point out that we believe that a **precautionary approach** should be taken to this, because as you would understand, the absence of evidence does not mean that there might not be evidence in the future.....

Page 87 ..... We regard this as a work in progress. We certainly do not believe that this question has been settled. That is why we are keeping it under constant review. That is why we said in our review that we believe authorities must take a **precautionary approach** to this.

The Senate Inquiry concluded on 23<sup>rd</sup> June, 2011 with 7 recommendations.

Recommendation 3. The Committee recommends that further consideration be given to the development of policy on separation criteria between residences and wind farm facilities.

Recommendation 4. The Committee recommends that the Commonwealth Government initiate as a matter of priority thorough, adequately resourced epidemiological and laboratory studies of the possible effects of wind farms on human health.

NHMRC convened a Scientific Forum on 7<sup>th</sup> June 2011 specifically to revise its Public Statement to reflect recent advances in the literature. Further to this, Head of Research Translation Group, NHMRC, Professor John McCallum on the ABC 7.30 Report aired in the ACT on 17<sup>th</sup> June was challenged by the ABC regarding the "Rapid Review" headline statement... *"There is currently no published scientific evidence to positively link wind turbines with adverse health effects"*.

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Professor McCallum.... *"That statement should not be taken out of context. The context is lack of evidence. So that statement is not saying there are no effects, we are saying we don't really know. We will await further evidence to find that out".*

This has led me to write to Professor McCallum, NHMRC, via email dated 18<sup>th</sup> July asking for clarification of their current position on wind turbines and human health. I have attached that email dated 18<sup>th</sup> July, (attachment 1). The reply came from Chris Jennaway, NHMRC, dated 22<sup>nd</sup> July and I have attached a copy, (attachment 2). Subsequently Chris Jennaway confirmed the email dated 22<sup>nd</sup> July is a signed hard copy of their position, (attachment 3). I draw your attention to the following points that Chris Jennaway made.

*"The public statement advises that because there is so little scientific peer reviewed evidence available,"*

*1. A precautionary approach should be taken.*

The importance of the point that a precautionary approach should be taken is very significant when one examines the court judgement (attachment 4) recently made in the South Australian Environment Court where they referred to "The Precautionary Principle".

The Honourable Judge Costello stated: (page 24)

*"This principle dictates that measures to prevent or forestall damage (in this case human health) should not be postponed, merely because of the lack of full scientific certainty as to the need for such measures"*

He continued:

*"It has been said that the application of the principle, and the concomitant need to take precautionary measures, are triggered by the satisfaction of two conditions precedent or thresholds, namely a threat of serious or irreversible damage and scientific uncertainty as to that damage".*

The case for implementing the principle in this judgement was dismissed because of the headline statement by the NHMRC in the 2010 rapid review which the court considered to have removed the scientific uncertainty. This case was heard in December 2010 before the senate inquiry and before the NHMRC held its forum in June 2011. The current position of the NHMRC as shown in the email dated 22<sup>nd</sup> July (attachment 2) that precaution should be shown because of there being so little evidence clearly now satisfies the legal need that scientific uncertainty exists.

The second condition needed for the Precautionary Principle to be implemented, that being the threat of serious or irreversible damage, is clearly satisfied by the anecdotal evidence presented to the senate inquiry of people's health being damaged to such an extent that they felt the need to remove themselves from the source of injury, Wind Turbines, by leaving their homes.

The need for implementing the Precautionary Principle in regards to the development application by MHE is in my view clear. I however call on the Kojonup Shire to seek independent legal advice on this matter.

I am firmly of the view that the minimum guidelines for wind farms (Planning Bulletin No. 67 May 2004) are far from a precautionary approach, being seven years out of date in an area where the size, scale and numbers of turbines has grown dramatically since 2004. The community members surrounding these facilities deserve nothing less than industry best practice. The recommendations from the senate inquiry clearly point to the fact that such a code of best practise has not yet been settled on.

If the prerequisites for the Precautionary principle are satisfied I believe that the Kojonup Shire has no option but to refuse the development application until the scientific uncertainty surrounding this issue is removed.

Yours Sincerely

Roger Bilney

*Roger Bilney*

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The Waubra Foundation Inc.  
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Victoria, 3205  
Australia

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**EXPLICIT CAUTIONARY NOTICE**  
**TO THOSE RESPONSIBLE FOR WIND TURBINE**  
**SITING DECISIONS**

**Medical Director**  
Dr. Sarah Laurie, BMBS (Flinders)

**Board**  
Tony Hodgson, AM  
Dr. Sarah Laurie, BMBS  
Peter R. Mitchell AM, BChE (Chair)  
Kathy Russell, BCom, CA  
The Hon. Clive Tadgell, AO  
The Hon. Dr. Michael Wooldridge,  
B.Sc. MBMS, MBA

**Including Specifically Directors of Wind Developers, Publicly Elected Officials  
from Federal, State and Local Government, and Bureaucrats in Relevant  
Departments**

***BE ADVISED*** that, as a result of information gathered from the Waubra Foundation's own field research, and from the clinical and acoustic research available internationally, ***the following serious medical conditions have been identified in people living, working, or visiting within 10km of operating wind turbine developments.*** The onset of these conditions corresponds directly ***with the operation of wind turbines:***

- chronic severe sleep deprivation;
- acute hypertensive crises;
- new onset hypertension;
- heart attacks (including Tako Tsubo episodes);
- worsening control of preexisting and previously stable medical problems such as angina, hypertension (high blood pressure), diabetes, migraines, tinnitus, depression, and post traumatic stress disorder;
- severe depression, with suicidal ideation;
- development of irreversible memory dysfunction, tinnitus, and hyperacusis.

Other symptoms include those described by Medical Practitioners such as Dr. Amanda Harry, and Dr Nina Pierpont in her landmark Case Series Crossover Peer Reviewed Study (submission No 13 to the Australian Federal Senate Inquiry into Rural Wind Farms) and published in Dr Pierpont's book entitled "Wind Turbine Syndrome, A Report on a Natural Experiment", 2009, published by K-Selected Books, Santa Fe.

These serious health problems were also identified by Australian GP Dr David Iser in 2004. Dr Iser formally notified the Victorian Government of the time after his patients became unwell following the start up of the Toora wind project. His warnings were ignored without being properly investigated by the authorities and politicians.

All this and supportive material has been made available to the Boards of the major developers, State Ministers for Health and Planning and senior health bureaucrats. The time for denial, and of using the Clean Energy Council to shoulder the increasingly difficult task of denying the link between adverse health and operating wind turbines, is over.

At the Toora and Waubra wind projects, some seriously ill affected residents have been bought out by the developers; but only after they signed confidentiality agreements specifically prohibiting them from speaking about their health problems. This buy-out activity would support a conclusion that developers are aware of the health problems.

Meanwhile, wind developments have continued, with developers asserting that their projects meet acceptable standards, and thereby implying that they cannot be causing health problems.

The Foundation is also concerned that Vibroacoustic Disease, as recorded and described by Professor Mariana Alves-Pereira's team from Portugal, will develop in people chronically exposed to wind turbines. The disease has already been identified in the occupants of a house with levels of infrasound and low frequency noise identical to levels the Foundation is recording in the homes of affected residents in Australia.

The Foundation is aware of over 20 families in Australia who have abandoned their homes because of serious ill health experienced since the turbines commenced operating near their homes. Most recently, five households from Waterloo in South Australia have relocated, where the larger 3 MW turbines have had a devastating

impact on the health of these residents. Some of these people have walked away from their only financial asset, to live in a shed or a caravan on someone else's land.

The Foundation notes the mid-2010 advice from the National Health and Medical Research Council that a "**precautionary approach**" be followed. We are not aware that either industry or planning authorities have adopted this exceedingly valuable and important advice.

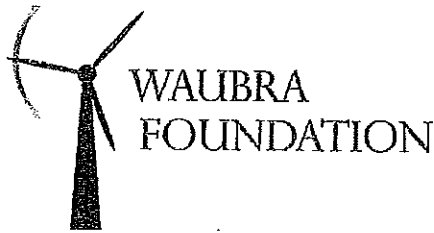
The Foundation's position, as the most technically informed entity in Australia upon the effects of wind turbines on human health, is this: ***Until the recommended studies are completed, developers and planning authorities will be negligent if human health is damaged as a result of their proceeding with, or allowing to proceed, further construction and approvals of turbines within 10km of homes. It is our advice that proceeding otherwise will result in serious harm to human health.***

***We remind those in positions of responsibility for the engineering, investment and planning decisions about project and turbine siting that their primary responsibility is to ensure that developments cause no harm to adjacent residents; and, if there is possibility of any such harm, then the project should be re-engineered or cancelled. To ignore existing evidence by continuing the current practice of siting turbines close to homes is to run the dangerous risk of breaching a fundamental duty of care, thus attracting grave liability.***

**The Waubra Foundation, 29 June, 2011**

Enquiries: Dr Sarah Laurie, Medical Director, 0439 865 914

Email address: [sarah@waubrafoundation.com.au](mailto:sarah@waubrafoundation.com.au)



PO Box 1136  
South Melbourne  
Victoria  
Australia 3205

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#### DIRECTORS OF THE WAUBRA FOUNDATION

Peter R. Mitchell, AM BChE – Chairman  
Dr. Sarah Laurie, BMBS (Flinders) – Medical Director  
Mr. Tony Hodgson, AM  
Ms. Kathy Russell, BCom, CA  
The Hon. Clive Tadjell, AO  
The Hon. Dr. Michael Wooldridge

#### Brief biographies:

##### **Peter R. Mitchell, AM BChE**

Peter Mitchell is currently a Patron of the Children First Foundation and a Governor of the Florey Neuroscience Institutes.

He has previously been National President of The Queens Trust for Young Australians (now the Foundation for Young Australians), President of the National Stroke Foundation and a board member of the World Wildlife Fund Australia.

During his business life he has been chairman of various companies listed on the Australian, New York and London stock exchanges.

