groundwater and wells, causing contamination such as what occurred at the Maple Ridge Wind Farm[78] in 2009 with a similar fire in 2007. SDG&E had a substation fire in Escondido in December 2010 that took two days to put out.

Iberdrola Renewables is the co-owner of the Maple Ridge Wind Farm and developer of the Tule Wind project proposed in Boulevard.[79]

The photo below is from the short documentary film,[80] one of eight "They're Not Green" documentaries by Nettie Pena, all of which are incorporated by reference. The photo illustrates a turbine collapse that killed a worker. The film itself documents worker deaths in **PPM/Iberdrola** turbine collapse, violations, citations, broken promises to hire local labor and the new concrete bases for PPM/Iberdrola's 45 new turbines in Palm Springs generated 11,250,000 lbs CO_2 emissions when constructed in 2008.

[81]

GG-49 Cont.

GG-50

DEIR APPENDIX A: PROPOSED ZONING ORDINANCE CHANGES POD10-007: NOISE

Instead of the unconscionable and likely unlawful proposed noise waiver option, full spectrum noise and vibration measurements, limits, restrictions, and strict binding enforcement should be mandatory for all large wind turbine projects regardless of where they are proposed or installed-- including the ability to levy fines and penalties, cease and desist orders, and to permanently shut down offending turbines in order to protect people, livestock, wildlife and the overall environment.

GG-51

Pre-construction ambient levels need to be properly conducted, documented, monitored, and adequately mitigated at adjacent properties, homes, livestock pens, wildlife habitat, by independent unbiased, qualified third-party professionals.

GG-52

Post-construction testing monitoring and enforcement must be conducted to prevent unnecessary harm, suffering, damages, and liabilities for the County, the developer, and the host landowner.

GG-53

The proposed setback reductions pose an unjustified threat to public health and safety, as documented in this and other comment letters, and the growing body of evidence being produced--NOT BY INDUSTRY OR

GG-54

[78] Maple Ridge Wind substation fires: http://pandorasboxofrocks.blogspot.com/2009/10/watertown-daily-times-wind-farm.html
[79] http://www.horizonwind.com/projects/whatwevedone/mapleridge/
[80] http://web.me.com/thrnotgreen/thrnotgreen/Episode_8.html
[81] PPM/Iberdrola turbine collapse/ The Oregonian: http://web.me.com/thrnotgreen/thrnotgreen/Episode_8.html

GG-50 The County acknowledges the information in this comment. Please also refer to responses to comments GG41, GG43, GG47, and GG49 above.

GG-51 The recommendations in this comment would be infeasible as discussed in Section 2.8.6 of the DEIR.

GG-52 Qualified County acoustical experts will evaluate the methodology, analysis and proposed mitigation in the noise reports prepared for all future large wind turbine projects. Preferred methodology will be established in County guidelines for acoustical reports.

GG-53 See response to comment GG36.

GG-54 The County does not agree with this comment. See responses to comments F1, J12, J13, J18, Q3, and DD16.

RESPONSIBLE GOVERNMENT AGENCIES, but by desperate, impacted turbine neighbors providing evidence of what industry has repeatedly denied and by various professionals and clinicians that are seeking to help expose the harm from wind turbine project emissions and to help stop the suffering, often without pay.

GG-54 Cont.

"Responses of the Ear to Infrasound and Wind Turbines,"[82] published by Cochlear Fluids Research Laboratory, Washington University, St. Louis; Alec Salt Ph.D., Revised August 30, 2010: *"Our recently published paper reviews well-established publications about low frequency hearing by leading scientists in the field of auditory physiology. It concludes that low frequency sounds that you cannot hear DO affect the inner ear. The commonly held belief that "if you can't hear it, it can't affect you" is incorrect.*

"The paper shows how the outer hair cells of the cochlea are stimulated by very low frequency sounds at up to 40 dB below the level that is heard. It shows that there are many possible ways that low frequency sounds may influence the ear at levels that are totally unrelated to hearing sensitivity. As some structures of the ear respond to low frequency sound at levels below those that are heard, the practice of A-weighting sound measurements grossly underestimates the possible influence of these sounds on the ear.

"Studies that focus on measurements in the "audio frequency range" (i.e. excluding infrasound) will not provide a valid representation of how wind turbine noise affects the ear. The high infrasound component of wind turbine noise may account for high annoyance ratings, sleep disturbance and reduced quality of life for those living near wind turbines."

