

**From:** Donna Tisdale  
**To:** [Harris, Susan](#)  
**Subject:** Boulder Brush DEIR - Tisdale ppt 3-22-19  
**Date:** Wednesday, January 29, 2020 10:23:00 AM  
**Attachments:** [Tisdale WT health effects PC ppt 3-22-19.pdf](#)

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**RE: Boulder Brush Facilities-Campo Wind DEIR: PDS2019-16-001, PDS2019-MUP-19-002**

Hello Susan,

Please include in the public record for the Boulder Brush Campo Wind DEIR the attached PowerPoint presentation that I made to the San Diego County Planning Commission on March 22, 2019:

- ~Wind turbine health effects~ March 22, 2019, Planning Commission presentation in response to 2019 Public Health Position Statement: Human Health Effects of Wind Turbines.

Thank you,  
Donna Tisdale  
619-766-4170

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# ~Wind turbine health effects~

March 22, 2019

Planning Commission presentation

*in response to 2019 Public Health Position Statement: Human  
Health Effects of Wind Turbines*

Donna Tisdale, Chair, Boulevard Planning Group

& President, Backcountry Against Dumps

[Tisdale.donna@gmail.com](mailto:Tisdale.donna@gmail.com), 619-766-4170

118-2

## Why is this position statement important?

- Regardless of our strong evidence that contradicts it:
  - ***this statement will be used as an unjustified bludgeon against our already disproportionately impacted community***
  - especially when the two pending wind projects with 90-4.2 MW turbines(586' tall), twice as large as existing turbines, come forward in a few months.

I18-2  
Cont.

## Feb 19, 2019 email to 25 people

**It is hard for citizens to defend themselves in 3-5 minutes, when the County has so many people basically working to discredit what we know first-hand to be true.**

**Why do they need to rehearse???**

Source: Public Records Act Request

All,

**We need to postpone this rehearsal tomorrow closer to the next hearing because we do not have the position statement yet.** Don Chase manages this invite and I cannot control his calendar. We need to cancel tomorrow's rehearsal. Please stay tuned as we try to reschedule when we pick a PC Hearing date.

We appreciate all the hard work thus far and look forward to working with this group as we gear up for PC Hearing.

Thanks,

Darin

**Darin Neufeld, AICP** | Chief | Project Planning  
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PDS Website <http://www.sdcounty.ca.gov/pds/index.html>

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## Fear, annoyance & rumors. Really??

### ***The Statements says:***

– “...*fear, annoyance, rumors, and spread of unscientific, poorly documented studies can be responsible for the symptoms reported by some individuals*”.

- **Response:**

– **What an uncaring and irresponsible slap in the face for those who are really suffering!**

I18-2  
Cont.

# ANNOYANCE=HEALTH EFFECTS

- Statement summary's second bullet point states:
  - *that while noise from wind turbines is not casually related to adverse health effects ,wind turbines may be a source of annoyance and that annoyance may cause stress that may be associated with certain reported health effects.*
- The legal definition of annoyance:
  - *Dissatisfaction, disturbance, grievance, hindrance, mischief, molestation, nuisance, provocation, trouble, umbrage.*
- **Noise impacts on health are well established. Turbine-generated noise emissions are just more complex and pulsing which makes it even worse for those who are impacted.**

I18-2  
Cont.

What is proper siting?  
*We know what **does not** work!*

The final Summary bullet point states that:

- *The weight of evidence suggests that, when properly sited, wind turbines are not related to adverse health effects.*

What is the alleged ‘proper siting’?

- *To date, no science-based SAFE set-back has been determined.*
- Industry supported 1.1 height of the turbine is negligent at best and should be rejected outright.

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Cont.

## Boulevard homes/residents impacted by Tule Wind

Homes below 4,400 ft – 1.46 from turbines



Homes below 1.4 & 1.5 miles from turbines



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Cont.



## Homes impacted by Kumeyaay Wind

There are/have been several suspicious cancer cases at tribal homes near these turbines and related infrastructure: brain, stomach, kidney, & tumor in toddler  
There has also been a high rate of upper respiratory illness.