##### **Dr. Sarah Laurie, BMBS (Flinders)**

FRACGP (awarded 1999, currently lapsed because of inability to keep up with CME requirements due of family & personal health issues)

FACCRM (awarded 2000, currently lapsed for above reasons)

Clinical Examiner with the RACGP 2000-2002

Member AMA state Council 2001-2002

Locums for Nganampa Health Council (Pitjantjatjara lands)

Pro bono consulting to Aboriginal Health Team, Pt. Pirie

Formation of Mid North Rape & Sexual Assault Service

GP representative, Mental Health Advisory Group

**Tony Hodgson, AM**

Jointly founded Ferrier Hodgson in 1976 with Ian Ferrier. The business grew to be the largest specialist Corporate Recovery & Insolvency business in Australia with overseas offices. Mr. Hodgson retired in 2000.

He has been Chairman, Melbourne Port Corporation; Deputy Chairman & Chair Audit Committee, Tabcorp Holdings Limited; Director & Chair Audit Committee, Coles Group Ltd.; Director & Chair Audit Committee, HSBC Bank in Australia.

Currently a member of the Advisory Council at JPMorgan & member of the Advisory Board at Pact Group Ltd.

**Ms. Kathy Russell, BCom. CA**

Kathy Russell is Vice President of the Australian Landscape Guardians and is currently employed by Barwon Health, the Geelong Hospital, as Business Manager Surgical Services. She holds membership with the Institute of Chartered Accountants.

For the past 3 years Kathy has focused her efforts on gaining recognition for individuals and communities suffering the health effects of living in close proximity to industrial wind turbines. The experience of becoming an integral part of these families and communities, both in their homes and via regular phone contact, both in Australia and abroad, is the motivation behind her continued effort in this area.

**The Hon. Clive Tadgell, AO**

The Hon. Clive Tadgell, AO was admitted to the Victorian Bar in 1960 and to the New South Wales Bar in 1963.

Appointed Queen's Counsel for Victoria in 1974 and for New South Wales in 1979, he served from 1980 to 1995 as a Judge of the Supreme Court of Victoria and from 1995 to 2001 as a Judge of the Victorian Court of Appeal.

He held the office of Chancellor of the Anglican Diocese of Melbourne from 1981 to 2007, has been a Fellow of Trinity College, University of Melbourne, since 1993 and was a Senior Visiting Scholar at Oriel College, University of Oxford in 2001-2.

**The Hon. Dr. Michael Wooldridge**

Hon. Dr. Michael Wooldridge, B.Sc. MBMS, MBA, (FAMA, HonFRACMA, HonAFPHM, HonLID, HonD.Sc)

Michael Wooldridge is a Professor in the Faculty of Medicine, Nursing and Health Sciences, Monash University and an Associate Professor in the Faculty of Medicine, University of Melbourne.

He chairs a number of public and private companies. He also chairs the Ministerial Advisory Committee on AIDS, Sexual Health and Hepatitis (MACASHH) and is Chair, Neurosciences Australia.

He was a member of the Australian Parliament from 1987 to 2001 and Commonwealth Minister for Health from 1996 to 2001.

Attachment 1.

**Roger Bilney**

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**From:** Roger Bilney [rfbilney@bigpond.com]  
**Sent:** Monday, 18 July 2011 8:23 AM  
**To:** 'john.mccallum@nhmrc.gov.au'  
**Subject:** Wind Farm Health Policy  
  
**Importance:** High

Roger Bilney

PO Box 88

Kojonup

WA 6395

Phone 08 98311657 or mobile 0428341012

Email [rfbilney@bigpond.com](mailto:rfbilney@bigpond.com)

Professor John Mc Callum,  
Head of Research Translation group.  
NH & MRC.

Dear Professor Mc Callum,

I write to you as a neighbour of a proposed 150 Mega Watt wind farm consisting of 75 turbines in the shires of Kojonup and Broomehill - Tambellup. The development application has been with the shires since December 2010 hence they are quickly approaching the point at which they will be making a decision on this project, where the developers are intending to site turbines 1000 metres from some neighbours residences and 100 metres from property lines.

The directors and shareholders of the energy company hoping to develop the proposed wind farm have assured the two Shire Councils and the local residents there will be no ill effects to human health as a result of operating turbines. The wind company have extensively used the NHMRC 's 2010 rapid review statement ***"There is currently no published scientific evidence to positively link wind turbines with adverse health effects "***

Professor Mc Callum, I am aware of your statement in the media on ABC television on the 7.30 Report on June 17 2011, is this the current position of the NHMRC and if so how should we interpret that statement.

I am seeking this information as a matter of urgency to assist the shires in their deliberations.

Yours Sincerely

Roger Bilney



Attachment 2

Roger Bilney

**From:** Jennaway, Christopher [Christopher.Jennaway@nhmrc.gov.au] on behalf of Turbines, Wind [wind.turbines@nhmrc.gov.au]  
**Sent:** Friday, 22 July 2011 2:37 PM  
**To:** rfbilney@bigpond.com  
**Subject:** RE: Wind Farm Health Policy [No Protective Marking] [SEC=UNCLASSIFIED]

UNCLASSIFIED

Dear Roger

Thank you for your email dated 18 July, to Professor John McCallum, Head, Research Translation Group, regarding your concerns with the proposed wind farm in your area. Professor McCallum has asked me to reply on his behalf.

The NHMRC *Public Statement: Wind Farms and Health* was based on a literature review, which at the time, revealed that there is no scientific evidence of the quality required by NHMRC to link wind farms to adverse health effects. However, the Public Statement does contain 5 important advisory points that should be considered by anybody referring to our document.

The public statement advises that because there is so little scientific, peer reviewed evidence available:

1. a precautionary approach should be taken
2. research outcomes should continue to be monitored;
3. wind turbine design standards should be complied with;
4. site evaluation should occur to minimise potential impacts; and
5. people who believe they are experiencing health problems should consult their Doctor promptly.

The Council of the NHMRC has agreed to conduct a systemic approach to review the literature to date. The results of this review will inform any further decision to update our statement.

Yours sincerely

Chris Jennaway

Project Officer | Emerging Issues  
National Health & Medical Research Council

UNCLASSIFIED

**From:** Roger Bilney [mailto:rfbilney@bigpond.com]  
**Sent:** Monday, 18 July 2011 10:22 AM  
**To:** McCallum, John  
**Subject:** Wind Farm Health Policy [No Protective Marking]  
**Importance:** High

Roger Bilney

PO Box 88

Kojonup

WA 6395

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Phone 08 9831.1657 or mobile 0428341012

Email [rfbilney@bigpond.com](mailto:rfbilney@bigpond.com)

Professor John Mc Callum,  
Head of Research Translation group.  
NH & MRC.

Dear Professor Mc Callum,

I write to you as a neighbour of a proposed 150 Mega Watt wind farm consisting of 75 turbines in the shires of Kojonup and Broomehill - Tambellup. The development application has been with the shires since December 2010 hence they are quickly approaching the point at which they will be making a decision on this project, where the developers are intending to site turbines 1000 metres from some neighbours residences and 100 metres from property lines.

The directors and shareholders of the energy company hoping to develop the proposed wind farm have assured the two Shire Councils and the local residents there will be no ill effects to human health as a result of operating turbines. The wind company have extensively used the NHMRC 's 2010 rapid review statement ***"There is currently no published scientific evidence to positively link wind turbines with adverse health effects "***

Professor Mc Callum, I am aware of your statement in the media on ABC television on the 7.30 Report on June 17 2011, is this the current position of the NHMRC and if so how should we interpret that statement.

I am seeking this information as a matter of urgency to assist the shires in their deliberations.

Yours Sincerely

Roger Bilney

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Version: 9.0.901 / Virus Database: 271.1.1/3777 - Release Date: 07/21/11 23:13:00

Roger Bilney

Attachment 3.

**From:** Jennaway, Christopher [Christopher.Jennaway@nhmrc.gov.au] on behalf of Turbines, Wind [wind.turbines@nhmrc.gov.au]  
**Sent:** Tuesday, 26 July 2011 2:23 PM  
**To:** Roger Bilney  
**Subject:** RE: Wind Farm Health Policy [No Protective Marking] [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi Roger,

Please accept my email as a signed copy, as my details are provided in the signature block at the bottom of the email. As a Government department employee, this email thread is as good as a signed, printed version. Please print this out and provide to the shires. If they feel the need to contact me, they can do so on the details below.

Kind regards,

**Chris Jennaway**

Project Officer | Emerging Issues  
National Health & Medical Research Council

p : 02 6217 9000 | f : 02 6217 9035

e : [christopher.jennaway@nhmrc.gov.au](mailto:christopher.jennaway@nhmrc.gov.au) | w : [www.nhmrc.gov.au](http://www.nhmrc.gov.au)

UNCLASSIFIED

**From:** Roger Bilney [mailto:rfbilney@bigpond.com]  
**Sent:** Monday, 25 July 2011 7:29 AM  
**To:** Turbines, Wind  
**Subject:** RE: Wind Farm Health Policy [No Protective Marking] [SEC=UNCLASSIFIED]

Dear Chris,

Thankyou for your email dated 22 July 2011 confirming that the Public Statement does contain 5 important advisory points that should be considered by anybody referring to the NHMRC document. Some shires will require a hard copy and signed by you.

Would you please post a signed copy of your email to me at the following address---

PO Box 88  
Kojonup  
WA 6395.

Mail into country WA is slow and therefore at your earliest convenience please.

Yours sincerely  
Roger Bilney

**From:** Jennaway, Christopher [mailto:Christopher.Jennaway@nhmrc.gov.au] **On Behalf Of** Turbines, Wind  
**Sent:** Friday, 22 July 2011 2:37 PM  
**To:** rfbilney@bigpond.com  
**Subject:** RE: Wind Farm Health Policy [No Protective Marking] [SEC=UNCLASSIFIED]

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Attachment 4.