Dr Alex Salt: October 2010[83] **"Wind turbines generate infrasound--but your ears don't tell your brain":** The linked Powerpoint has excellent information and graphics on how the human ear and body react alarmingly to infrasound. What you don't hear CAN hurt you!

GG-55

The July 2010 "Noise Impact Assessment Report for the Waubra Wind Farm" (Dean Report)[84] **concluded**: "*From the information presented, that Mr. Dean has been and is currently adversely affected by the presence and activity of the Waubra wind farm. The effects stated by Mr. Dean as affecting his health and statutory declarations from his family and residents in the vicinity of the wind farm attest to adverse health effects. Adverse health effects such as sleep disturbance, anxiety, stress and headaches are, in my view, a health nuisance and are objectionable and unreasonable.*

"Evidence: The evidence presented in the Chapters to this Report has been submitted as expert evidence to different wind farm hearings; Turitea (Board of Inquiry, New Zealand); Berrybank, Mortlake, Stockyard Hill and Moorabool (Panel Hearings, Victoria); as well as being part of submissions for other parties in New Zealand, New South Wales and Victoria. At no time has the evidence been significantly challenged or rebutted by the wind farm applicant, the consultants or the legal practitioners employed by the applicant(s). Some evidential detail has changed between hearings; critique from earlier hearings has been addressed in subsequent evidence.

"This report is the final in the Victorian evidential series. In summary, it appears that the individual developers and their advocates have chosen to take the stance that the New Zealand wind farm standard NZS6808 (either the 1998 or 2010 versions) is both adequate and acceptable. For reasons stated in this Report this stance is neither valid nor credible."

"**Dynamic measurements of wind turbine acoustic signals, employing sound quality engineering methods considering the time and frequency sensitivities of human perception,**"[85] presented at NOISE-CON 2011, Portland, Oregon, July 25-27, 2011Wade Bray HEAD Acoustics, Inc. Brighton, Mich., Richard James E-Coustic Solutions Okemos, Mich.: *"The reason the wind industry experts could claim that wind turbines produced insignificant levels of infra and low frequency sound is not because there isn't any, but instead, because the*

[82] Alec Salt PhD Response of the Ear to Infrasound and Wind Turbines: http://oto2.wustl.edu/cochlea/windmill.html
[83] http://energizevermont.org/wp-content/uploads/2010/11/WTPicton_salt_final.pdf
[84] http://docs.wind-watch.org/Dean-Waubra-Noise-Impact-July-20101.pdf
[85] http://www.wind-watch.org/documents/dynamic-measurements-of-wind-turbine-acoustic-signals/

GG-55 The issues raised in this comment are not inconsistent with the existing content of the DEIR. The County agrees that low frequency noise generation should be limited, which is why low frequency noise provisions were included in the draft Wind Energy Ordinance.

instruments/methods they used could not detect it. They went hunting for a needle in the haystack using a magnet when the needle was made out of plastic. When analyzed using a tool that can detect it, we find that it is there and at SPL's much higher than previously considered likely... This study shows that, when analyzed according to the time response of the human transducer, the peaks of the energy waves can be above 90 dB SPL. Combined with the findings of Dr. Salt's research this analysis shows that the dynamically modulated infrasound can be perceived by the auditory system at levels that are below the conventionally determined threshold of audibility. It is the short duration and extent of the change in sound pressure that is stimulating the vestibular system, not the overall energy level. This is not about the average energy but instead about the short duration, peak values and extent of change in energy assuming that some lower threshold like Dr. Salt's 60 dBG for OHC activity has been reached."

"Mitigating the Acoustic Impacts of Modern Technologies: Acoustic, Health, and Psychosocial Factors Informing Wind Farm Placement"[86]: *"Wind turbine noise is annoying and has been linked to increased levels of psychological distress, stress, difficulty falling asleep, and sleep interruption. For these reasons, there is a need for competently designed noise standards to safeguard community health and well-being. The authors identify key considerations for the development of wind turbine noise standards, which emphasize a more social and humanistic approach to the assessment of new energy technologies in society."*