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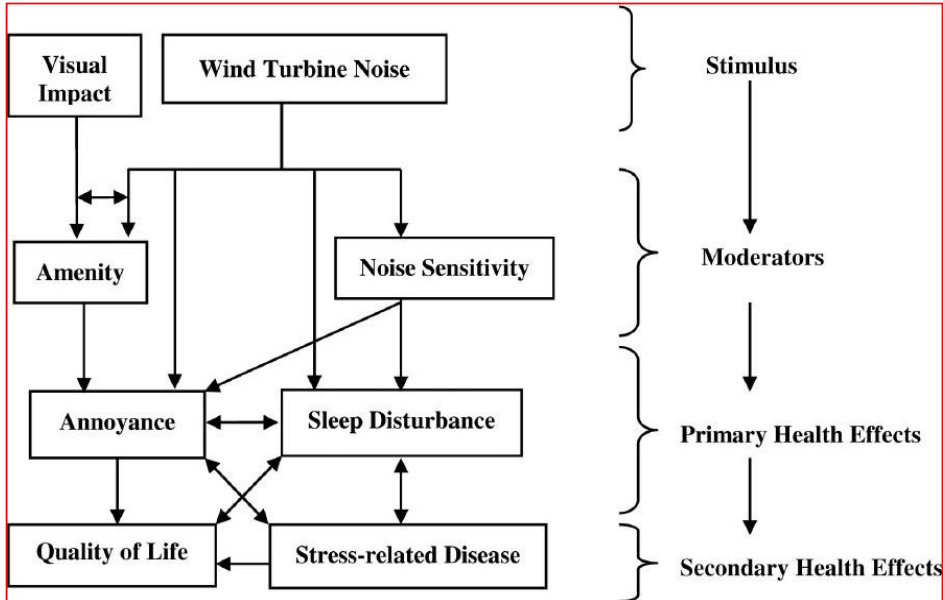
**Professional noise testing was conducted at 15 Boulevard area homes by Richard Carman Ph.D, P.E. (40 years experience) and Michael Amato (35 years experience) with *Wilson Ihrig, Acoustics, Noise & Vibrations.***

- ***The 2019 report documents the presence of low-frequency noise, infrasound, and /or excessive amplitude modulation within 8 miles from Tule Wind and Kumeyaay Wind turbines, based on current measurements.***
- And Ocotillo Wind infrasound up to 16 miles away from Boulevard and Jacumba Hot Springs homes at levels as high as 66dB.
- The 2019 report, provided to Commissioners via email (3-20-19) also includes the 2013 report on measurements taken prior to Tule Wind. Results were similar – just more impacts and more complex.
- ***Over 90% of wind turbine neighbor survey respondents answered YES to the question, ‘Do the turbines make you want to move?’***

I18-2  
Cont.

## A schematic representation of the relationship between wind turbines and health in a semi-rural setting.

From *Noise & Health* A Bimonthly Inter-Disciplinary International Journal: Figure 1: (below)  
 The multiplicity of relationships emerges due to the variability in the response of individuals to noise.  
[http://www.noiseandhealth.org/viewimage.asp?img=NoiseHealth\\_2011\\_13\\_54\\_333\\_85502\\_f4.jpg](http://www.noiseandhealth.org/viewimage.asp?img=NoiseHealth_2011_13_54_333_85502_f4.jpg)

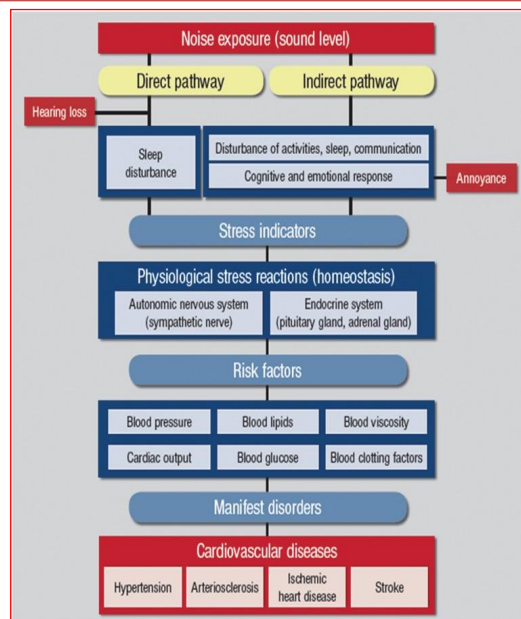


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## Sleep disruption from noise exposure is a **DIRECT—NOT INDIRECT—** PATHWAY to adverse health effects