**ENVIRONMENT, RESOURCES AND  
DEVELOPMENT COURT OF SOUTH  
AUSTRALIA**

**PALTRIDGE & ORS v DISTRICT COUNCIL OF GRANT &  
ANOR**

[2011] SAERDC 23

Judgment of His Honour Judge Costello, Commissioner Mosel and Commissioner Agnew

17 June 2011

**ENVIRONMENT AND PLANNING - ENVIRONMENTAL PLANNING -  
DEVELOPMENT CONTROL**

Appeal against grant of development plan consent to a proposed wind farm - whether non-complying or hypothetical development - meanings of "appropriate locations;" "minimise" and "zone prevalence statement" in Development Plan considered - planning assessment particularly regarding noise, infrasound, health effects and visual amenity - the introduction of 46 wind turbines into the locality will detract from the existing character and level of visual amenity to an unacceptable degree. Appeal upheld - Council decision reversed.

*Development Act 1993; Development Regulations 2008; Climate Change and Greenhouse Emissions Reduction Act 2007, referred to.*  
*Toralga Landscape Guardians Inc v Minister for Planning and Anor (2007) 161 LGERA 1; Quinn and Ors v Regional Council of Goyder and Anor [2010] SAERDC 63; City of Mitcham v Freckman and Ors (1999) 74 SASR 56; St Ann's College Inc v The Corporation of the City of Adelaide and Renton (1999) SASC 479; Telstra Corporation Ltd v Corporation of the City of Mitcham (2001) 79 SASR 509; Hassen v District Council of Murray Bridge and Orsoy (1984) 35 SASR 448; Rowe v Lindner (2006) SASC 176; City of Burnside v City Apartments [2004] SASC 294; Oxley County District Council v Mackay River District County Council (1963) 65 SR (NSW) 13; Tuna Boat Owners Association of SA Inc v Development Assessment Commission (2000) 77*

**First Appellant: RICHARD PALTRIDGE Counsel: MR G MANOS - Solicitor: BOTTEN LEVINSON**  
**Second Appellant: THOMAS PALTRIDGE Counsel: MR G MANOS - Solicitor: BOTTEN LEVINSON**  
**Third Appellant: LOUISE PALTRIDGE Counsel: MR G MANOS - Solicitor: BOTTEN LEVINSON**  
**First Respondent: DISTRICT COUNCIL OF GRANT Counsel: MR P PSALTIS - Solicitor:  
NORMAN WATERHOUSE**  
**Second Respondent: ACCIONA ENERGY OCEANIA PTY LTD Counsel: MR S HENRY SC - Solicitor:  
THOMSON PLAYFORD CUTLERS**

Hearing Date/s: 25/10/2010 to 29/10/2010, 02/11/2010 to 03/11/2010, 13/01/2011 to 17/01/2011, 24/02/2011 to 25/02/2011

File No/s: ERD-10-106

B

SASR 369, 373; *Telstra Corporation Ltd v Hornsby Shire Council* (2000) 146 LGERA 10, considered.

**PALTRIDGE & ORS v DISTRICT COUNCIL OF GRANT & ANOR  
[2011] SAERDC 23**

**THE COURT DELIVERED THE FOLLOWING JUDGMENT:**

**The Appeal**

1 This appeal relates to a proposal, by Acciona Energy Oceania Pty Ltd (“Acciona”), for approval to construct a wind farm, on land comprising 15 private land holdings, situated some 1.5 kilometres east of the township of Allendale East and approximately 18 kilometres to the south of Mt Gambier. The site of the proposed development (“the subject land”) will cover an area of about 10.7 km<sup>2</sup>.

2 The proposal, which was processed by the District Council of Grant (“the Council”) as a Category 3 development, attracted four representations.

3 The appeal was heard in October and November 2010 and January and February 2011. The Court took a view of the subject land and the land surrounding it, together with the townships of Allendale East and Port MacDonnell, the latter being approximately 7 kilometres to the south west of the subject land. In addition, the Court viewed two other wind farm developments (namely the Lake Bonney and Canunda wind farms) approximately 40 kilometres to the north-west of the subject land.

4 Mr Manos appeared as counsel for the appellants, with Mr Psaltis for the Council and Mr Henry SC for Acciona. On behalf of the appellants, the Court heard expert evidence from Mr Batge, a town planner, Mr Heseltine, a landscape architect, Mr Huson, a physicist specialising in acoustics, Mr Gerner, a spatial consultant, and Dr Laurie, a medical practitioner. Two of the appellants, Mr Thomas and Mr Richard Paltridge gave evidence as well as Mr Quinn, Mr Stepnell and Ms Godfrey, all of whom had lived near existing wind farms in either South Australia or Victoria and Mr Manning whose wife owns property nearby to and south of the subject land.

5 Mr McEvoy, a town planner gave evidence in the Council’s case. In addition, Mr Psaltis tendered two volumes of copy documents.<sup>1</sup>

6 In Acciona’s case Ms Nolan, a town planner, Mr Keates, a landscape architect, Mr Turnbull, an acoustic engineer, Mr Maunder, a computer simulation specialist and Professor Wittert, a physician with a particular interest in epidemiology, gave expert evidence. The Court also received, without objection, an expert report from Mr White, a wind power engineer.

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<sup>1</sup> Exhibit R1 - Book of Documents (Volumes 1 & 2).

### The Development Proposal

- 7 The development proposal comprises the following elements:
- 46 wind turbines, each with a tower height of 80 metres, a base footing 16 x 16 metres and a hard standing area of 25 x 40 metres upon which to mount a crane for the erection and maintenance of each turbine;
  - 2 turbine blades, for each turbine, of 41 metres in length resulting in a total diameter of 82 metres;
  - access tracks, constructed of rubble, to the site of each turbine. These tracks are to be 5.5-6 metres wide with a 3% grade;
  - underground and overhead electricity cabling infrastructure;
  - three 80 metre high wind monitoring masts;
  - an electricity sub-station, between two of the turbines, in a compound measuring 26.3 x 45 metres; and
  - a 132kV sub-station and 132kV switching station with dimensions of 33.5 x 45 metres.

8 Although not part of the current matter under appeal, the proposal will require the installation of overhead power line infrastructure, including 21 metre high Stobie poles, to connect the wind farm to the electricity grid at a sub-station approximately 9 kilometres north of Mount Gambier. The Court accepts that such a connection will be necessary in order for the wind farm to be utilised but that it is not part of the current proposal.<sup>2</sup>

### The Parties

9 The appellants are members of a local farming family (father, son and daughter-in-law) who own and farm dairy cattle on several parcels of land to the south and east of the proposed wind farm.

10 Mr Richard Paltridge owns and occupies a single-storey dwelling, on an allotment (called Glenorleigh) located approximately 870 metres<sup>3</sup> to the south-east of proposed turbine 31, as shown on a "Wind Farm Layout" map which forms part of Exhibit A.

11 Approximately 400 metres to the north of this dwelling is the Glenorleigh dairy, where a herd, of approximately 700 dairy cows, is milked each day. The

<sup>2</sup> The Court understands that it is anticipated that this infrastructure will be installed by an entity known as Electranet pursuant to a separate mechanism in Section 49A of the Development Act 1993 ("the Act") for the assessment of electricity infrastructure. This issue is dealt with in more detail in relation to the issue of hypothetical development.

<sup>3</sup> Exhibit P - Statement of Mr Turnbull p 4 - Distance calculated by Mr Turnbull for Residence 160.

appellants have approval for the construction of a new fully-automated dairy adjacent to the existing dairy.

12 Mr Thomas and Mrs Louise Paltridge own and occupy a single-storey dwelling on a property called Nellybrook. The house on this property is situated some 3.9 kilometres south-west of proposed turbine 46 and 4.3 kilometres south-east of proposed turbine 30 as shown on the "Wind Farm Layout" map. Adjacent to Nellybrook, and to its east, the appellants own and operate another dairy property called Elandra.

13 Finally, the appellants own and lease a property, called Carenya, which is situated approximately 1 kilometre to the south of proposed turbine 47 on the "Wind Farm Layout" map.

14 Acciona is part of a group of companies, originating in Spain, with considerable experience in the renewable energy sector. It is involved in the operation of over 250 wind farms worldwide. It has operated in Australia since 2002 and has built two wind farms, which are currently operating at Waubra, near Ballarat in Victoria and Cathedral Rocks in South Australia.

### The Locality

15 A locality, for the proposed development, is difficult to define with any degree of precision, not only because of the combined height of the turbine towers and blades (approximately 120 metres) but also because the overall area to be covered by the turbines (allowing for spacing between turbines) stretches about 8.7 kilometres from east to west and 3 kilometres from north to south.

16 In her report, Ms Nolan adopted a locality extending some 15-20 kilometres around the site based, in part, upon the extent to which, from various positions and with varying degrees of clarity, elements of the proposal may be visible. We are content to adopt this area for the purposes of the general locality.

17 Ms Nolan described the locality, and the prominent features/elements within it, in the following way:

5.2 Within this locality I note the following features/elements:

Mount Gambier proper to the north (some 17kms) and its associated town development/activities;

Mount Shank (just over 4km to the north), an extinct volcano/cone extending some 80m above the surrounding land;

Allendale East Township (1.6km, at its closest point to turbine number 3), to the west comprising a population of some 300 persons, local school and limited range of ancillary developments/activities;

Port MacDonnell (some 7km to the south west) – a small coastal fishing-based town with boating/tourism/seafood focus;



coastal areas to the south comprising water-fronting dwellings and “shacks” at relatively low densities;

forestry plantations to the quite immediate north east;

the exposed coastal area of Cape Northumberland including bay views, cliff formations and coastal vegetation;

various smaller Conservation Parks including wetlands, native vegetation areas and caves/sinkholes which are provided with modest tourist amenities.