A recent editorial concludes that the use of the CADNA/A noise model, and the ISO 9613-2 standard, understates real-world operational sound levels and is likely the root cause of a noise problem at the Iberdrola Renewable's Hardscrabble Wind facility[87]-- and that Iberdrola knew better because the model was never validated for wind turbine noise: *"...results suggest that utility-scale wind energy generation is not without adverse health impacts on nearby residents. Thus, nations undertaking large-scale deployment of wind turbines need to consider the impact of noise on the HRQOL of exposed individuals. Along with others [30], we conclude that night-time wind turbine noise limits should be set conservatively to minimize harm, and, on the basis of our data, suggest that setback distances needs to be greater than two kilometers."*[88]

IBERDROLA IS THE TULE WIND DEVELOPER THAT IS PROPOSING TO INSTALL 3MW TURBINES LESS THAN 1,000 FEET FROM HOMES, LIVESTOCK, THE LARK CANYON OHV PARK, 2 CAMPGROUNDS AND THROUGHOUT THE MCCAIN VALLEY RECREATION AND CONSERVATION AREA.

From testimony of Mark J. Cool, FAA flight controller and impacted turbine neighbor, to his town board: *"Affording a citizen's right to his or her personal health should have no confines or price tag. This vital issue should be judged with the universal conscience of basic community decency, and must be examined with only true and accurate health effect facts."*[89]

"French Scientist creates Wind Turbine Syndrome," is a film review by Calvin Luther, PhD, who follows the wind industry closely: *"The following video... gives you an appreciation for why people get seriously sick when they're around wind turbines. The video is a dramatization of work done in France in the 1960s by an electrical engineer named Vladimir Gavreau, who stumbled upon "infrasound" in his laboratory, and once he recognized its formidable properties for causing debilitating illness, began developing an "infrasound" weapon for military use. (It's unclear how far Gavreau's "weapon" progressed, in terms of further development and use. Yes, it's well known that infrasound is used as a weapon; what's unclear to me is how much of the current technology was pioneered by Gavreau.) Be that as it may, notice the symptoms experienced by Gavreau and his assistants. Their symptoms are the result of vestibular dys-regulation—the saccule and utricle (inner ear organs of balance, motion, and position "sense") sending misinformation to the brain. A phenomenon described perfectly and explained pathophysiologically half a century later by Dr. Pierpont in her book, "Wind Turbine Syndrome: A report on a natural experiment. "Luckily," wrote Gavreau in his journal, "we were able to turn it off quickly. All*

[86] http://www.wind-watch.org/documents/mitigating-the-acoustic-impacts-of-modern-technologies-acoustic-health-and-psychosocial-factors-informing-wind-farm-placement/ ; http://docs.wind-watch.org/Bull-Sci-Technol-Soc-2011-Shepherd-027046761141784 1.pdf
[87] Source: http://www.windaction.org/faqs/33327
[88] http://www.windaction.org/faqs/33327
[89] Mark J Cool testimony: http://www.windaction.org/stories/33678

GG-55 Cont.

GG-56

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GG-58

GG-59

GG-56 The County has a different method for evaluating and regulating low frequency wind turbine noise under this project. See also response to comment GG39.

GG-57 This comment is not relevant to the proposed Wind Energy Ordinance or DEIR.

GG-58 The quotation in this comment does not identify deficiencies in the DEIR. The County has evaluated project issues related to health and safety in the DEIR pursuant to CEQA.

GG-59 The County appreciates the information in this comment regarding infrasound/low frequency noise effects. The County agrees that low frequency noise generation should be limited, which is why low frequency noise provisions were included in the draft Wind Energy Ordinance.

of us were sick for hours. Everything in us was vibrating: stomach, heart, lungs. All the people in the other laboratories were sick, too. They were very angry with us."[90]

From "The Sonic Weapon of Vladimir Gavreau"[91] **published in 1996 in the journal Borderlands**: *"The most fundamental signals which permeate this world are inaudible. They not only surpass our hearing, but they undergird our being. Natural infrasounds rumble through experience daily. There manifestations are fortunately infrequent and incoherent. Infrasound is inaudible to human hearing, being of pitch below 15 cycles per second. The bottom human limit. The plinth. The foundation. Infrasound is not heard, it is felt. Infrasound holds a terrible secret in its silent roar. Infrasound produces varied physiological sensations, which begin as vague "irritations." At certain pitch, infrasound produces physical pressure. At specific low intensity, fear and disorientation. Nazi propaganda engineers methodically used infrasound to stir up the hostilities of crowds who were gathered to hear their madman. The results are historical nightmares. At a very specific pitch, infrasound explodes matter. At others, infrasound incapacitates and kills. Organisms rupture in its blast. Sea creatures use this power to stun and kill prey. The swelling bass tones of the cathedral seem as though they can burst the very pillars that uphold the ancient vaults. Stained glass windows have been known to erupt in a shower of colored fragments from the organ's basso profunda. Impulsed ultra bass tones…thunder. Somewhere in the almost inaudible roll of these basement sounds there was a devastating and fearful power."*