Cardiovascular effects of environmental noise exposure: [Thomas Münzel](#)<sup>1,\*</sup>, [Tommaso Gori](#)<sup>1</sup>, [Wolfgang Babisch](#)<sup>2</sup> and [Mathias Basner](#)<sup>3</sup>

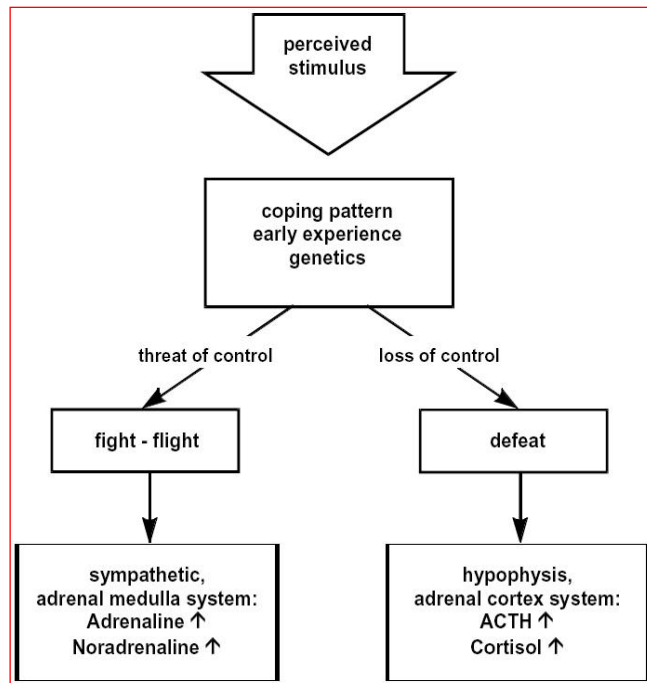
Published in European Heart 2014 Apr 1; 35(13): 829–836: doi: [10.1093/eurheartj/ehu030](https://doi.org/10.1093/eurheartj/ehu030); PMID: [24616334](https://pubmed.ncbi.nlm.nih.gov/24616334/)  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3971384/>



I18-2  
Cont.

## Model of direct and indirect noise effects

Ising H, Braun C. Acute and chronic endocrine effects of noise: Figure 9: Review of the research conducted at the Institute for water, soil and air hygiene. Noise Health 2000; 2:7-24.  
Available from: <http://www.noiseandhealth.org/text.asp?2000/2/7/7/31745>

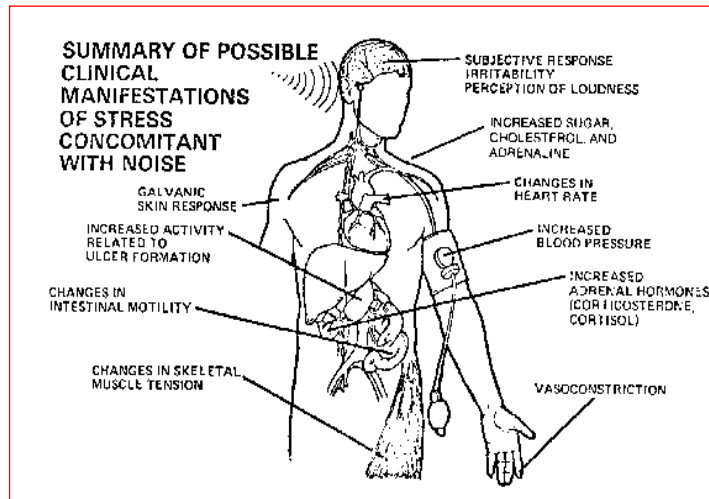


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## Sleep Disorders and Sleep Deprivation An Unmet Public Health Problem:

Editors: Harvey R Colten and Bruce M [National Academies Press \(US\)](#); 2006.ISBN-10: 0-309-10111-5; Bookshelf ID: NBK19960PMID: [20669438](#)DOI: [10.17226/11617](#)Altevogt.  
Institute of Medicine (US) Committee on Sleep Medicine and Research. Washington (DC)  
<https://www.ncbi.nlm.nih.gov/books/NBK19960/>