- 5.3 Topographically, this locality features the undulating grazing lands exhibited on the subject land, with flatter land to the south and more dominant (though not significantly so) ridgelines of the original dunal system to the north falling to flatter land from which Mount Shank and Mount Gambier rise. The more immediate locality in particular comprises a large area of land under irrigation via centre pivot – a pattern which is most obvious on aerial photography.
- 5.4 The primary road network running through this locality includes the Port MacDonnell Road (also referred to as Riddoch Highway)/Bay Road (north/south) and Searants Rd/Bones Rd/Earls Cave East Rd (east/west). The remaining road network functions very much at a local level, as indeed I expect do most roads other than the Port MacDonnell Road.
- 5.5 The landscape is highly modified and presents as a “productive” farming environment. It comprises fertile land and rainfall (supplemented by irrigation) yielding high (relatively speaking) stocking rates. The presence of cows dominates the rural scene. It is, to my eye, pleasant – particularly when the land is lush and green. It is somewhat repetitious in its similarity and form – this similarity is broken by isolated dwellings and farm buildings, “house” landscaping, industrial style dairy operations and quite extensive on-site access roads and fenced cattle races used to walk cows to their respective dairies (I suspect many of these could well be unmade public roads).<sup>4</sup>

18 We consider Ms Nolan’s opinion expressed in 5.5 above to be saying, amongst other things, that the character of the locality reflects that which is described in Objective 1 for the Primary Industry Zone (below) as a “*pleasant rural landscape*”. That is an opinion supported by the evidence of Mr Batge (which we accept) which is in the following terms<sup>5</sup>:

The predominant character of the area is rural, primarily covered with grazing pastures with only scattered vegetation and substantial areas devoted to forestry. In my assessment, the area in which the wind farm is proposed does possess the kind of characteristics of the “existing pleasant rural landscape” as described in the provisions of the Primary Industry Zone.

<sup>4</sup> Exhibit BB - Statement of Ms Nolan pp 5-6.

<sup>5</sup> Exhibit A3 - Statement of Mr Batge p 5.

- 19 To the extent that the proposed wind turbines would appear as new elements in the locality's landscape, we also note and agree with the following observations by Mr Batge<sup>6</sup>:

There are few legible vertical elements in the landscape of any significant scale. There is a lack of tall manmade structures or tall trees with the majority of the land in the locality comprising pastures with widely scattered small stands of low trees, predominantly along roads and tracks. Predominantly the earth and sky meet with minimal or no interruption from either tall timber or existing manmade structures of any significance. There is an occasional farm windmill and water tank used to pump water for livestock but these are minor and insignificant elements within the landscape. I also observed a small number of Stobie poles on the horizon to the north-east from Nelly Brook which on closer inspection appear to be in the order of 8 m in height.

- 20 Also, from our observations on the view, our consideration of the opinions expressed above and our examination of the various plans and photographs tendered during the course of the hearing, we consider the following to be relevant in the assessment. Unlike some large and sparsely populated areas found in rural and farming communities elsewhere in the State, the farming enterprises within and adjacent the locality are numerous and, speaking in relative terms, modest in size. Having said that, we do not challenge the text that follows Objective 1 which suggests that the Zone "*exhibits large land holdings*". We make this observation in relative terms but the facts speak for themselves. In this part of the Zone, within a distance of 2 km from the nearest turbine<sup>7</sup> there are numerous parcels of land, many dwellings<sup>8</sup>, the township of Allendale East and a reasonably extensive rural road network.

### The Development Plan

- 21 At the time of the lodgement of the Development Application (1 October 2009), the relevant Development Plan was the District Council of Grant Development Plan consolidated on 16 October 2008.
- 22 In this consolidation, the subject land is in the Primary Industry Zone which relevantly provides as follows:

Objective 1: A Zone primarily for general farming, horticulture and commercial forestry which retains the existing pleasant rural landscape.

The Primary Industry Zone contains broadacre farming units and exhibits large land holdings which reflect the agricultural and pastoral activities associated with the high level of crop and livestock production of the region. It should contain land holdings of various sizes which promote the continuation of these activities and which retain the farming, horticultural and forestry production exhibited throughout the Primary Industry Zone.

<sup>6</sup> Exhibit A3 - Statement of Mr Batge p 5.

<sup>7</sup> Exhibit A13 - Plan attached to Email from Mr Gerner dated 25 October 2010.

<sup>8</sup> See, for example, Exhibit P - Statement of Mr Turnbull p 4 where Mr Turnbull lists 34 dwellings within approximately 1.7 km of the nearest turbine.

Principles of Development Control

- 1 This zone should be retained principally for farming, horticulture and commercial forestry to maintain the rural landscape and promote primary agricultural production.  
...
- 7 Dwellings and other buildings intended for human habitation should not be established on allotments created in accordance with the zone Principle of Development Control numbered 5(d), unless:
  - (a) the allotment is used for horticultural production and is at least 20.0 hectares in area;
  - (b) the allotment has been continually used for primary production purposes for a period of not less than twelve months;
  - (c) substantial investment in horticulture production has occurred;
  - (d) the dwelling and any associated development, including driveways, located so as not to prejudice the use of the allotment and surrounding properties for horticultural and primary production;
  - (e) the siting, design and appearance of the development is compatible with the rural character of the area;
  - (f) the planning authority is satisfied that the development will not give rise to demands for additional urban services; and
  - (g) adverse impacts on the dwelling in terms of potential conflicts with horticultural and primary production activities on surrounding allotments are minimised, where:
    - (i) a minimum set-back distance of 50 metres is provided between the road and dwelling;
    - (ii) A minimum separation distance of 75 metres is provided between the dwelling and adjoining properties to the side and rear;
    - (iii) planted buffer areas are provided and maintained for shade, shelter, windbreaks and visual separation from horticultural and primary production activities on adjoining properties; and
    - (iv) ancillary outbuildings are clustered in close proximity to the dwelling.
- 10 Farming in the form of land based aquaculture should:  
...

- (g) minimise visual impact by the use of low profile structures that are limited in size and number.

11 Development in the zone should not lead to:

- (a) visual impairment of the rural landscape through the proliferation of buildings and structures;
- (b) detrimental impact on genuine agricultural activities;

...

15 Buildings associated or used with an industry or intensive animal keeping should be set-back a minimum of 100 metres from any road.

...

19 Tourist oriented development associated with Mount Schank should be sensitively sited so as not to detract from or destroy the natural beauty or the form of Mount Schank.

...

26 The design and siting of buildings and structures should ensure that the natural character and beauty of the area is maintained. In particular, unnecessary removal of natural vegetation, obtrusive excavations, or filling, should be avoided, and buildings and structures should not spoil views from public roads.<sup>9</sup>

23 While the Development Plan contains many other relevant Objectives and Principles of Development Control (to which we were referred and had regard) particular emphasis, for obvious reasons, was laid on those provisions in the Plan dealing with Renewable Energy:

Renewable Energy:

Objective 44: The development of renewable energy facilities, such as wind and biomass energy facilities, in appropriate locations.

Objective 45: Renewable energy facilities located, sited, designed and operated to avoid or minimise adverse impacts and maximise positive impacts on the environment, local community and the State.<sup>10</sup>

Renewable Energy:

Principle 196: Renewable energy facilities, including wind farms, should be located, sited, designed and operated in a manner which avoids or minimises adverse impacts and maximises positive impacts on the environment, local community and the State.

<sup>9</sup> Development Plan - Grant (D.C.) pp 99-103.

<sup>10</sup> Development Plan - Grant (D.C.) p 11.

- Principle 197: Renewable energy facilities, including wind farms, and ancillary developments should be located in areas that maximise efficient generation and supply of electricity.
- Principle 198: Renewable energy facilities, including wind farms, and ancillary development such as substations, maintenance sheds, access roads and connecting power-lines (including to the National Electricity Grid) should be located, sited, designed and operated in a manner which:
- (a) avoids or minimises detracting from the character, landscape quality, visual significance or amenity of the area;
  - (b) utilises elements of the landscape, materials and finishes to minimise visual impact;
  - (c) avoids or minimises adverse impact on areas of native vegetation, conservation, environmental, geological, tourism or built or natural heritage significance;
  - (d) does not impact on the safety of water or air transport and the operation of ports, airfields and designated landing strips;
  - (e) avoids or minimises nuisance or hazard to nearby property owners/occupiers, road users and wildlife by way of:
    - (i) shadowing, flickering, reflection and blade glint impacts;
    - (ii) noise;
    - (iii) interference to television and radio signals;
    - (iv) modification to vegetation, soils and habitats; and
    - (v) bird and bat strike.<sup>11</sup>

24 These provisions were inserted into the Development Plan by the Wind Farms Ministerial Plan Amendment Report ("Ministerial PAR") of July 2003. Similar provisions have been introduced into Development Plans across the State. According to Ms Nolan's evidence, which we accept, there are no Development Plans in South Australia which direct the siting of wind farms into specific zones. Rather, as in this Development Plan, renewable energy provisions are found in the Plans' general provisions, for consideration on merit, or, as this Plan puts it, "in appropriate locations".

#### Assessment Approach and the Role of the Development Plan

25 Prior to embarking upon a consideration of this issue, we acknowledge that the issues in this appeal, like others, do not exist for consideration in a legal and policy vacuum. It has elsewhere been observed that:

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<sup>11</sup> Development Plan - Grant (D.C.) pp 65-66.

The insertion of wind turbines into a non-industrial landscape is perceived by many as a radical change which confronts their present reality. However those perceptions come in differing hues. To residents, such as members of Taralga Landscape Guardians Inc (the Guardians), the change is stark and negative. It would represent a blight and the confrontation is with their enjoyment of their rural setting.