"**Turbines declared a Nasty Neighbor"**[92]**: Homes were vacated and bought out by wind company after neighbors complained of becoming ill after turbine operations started at Waubra Australia in 2009**: *"They make you suffer so that you just want to get out of there. They know that it gets to you emotionally and physically." Mr. Deans refuses to sell his property because he does not want future generations to suffer like his family. He only returns to the farm when he has to--about once a fortnight--and says every time he does he gets head pain within five minutes that takes up to 10 days to go away. Doctors' certificates seen by the Sunday Herald Sun back his claims. "Once (the vibrations) get inside the house it bounces off the walls and makes you feel sick," Mr. Dean said. "If you're exposed to it outside it goes into your inner ear and affects your balance. It's put tinnitus in my ears which stops me sleeping." He has met the company to discuss his concerns, but said they would only take statements, not answer his questions. "I said 'I don't want you to buy me out. I want you to fix the problem'," he said. "It's hell on Earth living out there. That's what it is… And there's nothing we can do about it. It's a bloody terrible thing… It's knocked us around. We're in limbo. We've lost two years of our life and we don't know where it will end. I've put nearly 40 years into that place. It's prime property that I was going to pass down to my son. What am I going to do? I can't work there without being ill."*

"The Lie Behind Wind Turbine Noise Models"[93] shows Tule Wind developer Iberdrola involved again: *"The first post-construction sound study in Herkimer revealed noise levels reaching 60 to 65 decibels, nearly 20 decibels above what was predicted for homes in the area. Iberdrola's Paul Copleman told the press the excessive noise levels were largely due to the wind rustling leaves and cannot be "attributable to the wind farm."*

"Use of a model that understates real-world operational sound levels is very likely the root cause of the problem at the Hardscrabble facility. Acoustic experts who work for the wind industry, including Iberdrola, are well aware of the limitations of the ISO modeling. They are well aware that the standard is intended for ground-based sound sources and has never been validated for predicting wind turbine noise.

"They also know that literature on turbine noise dating back nearly a decade has shown that these models underestimate wind turbine noise levels. But here in the U.S., wind industry acousticians still use the CADNA/A tool without qualification. Herkimer County residents are now suffering the consequences. And as stated above, the explanation is simple. Herkimer County residents were lied to. Acousticians hired by the wind industry insist the ISO standard is an appropriate method for modeling wind turbine sound provided the correct input parameters are used. But what they do not admit is that the ISO 9613-2 standard, on which CADNA/A is based, was never

GG-59

GG-60 Cont.

[90] http://www.windturbinesyndrome.com/news/2011/french-scientist-creates-wind-turbine-syndrome/
[91] http://journal.borderlands.com/1996/the-sonic-weapon-of-vladimir-gavreau/
[92] http://www.heraldsun.com.au/news/victoria/turbines-declared-a-nasty-neighbour/story-e6frf7kx-1225996775637
[93] http://www.windaction.org/faqs/33327

GG-60 See responses to comments GG39 and GG59.

validated for wind turbine noise. In fact, the standard is mainly applicable to situations concerning road or rail traffic, industrial noise sources, construction activities, and many ground-based noise sources. It does not apply to sound from aircraft in flight, to blast waves from mining, military, or other similar operations. And it was not designed to predict turbine noise.

"The ISO Standard limits use of its methods to quantify noise sources that are close to the ground (approximately 30 meter difference between the source and receiver height) and within 1 kilometer of the receiving location. A wind turbine with a hub height of 80+ meters exceeds the ISO height limit by 50 meters.

"Meteorological conditions are also limited to wind speeds of approximately 1 meter/second and 5 meters/second when measured at a height of 3 meters to 11 meters above the ground. Only when all of these constraints are met by the situation being modeled can the predicted noise levels be assumed to be accurate within a +/- 3 dB range. The constraints placed on the ISO standard having to do with wind speed, direction and weather conditions indicate just how limited the models are for anything other than simple weather conditions -- NOT the types of conditions that wind turbines need to operate. The way sound spreads outdoors can be affected by temperature differences in different layers of the wind that cause sound waves to bend up or down at the boundaries just like water bends light. If a noise source is above a boundary then sound that would have gone down to the ground surface might bend up and dissipate. If the noise source is below a boundary layer then sound that might have dissipated upwards is bent down and added to the sounds that would normally be directed downwards. The current science of meteorology does not have precise ways to know what is happening right near any particular turbine."