- *“The cumulative long-term effects of sleep deprivation and sleep disorders have been associated with a wide range of deleterious health consequences including an increased risk of hypertension, diabetes, obesity, depression, heart attack, and stroke.*
- ***Awareness among the general public and health care professionals is low, given the magnitude of the burden”.***



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# The psychophysiological stress model

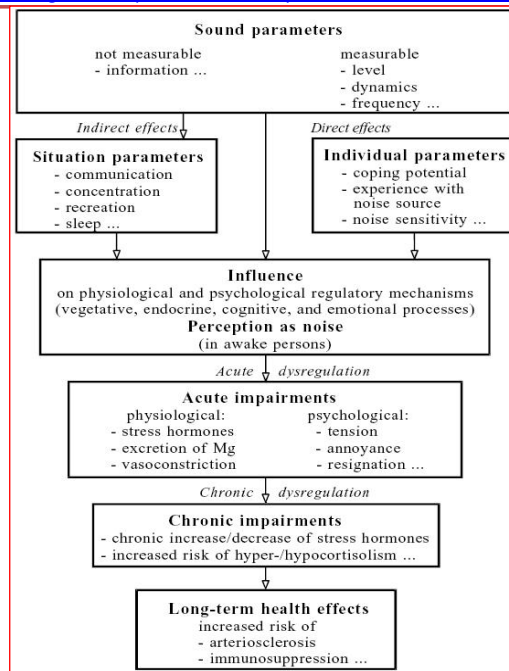
(Henry and Stephens, 1977 - Figure 1.)

(Excerpt: Acute and chronic endocrine effects of noise : Review of the research conducted at the Institute for water, soil and air hygiene

Ising H, Braun C Year : 2000 | Volume: 2 | Issue Number: 7 | Page: 7-24:

**"It is generally accepted that noise has the potential to act as a non specific stressor. A stimulus is perceived by our ears, eyes, nose or other senses and transmitted to the corresponding parts of the brain, where it is analyzed."**

<http://www.noiseandhealth.org/article.asp?issn=1463-1741;year=2000;volume=2;issue=7;spage=7;epage=24;auiast=ising>



## 2016 Finnish pilot study shows wind turbine infrasound damage extends to at least 15km (9.3 miles)

<https://syte.fi/2019/01/10/pilottitutkimus-osoittaa-infraaanihaitan-vahenevan-merkittavasti-vasta-yli-15-kilometrin-paassa-tuulivoimaloista/>

- A study was carried out by the Finnish Environmental Health Association (SYTe) in the spring of 2016. It shows that the damage caused by wind farms' infrared noise will only decrease significantly more than 15 kilometers (9 miles) away from power plants.
  - The study meets the requirements of the statistical sample
  - *The target was about 50 families. They were not told the study was about wind turbine impacts.*
- **The study found:**
  - Harmful or severe symptoms were three times more common near wind turbines
  - No significant reduction in infrasound damage within 15 km from turbines (9 miles)
  - Sleep disturbance was the most typical symptom with fatigue and various pains
  - Harmful or severe symptoms three times more common near wind turbines
  - If survey sample is representative about 400,000 of Finns suffer symptoms due to wind turbines but only about 10,000 of them combine the symptoms with wind power plants.
  - The area of disadvantage has already been presumed to be too small

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## Wind Turbines – Jammers for the heart

### Mainz researchers investigate the consequences of infrasound

*Credit:* By Michael Bermeitinger. 05.03.2018 [allgemein-zeitung.de](https://www.allgemeine-zeitung.de/lokales/mainz/nachrichten-mainz/windkraft-storsender-furs-herz-mainzer-forscher-untersuchen-folgen-des-infraschalls_18566513#) : [https://www.allgemeine-zeitung.de/lokales/mainz/nachrichten-mainz/windkraft-storsender-furs-herz-mainzer-forscher-untersuchen-folgen-des-infraschalls\\_18566513#](https://www.allgemeine-zeitung.de/lokales/mainz/nachrichten-mainz/windkraft-storsender-furs-herz-mainzer-forscher-untersuchen-folgen-des-infraschalls_18566513#)