To others, however, the change is positive. It would represent an opportunity to shift from the societal dependence on high emission fuels to renewable energy sources. For them, the confrontation is beneficial -- being one much needed step in policy settings confronting carbon emissions and global warming.<sup>12</sup>

26 The Government in South Australia has sought, in part, to address some of these issues in the *Climate Change and Greenhouse Emissions Reduction Act 2007*. Nevertheless, as this Court has previously recognised, our focus, in this assessment when considering planning policy in South Australia, must be directed to the relevant Development Plan.<sup>13</sup>

27 Our task is to assess the proposed development against the relevant provisions of the Development Plan, and general planning principles, and to decide, in light of that assessment, whether to confirm, vary or reverse the Council's decision to grant development consent to the proposal.<sup>14</sup>

28 It is important to note, in this context, that the Development Plan is not to be construed like a statute.<sup>15</sup> It is a planning document, couched in the language of planning objectives and principles, rather than that of legal obligation. It uses language appropriate to the expressions of goals and guiding principles rather than the expression of legal mandates.<sup>16</sup>

#### Issues for Determination

29 The issues which fall for determination in this appeal involve:

- (a) the interpretation of this Development Plan, and particular expressions within it;
- (b) a hypothetical development;
- (c) a non-complying development;
- (d) efficient energy generation;
- (e) noise;
- (f) infrasound;
- (g) visual amenity;
- (h) health and the precautionary principle;
- (i) shadow flicker, reflection and blade glint;
- (j) electromagnetic interference with telecommunications; and
- (k) impact on flora and fauna.

<sup>12</sup> *Taralga Landscape Guardians Inc v Minister for Planning and Anor* (2007) 161 LGERA 1, at para 1.

<sup>13</sup> *Quinn and Ors v Regional Council of Goyder and Anor* [2010] SAERDC 63.

<sup>14</sup> *City of Mitcham v Freckman and Ors* (1999) 74 SASR 56.

<sup>15</sup> *St Ann's College Inc v The Corporation of the City of Adelaide and Renton* [1999] SASC 479.

<sup>16</sup> *Telstra Corporation Ltd v Corporation of the City of Mitcham* (2001) 79 SASR 509.

## Interpretation of the Development Plan

### “Zone Prevalence Statement” (ZPS)

30 In the “Introduction” section of the Plan it is said that ... *“to the extent of any inconsistencies between the Council-wide provisions and the Zone provisions, the Zone provisions will prevail”*.<sup>17</sup>

31 The Renewable Energy provisions (Objectives 44 and 45 and Principles 196-198) are found in the Council-wide provisions. As we have said, the subject land is situated within the Primary Industry Zone. There are no provisions in the Zone which specifically deal with renewable energy in general or wind-farms in particular.

32 On behalf of the appellants and relying on the ZPS, Mr Manos argued that, when properly construed, the Renewable Energy provisions must be read, in conjunction with but subservient to, the Primary Industry Zone provisions.

33 On behalf of Acciona, Mr Henry SC submitted that the ZPS was no more than a restatement of the general rule, that, in interpreting Development Plans, where inconsistency arises, the specific prevails over the general.<sup>18</sup> Furthermore, he argued that, as the ZPS pre-dated the Ministerial PAR which introduced the Renewable Energy provisions, the role and application of such a Statement requires careful consideration. It would be *“inconceivable,”* he said, that this Statement could effectively *“trump”* and therefore *“put at nought”* the renewable energy policy as expressed in Objectives 44 and 45 and Principles 196-198.

34 We acknowledge that the Plan is to be read as a whole<sup>19</sup> and that the ZPS is but one part of the Plan. Nevertheless, it remains as a clear statement of approach by the authors of this Plan.

35 In the event that there existed a clear and substantive inconsistency between the Zone provisions and the Renewable Energy provisions, we are of the view that the Zone provisions would have to prevail, even if that lead to a conclusion that a proposal such as this must be rejected.

36 However, on a closer reading of the respective provisions, we do not see any such meaningful inconsistency. Although, in relation to matters of visual amenity in particular, the Plan has used a different wording in the Council wide provisions, from that in the Zone (cf Council wide Principles 196 and 198(a) with Zone Principles 11 and 26) we regard this as nothing more than different ways of saying the same thing, i.e. a requirement for all kinds of development to preserve and maintain existing visual amenity or the *“pleasant rural landscape”*, referred to in Objective 1 for the Zone.

<sup>17</sup> Development Plan - Grant (D.C.) p 6.

<sup>18</sup> *Hassen v District Council of Murray Bridge and Onsoy* (1984) 35 SASR 448.

<sup>19</sup> *Rowe v Lindner* (2006) SASC 176 at para 79.

*"Appropriate Locations"*

37 Objective 44 speaks of Renewable Energy facilities "*in appropriate locations*". Although, in general, it could be said that a location will be an appropriate location, within the meaning of the Plan, if it is located in an area that (to use the words of Principle 197) "*maximises efficient generation and supply of electricity*" we think that this is only one of the criteria by which the appropriateness of a location is to be assessed.

38 Efficiency in electricity generation certainly addresses this concept at a macro-level but a proposal will not be "appropriately located" if it does not satisfy the requirements set out in Principle 198 which focus attention on matters at a more local level.

*"Minimise"*

39 In Principles 196 and 198, the Plan directs that facilities such as wind-farms, should be located, sited, designed and operated in a way which "*avoids or minimises*" adverse impacts on, inter alia, the environment and/or character and amenity of the area in and around the subject land (our underlining).

40 In a not dissimilar context, the Supreme Court has said that:

... such terminology (that is the use of "minimise" and like expressions) is found in many provisions of the Plan. Such language calls for a planning authority to consider the relevant aspect of the proposed development (bushfire risk, obtrusiveness, the amount of excavation), the extent of or the impact of the relevant aspect, and whether the proposal has been developed in a manner that will contain or reduce the relevant aspect to an acceptable level, having regard to the relevant Objectives and Principles of the Plan.<sup>20</sup>

41 We respectfully adopt these observations and, in so doing, reject any argument that the phrase "avoids or minimises", is other than disjunctive or that the word "avoids" colours the word "minimises" so as to impose a higher standard than that of a containment to the "acceptable level" referred to above.

**Hypothetical Development**

42 The appellants argued that the proposal was hypothetical because Acciona had not secured binding arrangements over all the land necessary to enable the final development to proceed. In particular, no approval has been sought, let alone obtained, for the overhead cabling and associated infrastructure necessary to connect the wind farm to the "national grid". As we have said, that connection point is located away from the site, some 9 kilometres north of Mount Gambier.

43 In response, Acciona indicated that, whereas at one point in time, this component was part of the development for which it sought approval, it is no longer seeking a consent for this part of the development.

<sup>20</sup> *City of Burnside v City Apartments* [2004] SASC 294 at para 35.



44 We were informed that any consent for this cabling and infrastructure will be the responsibility of Electranet, a regulated Transmission Network Service Provider, which owns and manages the South Australian transmission system in the National Electricity Market. As a prescribed person, for the purposes of s 49A of the *Act*, it will seek approval, for this part of the proposal, from the Development Assessment Commission in accordance with that section.

45 Accordingly, as it is not part of this proposal, but merely another consent, which will need to be obtained (albeit by another entity) before this proposal can proceed, Acciona submits that there is nothing hypothetical about its proposal.

46 We agree with this submission. The mere fact that other consents need to be obtained, prior to a development proceeding, does not render the development inherently hypothetical.

47 Having said that, had we been satisfied, by credible evidence, that there was no reasonable prospect of Electranet getting a consent to its application under s 49A, our attitude might have been different. As no such evidence was led, there is simply no basis for us to conclude that the development cannot or will not proceed. We therefore reject the notion that this development can be categorised as hypothetical.

#### Non-Complying Development

48 The appellants also submitted that the proposed development is for a non-complying development, namely a general industry. This form of development is included in the list of non-complying developments in the Primary Industry Zone.<sup>21</sup>

49 The Development Regulations 2008 (“the Regulations”) include “general industry” as an “industry” and define “industry” as the “*carrying on, in the course of a trade or business, of any process ... for or incidental to the making of any article ...*”.<sup>22</sup> We were referred by the appellants to a decision in New South Wales where the Court held that electricity is a form of matter.<sup>23</sup> Put simply, the appellants’ argument was that if “electricity” is “matter” and “matter” is a “thing”, then “matter” is an “article” because a “thing” is “an article”. As the end product of the operation of a wind farm is the creation of electricity, the wind farm process must (so it was said) be one which is “for or incidental to the making of an article” and therefore an “industry”.

50 We do not agree. When the Court in *Oxley*, spoke of electricity as a form of “matter” we think it was using the word “matter”, in the broadest sense, to encompass a substance or substances of which objects are composed, such that almost anything would fulfil the description of matter. In contrast, we would

<sup>21</sup> Development Plan - Grant (D.C.) pp 105-106.

<sup>22</sup> Development Regulations 2008 Schedule 1.

<sup>23</sup> *Oxley County District Council v Mackay River District County Council* (1963) 65 SR (NSW) 13.

view the process of making an article in the definition of "industry" to contemplate and be limited to the production of something physical or tangible.

51 Accordingly, we do not regard the operation of a wind farm, where the activity in question is the conversion of wind energy into electrical energy, to be "caught" by the definition in the Regulations.

52 As such, the proposal is not for a non-complying development and has been correctly dealt with by the Council.

### Issues for Planning Assessment

#### *Efficient Energy Generation*

53 We received, without objection, a statement from Mr Graham White, an engineer with 25 years in energy plan analysis, 15 of which have involved wind farm design. Mr White compared the proposed wind farm at Allendale East with 46 other proposed and/or operating wind farms around Australia. He concluded that the proposed wind farm ranked 15 out of 47 in terms of its productivity and that it was located in an area that compares favourably with other Australian projects in terms of efficient generation of electricity by a wind farm.<sup>24</sup>

54 We accept Mr White's evidence and conclude that, in primary locational terms, the site for the proposed development is appropriate.

#### *Noise*

55 As we have already observed, the issue of noise (with respect to facilities such as wind farms) is specifically referred to in Principle 198(e)(ii) which requires a wind farm to be located, designed and operated in a manner which avoids or minimises nuisance or hazard to nearby property owners/occupiers, road users and wild life.

56 The issue of noise was comprehensively dealt with by this Court in *Quinn*. In that case, the Development Plan required that proposed developments comply with the relevant provisions of the current Environment Protection (Noise) Policy and, by extension, the relevant Wind Farms Environmental Noise Guidelines. Although there is no such requirement in this Development Plan the Court's analysis in *Quinn* is relevant to this Court's consideration.