Heinrich A. Metzen of DataKustik GmbH[3], maker of CADNA/A confirmed this fact in an email where he stated: "*Long range propagation including atmospheric refraction is not part of the standards used for (normal, "standard") noise calculations. It is known that atmospheric refraction may cause sound to be refracted downwards again and contributing strongly to the level at long distances. The atmosphere in the standards existing is just homogeneous above height." Since there are no accepted algorithms to predict these refractions, sound propagation models cannot evaluate conditions that have vertical or horizontal turbulence even though we know they can add significant sound at the receiving location when present. As a result, predicted sound levels are understated.*"

Iberdrola's Updated Noise Assessment for Hardscrabble Wind [94] includes its now discredited claims that its wind turbine project would be in compliance with the already less-than-protective 50dBA limit: "*Figure 1 presents the predicted facility levels under full power conditions including the +2 dBA warranty term. Table 3 compares the predicted facility noise levels under these conditions to the absolute noise limit of 50 dBA established by the Town of Fairfield. No residences are predicted to exceed the Town of Fairfield's limit of 50 dBA, even at participating homes.*"

"**Wind turbine noise, an independent assessment RAND ACOUSTICS,**"[95] by Stephen Ambrose and Robert Rand, first published in the Herald Gazette, 10 September 2010. Stephen Ambrose and Robert Rand are members of the Institute of Noise Control Engineering. In 2009, they became concerned about the negative comments from residents living near wind turbine sites and, the apparent lack of regulatory action to address the potential for adverse health impacts from wind turbine generator noise in Mars Hill. They launched their own evaluation, and came to the following conclusions in a series of guest columns.

1) Wind turbines larger than one megawatt of rated power have become an unexpected surprise for many nearby residents by being much louder than expected. The sounds produced by blades, gearing, and generators are significantly louder and more noticeable as wind turbine size increases. Long blades create a distinctive aerodynamic sound as air shears off the trailing edge and tip. The sound character varies from a "whoosh" at low wind speeds to "a jet plane that never lands" at moderate and higher wind speeds. Blade-induced air vortices spinning off the tip may produce an audible "thump" as each blade sweeps past the mast. Thumping can become

[94] IBR http://www.iberdrolarenewables.us/hardscrabble/SDEIS/3-Appendices/Appendix_N-Noise/1-IBR_Hardscrabble_March-22-2009_Final.pdf
[95] Wind Turbine Noise An Independent Assessment: http://randacoustics.com/wind-turbine-sound/wind-turbines-published-articles/wind-turbine-noise-an-independent-assessment/

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GG-60 Cont.

GG-61

GG-62

GG-61 See response to comment GG39.

GG-62 See response to comments GG36, GG39 and GG59 above.

more pronounced at distance, described as "sneakers in a dryer," when sounds from multiple turbines arrive at a listener's position simultaneously.

2) Wind turbines are not synchronized and so thumps may arrive together or separately, creating an unpredictable or chaotic acoustic pattern. The sounds of large industrial wind turbines have been documented as clearly audible for miles. They are intrusive sounds that are uncharacteristic of a natural soundscape.

3) Studies have shown that people respond to changes in sound level and sound character in a predictable manner. A noticeable change in sound level of 5 decibels (dB) may result in "no response" to "sporadic complaints." An increase of 10 dB may yield "widespread complaints." A 15 dB increase, "threats of legal action."

4) The strongest negative community response occurs with an increase of 20 dB or more, resulting in "vigorous objections." Audible tones, variability in sound level, and an unnatural sound character can amplify the public response. For a distinctive or unpleasant sound, a small change in sound level, or the sound simply being audible, may provoke a strong community response. Community response can intensify further if sleep is disturbed and quality of life or property is degraded.