#### Excerpts-emphasis added

- A working group of the Department of Cardiothoracic and Vascular Surgery of Unimedicine caused a stir at the congress of the professional society with their research on the impairment of the heart muscle by infrasound.
- **What is infrasound and how does it work?**  
*"The audible sound ranges from 20 to 20,000 hertz, below 20 Hz it is no longer audible, but with high sound pressure physically perceptible - possibly with corresponding consequences. Wind turbines convert 40 percent into energy and 60 percent into infrasound"*.
- **But there is noise protection ...**  
*"Infrasound has a long range and is not dampened by windows or masonry. It would take 30 meters high and eight meters thick walls to protect against the usual infrasonic frequencies. And with ever-increasing wind turbines of up to 200 meters with increasing power, naturally, the infrasound load will be higher"*.
- **What conclusion do you draw from the results so far?**  
***"We are at the very beginning, but we can imagine that permanent damage from infrasound causes health problems. The silent noise of the infrasound acts like a jammer for the heart"***.

I18-2  
Cont.

## Altered cortical and subcortical connectivity due to infrasound administered near the hearing threshold – Evidence from fMRI

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5389622/pdf/pone.0174420.pdf>

- **Comprehensive groundbreaking 2017 study by German researchers (Weichenberger et al) used advanced brain imaging to compare activity for infrasound (IS) near the hearing threshold.**
  - *these results seem to support the hypothesis that (sub-)liminal IS can exert an influence on the organism via a subconscious processing route*
  - *a potential link between IS-induced changes of brain activity and the emergence of various physiological as well as psychological health effects can be established*
  - *Transient upregulation of these brain areas in response to below- or near threshold IS may thus reflect an initial stress response of the body, eventually promoting symptom formation as stimulation occurs repeatedly and additional risk factor come into play*
- ***The findings thus suggest that the health impacts by the low-frequency sound waves generated by industrial wind turbines do in fact adversely affect human health, a claim that has often been denied by Big Wind.***

I18-2  
Cont.

***Sleep disruption from noise exposure is a DIRECT—NOT INDIRECT –  
PATHWAY to adverse health effects***

**Cardiovascular effects of environmental noise exposure:** [Thomas Münzel](#)<sup>1,\*</sup> [Tommaso Gori](#)<sup>1</sup> [Wolfgang Babisch](#)<sup>2</sup> and [Mathias Basner](#)<sup>3</sup>

Published in European Heart 2014 Apr 1; 35(13): 829–836.

doi: [10.1093/eurhearti/ehu030](https://doi.org/10.1093/eurhearti/ehu030); PMID: PMC3971384; PMID: [24616334](https://pubmed.ncbi.nlm.nih.gov/24616334/)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3971384/>

- **Abstract (EXCERPT):**
- **The role of noise as an environmental pollutant and its impact on health are being increasingly recognized.**
  - Noise causes annoyance and disturbs sleep, and it impairs cognitive performance.
  - Environmental noise is associated with an increased incidence of arterial hypertension, myocardial infarction, and stroke.
  - Night-time noise can cause disruptions of sleep structure, vegetative arousals (e.g. increases of blood pressure and heart rate) and increases in stress hormone levels and oxidative stress, which in turn may result in endothelial dysfunction and arterial hypertension.
- ***“This review focuses on the cardiovascular consequences of environmental noise exposure and stresses the importance of noise mitigation strategies for public health”.***

118-2  
Cont.

## Plaintiffs who would receive in excess of \$50 million from hosting turbines sue over turbine impacts

Court waits on wind farms' response to suit By FERNANDO DEL VALLE Valley Morning Star

| Wednesday, January 29, 2014 12:45 pm [fdelvalle@valleystar.com](mailto:fdelvalle@valleystar.com)

[https://www.valleymorningstar.com/news/local\\_news/court-waits-on-wind-farms-response-to-suit/article\\_8d68bfaa-886e-11e3-8dc2-001a4bcf6878.html](https://www.valleymorningstar.com/news/local_news/court-waits-on-wind-farms-response-to-suit/article_8d68bfaa-886e-11e3-8dc2-001a4bcf6878.html)