57 The Court said:

There was an argument as to which set of Wind Farms Environmental Noise Guidelines should be applied to the proposed wind farm with reference to PDC 7(c) of the Interface between Land Uses section of the Development Plan. The Environment Protection Authority ("the EPA") issued a set of Wind Farms Environmental Noise Guidelines in 2003 ("the 2003 Guidelines"). A review of those guidelines then took place between 2005 and 2009, which resulted in the generation and publication by the EPA of the Wind

<sup>24</sup> Exhibit R - Statement of Mr White pp 6-8.

Farms Environmental Noise Guidelines (interim) 2007 ("the interim 2007 Guidelines") and the Wind Farms Environmental Noise Guidelines 2009 ("the 2009 Guidelines"). From time to time during that review, the EPA communicated with various expert acoustic engineers, including Mr Turnbull, in relation to the guidelines.

... Whilst we have determined that the reference in the Development Plan is to the 2003 Guidelines, we will also consider the 2009 Guidelines on the basis that they represent a current school of thought upon the best way of assessing the noise impacts of a wind farm. We bear in mind that the assessment of noise impacts is not confined to compliance with any particular standard, but needs to address amenity. We note that Mr Turnbull and Professor Hansen, who are both expert acoustic engineers, considered that the 2009 Guidelines were the most appropriate Guidelines to use.<sup>25</sup>

58 We respectfully agree with and adopt this analysis. In particular and in the absence of any reference, in this Plan, to any Environment Protection (Noise) Policy we propose to have regard to the 2009 Guidelines<sup>26</sup> as the most up-to-date thinking, in South Australia, on the best way to assess the noise impacts of a wind farm.

59 On this issue, the Court heard expert evidence from Mr Turnbull, on behalf of Acciona, and Mr Huson, a physicist with extensive experience as a noise and vibration consultant, on behalf of the appellants.

60 In his analysis, Mr Turnbull identified 34 residences which varied, in distance to a turbine closest to their respective houses, from 736 metres to 1665 metres.

61 Of these 34, there were 6 landholders of residences who had reached a financial arrangement with Acciona and could therefore be said to have a financial interest in the project.<sup>27</sup> The 2009 Guidelines are not intended to apply to such landowners who are assumed to have entered into their arrangements with a proper understanding of the potential impacts. Sufficient compliance with the Guidelines is achieved if the noise level does not result in sleep disturbance.

62 For landowners who have no financial interest in a project the 2009 Guidelines state:

The predicted equivalent noise level ( $L_{Aeq,10}$ ), adjusted for tonality in accordance with these guidelines, should not exceed:

- 35 dB(A) at relevant receivers in localities which are primarily intended for rural living, or
- 40 dB(A) at relevant receivers in localities in other zones, or
- The background noise ( $L_{A90, 10}$ ) by more than 5 dB(A),

<sup>25</sup> *Quinn* at paras 68 and 75.

<sup>26</sup> Exhibit D - EPA Windfarms Environmental Noise Guidelines.

<sup>27</sup> Exhibit P - Statement of Mr Turnbull p 4 - Residences identified were 143, 144, 155, 159, 163 and 164.

whichever is the greater, at all relevant receivers for wind speed from cut-in to rated power of the WTG and each integer wind speed in between.<sup>28</sup>

63 As the subject land and the surrounding residences are situated wholly within a Primary Industry Zone, the resultant noise level, which should not be exceeded, is the higher of 40 dB(A) or 5 dB(A) above the measured background noise level.

64 In order to make a prediction, as to whether the noise levels from this proposal would be within acceptable limits, Mr Turnbull first measured the background noise levels at the various residences. Next, he sought to determine the sound power level produced by each of the proposed turbines and then to use a noise propagation model. The model which he chose uses the sound power levels of each turbine in conjunction with inputs such as topography, turbine layout, wind speed, wind direction and type of ground.

65 Sound power levels for an individual turbine are determined by the measurement of noise from the turbine in accordance with International Standard IEC 61400-11, "Wind turbine generator systems – Part 11: Acoustic noise measurement techniques".<sup>29</sup> In accordance with that Standard, sound power levels are determined by measuring noise levels relatively close to an individual turbine, so that the noise from other sources can be excluded.

66 After using the aforementioned Standard to arrive at his sound power levels, Mr Turnbull then proceeded to predict the noise from the wind farm using the International Standard ISO 9613-2 noise model.<sup>30</sup> This model is endorsed in the 2009 Guidelines and is (he said) widely accepted as an appropriate noise propagation model for the assessment of wind farms, when appropriate inputs are used. He based his assessment on the following inputs:

- 10°C in temperature
- 70% relative humidity
- 50% acoustically hard ground and 50% acoustically soft ground
- Receiver height of 4 m above ground
- Barrier attenuation of no greater than 2 dB(A)

67 Although these inputs differed (albeit marginally) from some of the inputs mentioned in the Guidelines, Mr Turnbull felt that they were the most up-to-date

<sup>28</sup> Exhibit P - Statement of Mr Turnbull p 6.

<sup>29</sup> Exhibit C - International Standard ISO 61400-11.

<sup>30</sup> Exhibit B - International Standard ISO 9613-2: Attenuation of Sound during Propagation Outdoors - Part 2 General Method of Calculation.

55

and reliable inputs, having been endorsed, as recently as 2009, by a group of UK acoustic experts.<sup>31</sup>

68 Based upon this modelling, Mr Turnbull concluded that the noise from the wind farm is predicted to achieve the requirements of the 2009 Guidelines at all residences.<sup>32</sup>

69 Furthermore, it was Mr Turnbull's view that his predicted noise levels were, in fact, conservative by reason of a number of factors. These included the fact that his model took into account wind direction by assuming that all receivers are down wind of all noise sources, i.e. it assumes that the wind is blowing in all directions from all sources at the same time. This, he said, is both an unrealistic and a conservative assumption.<sup>33</sup>

70 He also used an input of 50% hard ground and 50% soft ground whereas the ISO model required, only, that acoustically-soft ground be used. Acoustically soft ground has greater attenuation effects.<sup>34</sup>

71 Finally Mr Turnbull indicated that he had taken post-measurements at an existing wind farm which verified the accuracy of his predictions using this model.<sup>35</sup>

72 Mr Huson used a different model from the one used by Mr Turnbull. He used a model known as the Environmental Noise Model (ENM) because, he said, unlike the ISO 9613-2 used by Mr Turnbull, the ENM allowed for the inclusion of wind speed and direction and provided for an assessment of ground absorption effects.

73 In cross-examination, Mr Huson accepted that some of his criticisms, of the so-called shortcomings of the ISO model, were not justified.<sup>36</sup> More importantly, he was also forced to concede that the authors of the ENM model had issued a Technical Note stating that the ENM had a propensity to predict unusually high noise levels for this type of noise. In the Technical Note, the authors recommended that, when using the ENM, a correction needed to be applied to wind speeds for sources having a height greater than 10 metres.<sup>37</sup> When the contents of the Technical Note were drawn to Mr Huson's attention, he accepted that he had based his predictions on the ENM without making the correction recommended in the Technical Note.<sup>38</sup> He also accepted that use of the ENM (without factoring in the recommended correction) would not give either an

<sup>31</sup> Institute of Acoustics Vol 34 No 2 March/April 2009 "Prediction and Assessment of Wind Turbine Noise - Agreement about relevant factors for noise assessment from wind energy projects".

<sup>32</sup> Exhibit P - Statement of Mr Turnbull pp 6-15.

<sup>33</sup> Transcript p 596 (lines 8-14).

<sup>34</sup> Transcript p 609 (lines 18-35).

<sup>35</sup> Transcript p 613 (lines 12-30).

<sup>36</sup> Transcript p 162 (lines 3-14).

<sup>37</sup> Exhibit F - RTA Technology P/L Technical Note.

<sup>38</sup> Transcript p 182.

accurate or a reliable prediction of the likely noise levels from the proposed turbines.<sup>39</sup>

74 In the circumstances, we reject the evidence of Mr Huson. We accept the evidence of Mr Turnbull that the proposed wind farm will not exceed the noise levels set out in the 2009 Guidelines and that it will be acceptable, in terms of its noise impact, on those living in the locality.

75 In so saying, we do not wish it to be thought that we have overlooked the evidence of witnesses like Mr Quinn (who resides 3.2 kilometres from a wind farm at Hallett), Mr Stepnall and Ms Godfrey (who lived 900 metres and 700 metres, respectively, from the wind farm at Waubra). These witnesses spoke of hearing noises from these wind farms which they described as "shooofing" or "whoofing" or like a whine from a gear box. Although we accept that these witnesses were quite genuine in relating their experiences, we are simply unable to extrapolate, from their experiences, living as they do, near wind farms in different locations, that the noise generated by the operation of this wind farm will be unacceptable within the meaning of Principle 198(e)(ii).

#### **Infrasound**

76 During the hearing, various witnesses raised the issue of infrasound. In his evidence Mr Turnbull told the Court that infrasound is generally considered to be sound below 20 Hz. It is sound which is generally measured with a different scale (a dB(G) scale) from that for the measurement of sound power or sound pressure levels.

77 On the dB(G) scale, infrasound is said to be detectable, if it is above 85 dB(G).

78 Mr Turnbull told the Court that he was not aware of any reliable research, suggesting that wind farms produced infrasound, anywhere near 85 dB(G), at the separation distances from residences under consideration here.<sup>40</sup>

79 Mr Turnbull also said that he would be opposed to any requirement, which placed a condition on any approval, limiting the sound level to 85 dB(G), because:

- there was no credible evidence of adverse effects caused by infrasound from wind farms;<sup>41</sup>

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<sup>39</sup> Transcript p 183.

<sup>40</sup> Transcript p 697 (lines 35-37).

<sup>41</sup> Transcript p 697 (lines 12-13).