- **The Lawsuit states** Article excerpts (emphasis added):
  - **Companies built “hundreds” of wind turbines that stand 467-feet high and weigh 7 tons on the properties of plaintiffs who received or will receive money and tax benefits that will exceed \$50 million.**
  - Companies “carelessly and negligently failed to adequately disclose the true nature and effects that the wind turbines would have on the community, including the plaintiffs’ homes.”
  - **Companies told residents that the wind turbines “would not be noisy, would not adversely impact neighboring houses and there would not be any potential health risks,”**
  - The wind turbines create noise, reduce property values, interfere with television, telephone, satellite and Internet reception and destroy “scenic countryside,” the lawsuit states.
  - **The wind turbines create “acoustic pressure pulsations that affect peoples’ health.” Some residents were “even forced to abandon their homes.**

118-2  
Cont.

## Farmer paid already \$1million to host turbines would never do it again

<https://stopthesethings.com/2015/06/15/sa-farmers-paid-1-million-to-host-19-turbines-tell-senate-they-would-never-do-it-again-due-to-unbearable-sleep-destroying-noise/>

- **SA Farmers Paid \$1 Million to Host 19 Turbines Tell Senate they “Would Never Do it Again” due to “Unbearable” Sleep-Destroying Noise**
- Clive and Trina Gare are cattle graziers from South Australia’s Mid-North with their home property situated between Hallett and Jamestown.
- Since October 2010, the Gares have played host to 19, 2.1MW Suzlon s88 turbines, which sit on a range of hills to the West of their stately homestead. Under their contract with AGL they receive around \$200,000 a year; and have pocketed over \$1 million since the deal began.
- The Gares gave evidence to an Australian Senate Inquiry into the wind power during its Adelaide hearing(6-10=15).
- ***“In my opinion, towers should not be within five kilometres of residences, and I would personally not buy a house within 20 kilometres of a wind farm. Thank you”.***

I18-2  
Cont.

## Falmouth Massachusetts - court order to remove turbines, upheld on appeal

<https://www.lexology.com/library/detail.aspx?g=c7a2e6c7-18ce-469f-987c-00cc2844995d>

### The Court held that:

- ***noise generated by the turbines negatively affected the health and well-being of the Funfars, by, among other things, causing Mr. Funfar stress, anxiety, insomnia, and nausea.***
- other residents had registered similar complaints, lending further support to its order to shut down the turbines.

118-2  
Cont.

## Stuartfield couple win battle against 'jet-like' turbines

The Press & Journal 3-9-19 by David Proctor

<https://www.pressandjournal.co.uk/fp/news/north-east/1694567/stuartfield-couple-win-battle-against-jet-like-turbines/?share=email>

- Sheriff Andrew Miller found in favour of Mr and Mrs Milne.
- He imposed an order which means one of the turbines must have its blade trimmed when the wind blows in a certain direction and at certain speed.
- Mrs Milne said the couple were "relieved" that the case had concluded.
- ***"It affected our sleep, our enjoyment of our home indoors and outside to the point it drove us to keep pursuing some means of stopping the noise which sounds like never ending jets landing."***

I18-2  
Cont.

**PDS's 2019 online Community Planning and Sponsor Group Training document at page 140**

[https://www.sandiegocounty.gov/content/dam/sdc/pds/Groups/Chair\\_Resources/CPSGAnnualTraining2019.pdf](https://www.sandiegocounty.gov/content/dam/sdc/pds/Groups/Chair_Resources/CPSGAnnualTraining2019.pdf)

- States that
  - *the 2011 General Plan “...provides the foundation for decisions that will:...Protect the public from noise, natural, and manmade hazards”.*

I18-2  
Cont.



**The PDS website includes the following statement under the 'About Us' header**

<https://www.sandiegocounty.gov/content/sdc/pds/AboutUs.html>

- “Department programs such as building plan review, building inspection, and code compliance help maintain public health and safety.

I18-2  
Cont.