- infrasound levels from wind turbines are consistent with other natural and man-made sources of infrasound, already present in most localities; eg infrasound from waves in coastal locations;<sup>42</sup> and
- infrasound is very difficult to measure and in any event, there is no standard dictating how and with what equipment it should be measured.<sup>43</sup>

80 We note, in this respect, that the issue of infrasound is not regulated either in the Development Plan or by the EPA Guidelines.

81 If we were minded to grant approval to the proposal, we see no warrant for a condition regulating infrasound.

#### Visual Amenity and the Development Plan

82 In the appellants' case, on this issue, the Court heard expert evidence from Mr Batge, Mr Heseltine and Mr Gerner. Mr Gerner made a 3D model of the proposed turbines which was then imported into Google Earth to produce a video of a "fly through" of the wind farm. He also produced still photographs, taken from various points in the locality, to depict views of different clusters of turbines. We also heard from two of the Paltridge appellants and Mr Manning.

83 In the Council's case we heard from its town planner, Mr McEvoy.

84 Acciona called Ms Nolan, Mr Keates and Mr Maunder, a computer simulation specialist. His company prepared a series of photo simulations depicting various views of the wind farm.

85 In his evidence, Mr Maunder was critical of the photo simulations produced by the appellants because, amongst other things, they did not use an accurate survey control to align their camera or their digital terrain model. Instead they used a handheld GPS and a handheld compass.

86 Mr Maunder said that, in the absence of accurate survey control, given the number of variables involved in the preparation of their photomontages (e.g. the scale of Google Earth images; the height, location and orientation of their camera), one could have little confidence in their accuracy.<sup>44</sup>

87 We accept these criticisms as valid and have preferred and relied upon the photo simulations prepared by Acciona to assist us in making our visual assessment.

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<sup>42</sup> Transcript p 1055 (lines 20-27).

<sup>43</sup> Transcript pp 698 and 699.

<sup>44</sup> Exhibit J - Statement of Mr Maunder p 7.

88 Mr Richard Paltridge, Mr Thomas Paltridge and Mr Manning all spoke of their concerns, about having so many turbines close to them, in places which would be readily visible.<sup>45</sup>

89 We accept that, in his case, Mr Richard Paltridge will be able to see the vast majority of the turbines when moving around in his backyard. We also accept that Mr Thomas and Mrs Louise Paltridge and Mr Manning will see large numbers of turbines when moving around their properties.

90 We accept the genuineness of their concerns and acknowledge that, for them the result of this development proceeding will be the introduction, into their landscape, of a significant number of discordant, visual elements.

91 At this point, we should point out that, although our most detailed observations were confined to those parts of the locality to which we were directed by the parties (principally the dwellings and land owned and occupied by the appellants), from the observations we made on the view and the photo simulations prepared by Acciona, it is equally obvious that the turbines will be similarly visible in varying degrees, to those people occupying the many other dwellings (and working on the associated land) to which we referred earlier.<sup>46</sup>

92 As in Quinn<sup>47</sup>, this Development Plan places a high value on the scenic qualities of the landscape both generally and in the Primary Industry Zone. In the context of the Primary Industry Zone, there are a number of Principles that support the retention of the "existing pleasant rural landscape". We refer here, in the first instance, to Principles 11 and 26 that, amongst other things, seek the protection of visual amenity generally and the views from public roads in particular; speak against the proliferation of buildings and structures and advocate their proper design and siting.

93 In addition, there are in our view, other provisions in the Primary Industry Zone that emphasise the Plan's aim to preserve and maintain the existing level of visual amenity. We cite but four examples in respect of developments that, unlike the proposal, are expressly mentioned in the Primary Industry Zone. Principle 7, directed to "*dwellings and other buildings intended for human habitation*", seeks their "*siting, design and appearance*" to be "*compatible with the rural character of the area*". Principle 10 speaks to "*[f]arming in the form of land based aquaculture*" in several ways including the minimisation of "*visual impact by the use of low profile structures that are limited in size and number*". Principle 15 requires that buildings, associated with an industry, be set-back a "*minimum of 100 m from any road*" and Principle 19 seeks "*tourist oriented development*" associated with Mount Schank be "*sensitively sited so as not to detract from or destroy [its] natural beauty ...*".

<sup>45</sup> Transcript pp 61, 90, 93, 989-991.

<sup>46</sup> Exhibit P - Statement of Mr Turnbull p 4 where Mr Turnbull lists 34 dwellings within approximately 1.7 km of the nearest turbine.

<sup>47</sup> Quinn at paras 39-42.



94 That need to maintain and/or enhance the environment, landscape quality and visual amenity is also reinforced in the general section of the Plan e.g. in Objective 33 and the Renewable Energy provisions, themselves.

95 It follows that, in our assessment of the proposal in the context of this Plan, we are to have regard to factors, such as the number, scale, height and proximity to public roads of the turbines, when considering their impact on visual amenity and compatibility with existing rural character.

96 Against this background, Mr Henry SC submitted that any assessment of the appropriateness of a location for a wind farm, of necessity, must acknowledge that these are extremely tall structures which need to be sited in exposed locations in order to take advantage of the wind for efficient energy generation. The effect of these factors, in combination (it was submitted) means that it will be very difficult, if not impossible, for a wind farm of any size (in terms of height and numbers of turbines) to be anything but visually prominent in its locality.

97 While we accept the general thrust of this submission, the extent to which a particular wind farm's visual prominence will be acceptable, can only be determined on a case by case basis.

98 As we have said the appellants called Mr Batge and Mr Heseltine on this issue.

99 Although we have earlier accepted the evidence of Mr Batge with respect to a description of the locality, there are limitations to the weight which we can place on his evidence and that of Mr Heseltine. Mr Batge constrained his analysis by basing it, largely, on the impact of the proposal on his client's properties, when, plainly a broader assessment was necessary.<sup>48</sup>

100 As for Mr Heseltine, when he was cross-examined, it emerged, for the first time, that he had originally been part of the team of consultants assembled to support and provide advice to Acciona on its proposal during the development application process.<sup>49</sup> At that point in time, he had formed a view (albeit preliminary) that this proposal would be supportable in landscape architectural terms.<sup>50</sup> The fact that he had earlier held a different opinion from that espoused in his examination in chief and the manner in which that was ultimately revealed, gave us cause to doubt the value and strength of his overall opinion.

101 In a similar way to Mr Batge, Mr Heseltine also limited his assessment of the proposal to the farm properties owned by the appellants. Although these properties are relevant to an assessment, the fact that he failed to assess the

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<sup>48</sup> Exhibit A3 - Statement of Mr Batge p 3 at para 2.

<sup>49</sup> Exhibits H and I - GHD Proposal for Allendale Windfarm and Extract from the Proposal respectively.

<sup>50</sup> Transcript p 304 (lines 18-22).

impact of this proposal, on the locality as a whole, further limited the value that we were able to place on his evidence.

102 In its case, the Council relied on the following factors (some of which were adverted to by Mr McEvoy) in support of its contention that potential visual impacts have been appropriately minimised, namely:

1. The deletion of a turbine from the original proposal due to its proximity to the property of Mr Richard Paltridge;
2. A reduction in the height of the turbine tower from 100 metres, as originally proposed, to 80 metres;
3. Clustering of the turbines generally to the east and west of the view of the Glenorleigh property in order to utilise screening effects from the topography and existing vegetation;
4. Locating the wind farm so as not to inhibit views, from Glenorleigh, south to the coast; and
5. Locating the turbines to take advantage of the vegetative screening on the Carenya property.

103 Mr McEvoy concluded that "*the development has been planned, designed and sited so as to have minimal impact on the character and amenity of the locality and on the local environment*"<sup>51</sup> (our underlining).

104 On this issue Acciona relied, in part, upon the evidence of its landscape architect, Mr Keates.

105 Mr Keates concluded that:

While the turbines will produce a moderate to substantial degree of visual change, their introduction into the landscape will not be seen as incongruous. The existing horizontal character and productive qualities of the landscape dominants, offsetting the verticality and scale of the wind farm development. The panoramic rural landscape remains the prominent land use and visual context and the turbines will appear as additional pieces of infrastructure that reinforce the primary industry characteristics of the landscape.<sup>52</sup>

106 Acciona also relied on the evidence of Ms Nolan. In her report<sup>53</sup>, Ms Nolan deferred to the opinion of Mr Keates with respect to the fine detail of visual impact. Nevertheless, she still considered the overall issue of visual impact and concluded that, in terms of the locality in general, the visual impact created by turbines will not "*alter the existing landscape character to [a degree that] is unacceptable*"<sup>54</sup>. With respect to the Glenorleigh property, in particular, she acknowledged that while the turbines will be visible to varying degrees, and some quite prominently so, they do not "*yield an unacceptable visual impact to*

<sup>51</sup> Exhibit R3 - Statement of Mr McEvoy at para 9.1.

<sup>52</sup> Exhibit Q - Statement of Mr Keates p 64 at para 8.1.8.

<sup>53</sup> Exhibit BB - Statement of Ms Nolan at para 12.10.

<sup>54</sup> Exhibit BB - Statement of Ms Nolan at para 12.23.

*the extent that it is fatal to the proposal*<sup>55</sup>. In this respect she seemed to have been influenced by the productive and working nature of that property.

107 We do not agree with the conclusions of Mr McEvoy, Ms Nolan or Mr Keates. We are of the opinion that, properly construed, the purpose of the Plan (as expressed in Principles 196 and 198 and as implied, if not expressed, in the Principles in the Zone to which we have referred), namely for development to minimize visual impact to an acceptable level, has not been achieved by this proposal.

108 In particular, we consider it implausible to conclude, as did Mr Keates, that the introduction of the wind turbines "*will not be seen as incongruous*" because the "*existing horizontal character and productive qualities of the landscape dominants will offset the verticality and scale of the wind farm development*". In our view, the height, scale, number, siting and overall appearance of the 46 wind turbines will introduce into a generally flat, pleasant, rural landscape (within which existing development is overwhelmingly low in scale) a foreign, prominent and discordant element. It is for that reason that we also find implausible, Mr Keates conclusion, that "*the wind turbines will appear as additional pieces of infrastructure that reinforce the primary industry characteristics of the landscape*".

109 The existing infrastructure is not only low in scale but, importantly, it is infrastructure that is both anticipated by the Plan and normally associated with primary industry activities. By way of contrast, the turbines will not only be the most dominant structures in the locality but they will also be structures not typically associated with primary industry.

110 In summary, and contrary to the opinions expressed by Mr Keates, Mr McEvoy and Ms Nolan, we are of the opinion that the development will not "avoid or minimise" adverse visual impacts on the character and amenity of the locality to the "acceptable level" sought by the Plan.

### Health

111 On this issue, the appellants sought to rely on Objective 1 and Objective 12<sup>56</sup> in the Council-Wide section of the Plan. Objective 1 refers to the need to satisfy amongst other things, the health-needs of people in the Council area. Objective 12 seeks the protection of the environment and public health by preventing emissions that cause nuisance or environmental harm.

112 As we understand the appellants' argument on this issue, it is put, that even at noise levels which otherwise meet the levels sought in the 2009 Guidelines, there still may be detrimental health effects.

<sup>55</sup> Exhibit BB - Statement of Ms Nolan at para 12.22.

<sup>56</sup> Development Plan - Grant (D.C.) p 8.

113 In support of their case, the appellants called Dr Laurie, a qualified medical general practitioner who, only as recently as mid-2010, had become interested in the possible health effects associated with living near a wind farm. She then helped to set up an organisation, called the Waubra Foundation, which has, as one of its aims, the promotion of research into possible health effects caused by wind turbines. She gave evidence of interviews she had conducted with a number of people who lived near wind farms. These people complained of a variety of symptoms, ranging from hypertension to vertigo, ear pain and headaches.

114 She also provided the Court with a number of articles and/or extracts, from parts of papers presented at a symposium she attended (in October 2010 in Canada) which enquired into possible adverse health effects from wind turbines.

115 Although we determined to receive these articles and papers, we are unable to place any meaningful weight on them.

116 We were given little information about the expertise or standing of the authors of these "publications". Most of this work, as far as we can discern, has not been the subject of any peer review and none of the witnesses were called to give evidence.

117 By way of illustration, the paper, which Dr Laurie referred to as the best evidence in support of her concerns, was by a Dr Michael Nissenbaum. He is a Canadian radiologist with an "interest" in this area. His paper (which is yet to be published in a medical journal)<sup>57</sup> identified complaints, of health effects, by people exposed to noise levels in the order of 52.5 dB(A). These levels are well in excess of the predicted noise levels from the proposed wind farm and levels which, both respondents conceded, could cause health effects.

118 With regard to the interviews conducted by Dr Laurie, we accept the criticisms of this evidence made by counsel for Acciona, namely, that they suffer from the following defects:

1. The absence of a formal medical history having been taken from the subjects of her interviews;
2. The absence of a formal diagnosis of alleged symptoms from these subjects; and
3. The absence of any enquiry, as to the prevalence of the symptoms reported by these subjects, when compared to any other population or a control population.<sup>58</sup>

119 In response to the evidence of Dr Laurie, Acciona called Professor Wittert, Professor of Medicine at the University of Adelaide. Professor Wittert has

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<sup>57</sup> Transcript p 858 (line 20).

<sup>58</sup> Transcript pp 844-845.

particular experience with and interest in population health, in particular, looking at the causes, methods of prevention and systems for treatment of chronic disease.

120 After reviewing the evidence of Dr Laurie, Professor Wittert concluded that:

*"There is no credible evidence of a causal link, between the physical outputs of a turbine (or sets of turbines), at the levels that are described in the statement of Mr C Turnbull, and adverse effects on health"<sup>59</sup>.*

121 We accept his conclusions and, where his evidence differs from that of Dr Laurie, prefer the evidence of Professor Wittert.

#### **The Precautionary Principle**

122 Mr Manos invited the Court to have regard to the evidence of Dr Laurie and (despite the absence of hard evidence on this aspect), to invoke the "precautionary principle". This principle dictates that measures to prevent or forestall damage (in this case to human health) should not be postponed, merely because of the lack of full scientific certainty as to the need for such measures.<sup>60</sup>

123 It has been said that the application of the principle, and the concomitant need to take precautionary measures, is triggered by the satisfaction of two conditions precedent or thresholds, namely a threat of serious or irreversible damage and scientific uncertainty as to that damage.<sup>61</sup>

124 In the course of giving his evidence, Professor Wittert referred us to a recent paper on possible health effects of wind turbines, prepared by the National Health and Medical Research Council.

125 After reviewing the evidence, both in Australia and overseas, the paper concluded *"there are no direct pathological effects from wind farms and any potential impact on humans can be minimised by following existing planning guidelines"*.<sup>62</sup>

126 We accept this as being the most up-to-date and reliable research on this issue. Accordingly, there is no basis for us to invoke the precautionary principle.

127 Again, in so saying, we do not wish it to be thought that we do not accept the genuineness of the evidence given by Mr Stepnell and Mrs Godfrey, both of

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<sup>59</sup> Exhibit Y - Statement of Professor Wittert p 9 at para 38.4.

<sup>60</sup> *Tuna Boat Owners Association of SA Inc v Development Assessment Commission* (2000) 77 SASR 369, 373.

<sup>61</sup> *Telstra Corporation Ltd v Hornsby Shire Council* (2000) 146 LGERA 10 at para 148.

<sup>62</sup> Exhibit Y - Tab 14 Wind Turbines and Health - A Rapid Review of the Evidence - National Health and Medical Research Council - July 2010 p 8.

whom spoke passionately about the ways in which their health had been affected, by what they perceived to be the noise from wind farms.

128 However, without any supporting expert medical evidence, we regard them as falling into that small group of the population, referred to by Professor Wittert, who are unusually sensitive to sound at particularly low levels.

129 In terms of Objectives 1 and 12, we are therefore satisfied that public health will be protected if the noise levels predicted, by Mr Turnbull, are achieved.

#### **Other Planning Issues**

130 The provisions of Principle 196(e) require a wind farm to be, amongst other things, operated in a manner which avoids or minimises nuisance or hazard to neighbours by way of:

- shadowing, flickering, reflection and blade glint impact;
- interference to television and radio signals; and
- adverse impacts on flora and fauna.

131 Although the appellants introduced no expert evidence on these issues, Mr Manos, nevertheless, submitted that we should not permit this development to proceed, unless we were satisfied that adverse impacts of this sort would not arise.

#### **Shadow Flicker, Reflection or Blade Glint**

132 In the copy documents produced by the Council, there is reproduced a report prepared by Acciona on this issue, which identified a number of residences that could, potentially, be adversely affected. On the assumption that turbines, with hub heights of either 79 metres or 100 metres, could be used, the report noted that the proposal would satisfy the SA Planning Bulletin "Wind Farms, Draft for Consultation" (Planning SA, 2002). This report suggests that the influence of shadow flicker is insignificant, if a minimum separation of 500 metres between the turbines and surrounding houses is maintained.<sup>63</sup>

133 We accept the conclusions in this report as establishing an acceptable minimum separation distance on the issue of shadow flicker.

134 We are also satisfied, upon the basis of this report, that none of the surrounding houses will be affected by shadow flicker for longer than 30 hours per year. Although the SA Planning Bulletin is silent on this aspect, it has been recognised as an appropriate limit interstate, in the Victorian Planning Guidelines.

<sup>63</sup> Exhibit R1 Vol 2 p 815 - Shadow Flicker Evaluation Considerations.

135 Finally, we are satisfied that the effects of reflection and blade glint can be avoided by the use of a low-reflectivity gel finish such as is proposed by Acciona.

#### **Electromagnetic Interference to Radio and Television Services**

136 We have had regard to the detailed analysis on this issue conducted by the environmental impact assessment company, GHD, in July of 2009.<sup>64</sup> As a result, we are satisfied that any potential adverse impacts on these services, in the area surrounding the subject land, are manageable and capable of being addressed, so that normal services can be anticipated post-construction.

#### **Impacts on Flora and Fauna**

137 On this issue a flora and fauna impact assessment was conducted, on behalf of Acciona, by GHD and Biosis Research (a National and Cultural Heritage Consultancy).<sup>65</sup> As a result of this assessment, a number of potentially threatened species of both flora and fauna were identified as being likely to exist within the site of the proposed development.

138 We are satisfied that the design and siting of the proposal is such that the only relevant areas of vegetation, which can provide a habitat for these species, will be avoided.

139 We are also satisfied that the mitigation and minimisation measures, referred to in that report, are such as to make it unlikely that native flora and fauna species will be significantly impacted by the construction and/or operation of the proposed wind farm.

#### **Summary and Conclusions**

140 We have assessed the proposed development against the relevant provisions of the Development Plan. Legal arguments aside, the appellants' appeal focussed on issues of noise (including infrasound), visual amenity, and health, although the appellants did not concede the issues involving blade glint and shadow flicker, electromagnetic interference and flora/fauna impacts.

141 As to these latter issues, there was no meaningful evidence to suggest that the proposal would cause problems which cannot be satisfactorily addressed by Acciona.

142 On the issues of noise and health, we accept the evidence and assessments of Acciona's expert witnesses and where there is any conflict between them and the appellants' expert witnesses we prefer the evidence given by Acciona's experts.

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<sup>64</sup> Exhibit R1 Vol 1 p 261 - Electromagnetic Interference Assessment July 2009.

<sup>65</sup> Exhibit R1 Vol 2 p 611 - GHD Flora and Fauna Assessment Report July 2009.

143        However, on the issue of visual amenity we are of the opinion that the introduction of 46 turbines into the landscape of this locality will be seen as incongruous. In terms of their height, scale and number the turbines will introduce additional, prominent and foreign elements into the locality which will detract, from the existing character and level of visual amenity, to an unacceptable degree.

144        Accordingly, we uphold the appeal and reverse the decision of the Council.