The HHSA website includes the following statement:

<https://www.sandiegocounty.gov/content/sdc/hhsa/programs/phs.html>

- *“Public Health Services is **dedicated to community wellness and health protection** in San Diego County.*
- *Public Health Services works to prevent epidemics and the spread of disease, **protect against environmental hazards...**”*
- Nowhere does it say that the County’s professed protections, above, **DO NOT APPLY TO WIND TURBINE-IMPACTED NEIGHBORS AND COMMUNITIES.**

I18-2  
Cont.

## From San Diego County's Wind Ordinance' revised DEIR

Page 2.8.3 & 2.8.4: <https://www.sandiegocounty.gov/pds/advance/POD10007DEIR.html>

### **Excerpt-emphasis added:**

- It is clear that noise is a significant component of the environment, and excessively noisy conditions can affect an individual's health and well-being.
- The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure.
- The effects of noise on a community can be organized into six broad categories: sleep disturbance, permanent hearing loss, human performance and behavior, social interaction of communication, extra-auditory health effects, and general annoyance."

118-2  
Cont.

Mandated **Noise Abatement Verification**, appears to indicate that the County is actually fully aware of the noise impacts from wind turbines.

<https://www.sandiegocounty.gov/pds/windturb.html>

▪ **According to the County’s Wind Turbine Development Information page**

**“The following Noise Abatement Verification needs to be made part of the plot plan and signed”**

- I, the property owner, understand that the wind turbine system(s) proposed at \_\_\_\_\_ must comply with the requirements of Title 3, Division 6, Chapter 4 (Noise Abatement And Control) of the San Diego County Code of Regulatory Ordinances.
- **If the wind turbine system(s) permitted and installed on my property exceed the noise limit requirements I understand that the County of San Diego will take enforcement action which may require the property owner to alter or remove the wind turbine system(s).**
- Signed,
  
- \_\_\_\_\_ Date \_\_\_\_\_
- \_\_\_\_\_  
Signature

I18-2  
Cont.

## From San Diego County's CHAPTER 4. NOISE ABATEMENT AND CONTROL

<https://www.sandiegocounty.gov/dplu/docs/NO-401.pdf>

- SEC. 36.401. PURPOSE.
- ***“ Disturbing, excessive or offensive noise interferes with a person's right to enjoy life and property and is detrimental to the public health and safety. Every person is entitled to an environment free of annoying and harmful noise.***
- Noise abatement and control should apply to all ‘inhabitants’!

118-2  
Cont.

## **Turbine bombshell: A new investigation into Bald Hills Wind Farm noise complaints has found that neighbours' health concerns are legitimate;**

posted 9-11-18 by South Gippsland Sentinel Times 14(Australia)  
<https://sgst.com.au/2018/09/turbine-bombshell/>

- **Noise 'detrimental and unreasonable'**
- **The investigation commissioned by the South Gippsland Shire Council, at a cost of \$33,600, into Noise Complaint Notifications by residents living near the Bald Hills Wind Farm is complete.**
- And two and a half years after they first made their grievances known, the report has found their complaints were fully justified.
- Described as "a highly experienced independent public health consultant", James C. Smith and Associates has found that:
  - ***"there is a nuisance caused by wind farm noise, in that, the noise is audible frequently within individual residences and this noise is adversely impacting on the personal comfort and wellbeing of individuals"***.

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Cont.

## Noise Mitigation

- San Diego Regional Airport neighbors have a curfew for flights between 11:30 pm and 6 am so they can sleep.
  - They can also apply for dual pane windows and other home improvements through the federally funded Quieter Home Program.
- Freeways neighbors get sound walls to reduce the impact.
- ***Wind turbine neighbors GET NO RELIEF!***

I18-2  
Cont.

## The County needs to step up and help!

- CURRENT REQUESTS:

- Amend the Statement on health effects of wind turbines.
- Decision makers need to visit *homeowners*—don't visit turbine site with self-serving representatives.
- Use some of Tule Wind's annual \$3.5 million to conduct noise and EMI monitoring at impacted homes.
- Enforce noise abatement.
- Remove NOISE WAIVER from Wind Ordinance.
- Revise turbine setbacks.
- Buy neighbors out who want to move due to health impacts but cannot due to property values reduced by existing and proposed industrial wind turbines.
- **DO SOMETHING OTHER THAN DENY THE SUFFERING!**

118-2  
Cont.