5) Weather conditions influence the sound level generated and how it travels to nearby homes. Sound waves expand outward from the wind turbine with the higher frequencies attenuating at a faster rate than low frequencies. Locations beyond a few thousand feet may be dominated by low frequency sounds generated by the wind turbines. Wind turbulence and icing, both common in New England, due to topography and latitude, increase aerodynamic noise, due to intensified or chaotic dynamic stall conditions along the blade surfaces. Atmospheric conditions at night and downwind enhance sound propagation toward the ground by increasing levels over longer distances. Wind turbines are elevated hundreds of feet to receive stronger winds, yet winds down on the ground or in nearby valleys may be non-existent with correspondingly low background sound levels, accentuating the impact of the intrusive sounds.

6) Other professionals have developed thresholds, or criteria, for sound level to protect public health that may be applied to planning for wind turbine permitting. Recommendations from Hayes McKenzie Partnership in 2006 limited maximum wind turbine sound levels at residences to 38 dBA and no more than 33 dBA when "beating noises" are audible while the turbines spin.

7) Dan Driscoll presented his analysis in 2009 (Environmental Stakeholder Roundtable on Wind Power, June 16, 2009) with a Composite Noise Rating analysis of 33 dBA to reduce rural community response to the level of "sporadic complaints."

8) Michael Nissenbaum issued his findings in 2010 from his medical study at Mars Hill, recommending a 7,000-foot setback for public health. The World Health Organization published sound level thresholds of sleep disturbance and adverse health effects from peer-reviewed medical studies (Night Noise Guidelines for Europe, October 2009).

9) Our next column will compare our sound level versus distance data with these medical, health, and community response criteria and show what distances are necessary to protect public health.

10) Currently, there is no effective, reliable noise mitigation for wind turbines of this size other than shutdown. Therefore, at this time, it appears appropriate that proposed wind turbine sites should position wind turbines at least one mile away from residential properties and further for sites with more than one wind turbine. Smaller wind turbines (under one megawatt power rating) produce less noise than those currently being marketed and installed for grid power in Maine; these may be an option when distance is an issue.

Falmouth wind turbine neighbor's testimony included the following statement on "turbine torture"[26]: *"The garden that was a sanctuary to me for 30 years is now more like a torture chamber. Some of the abutters have started using the term "turbine torture." When the turbine first went into operation in March 2010, and then*

GG-62 Cont.

GG-63

GG-63 See responses to comments V5 and GG39.

through April, I tried to acclimate myself to live with this thing. After dropping into a three-month depression, I finally avoided my own home."[95] *I am an abutter to what the Town of Falmouth, Massachusetts, calls their WIND 1--their first wind turbine, a 1.65MW Vestas 400-foot-tall goliath. Since it went into operation in early 2010, quite a number of us abutters have suffered serious medical detriments and a gigantic loss of quality of our lives from the noise impact of this machine. My own home is 1,662 feet from the turbine, and the effects of the sound on me have caused anxiety, stress, nervousness, sleep deprivation, hypertension, migraines, dizziness, blurred vision, palpitations, irritability, anger, upset stomach (and) depression. These ailments are well documented by my medical providers."*

A study released last week concludes wind turbines in Falmouth negatively affect abutters' health:[97] *Its results assert that wind turbines cause "visceral" physical reactions and that sound waves from turbines are felt more intensely indoors than outside. Previous sound studies that showed no negative health effects were done outdoors, Ambrose said. The recent study, which used low-frequency microphones to measure sound waves, showed sounds are more intense indoors than out. Data from this study showed a 10 dbG (a measurement for infrasound) increase outdoors and a 20 dbG increase indoors. The effect is similar to "living in a drum," he said. An independent review of the acoustics data indicates it is scientifically valid, Nancy S. Timmerman, chairwoman of the Acoustical Society of America's Technical Committee on Noise, said in an email. She added that she can speak only to data on acoustics, not physiological effects reported in the study."*

GG-63 Cont.

Abstract from "Wind Turbines Make Waves: Why Some Residents Near Wind Turbines Become Ill,"[98] by Magda Havas; and David Colling: "*People who live near wind turbines complain of symptoms that include some combination of the following: difficulty sleeping, fatigue, depression, irritability, aggressiveness, cognitive dysfunction, chest pain/pressure, headaches, joint pain, skin irritations, nausea, dizziness, tinnitus, and stress. These symptoms have been attributed to the pressure (sound) waves that wind turbines generate in the form of noise and infrasound. However, wind turbines also generate electromagnetic waves in the form of poor power quality (dirty electricity) and ground current, and these can adversely affect those who are electrically hypersensitive. Indeed, the symptoms mentioned above are consistent with electrohypersensitivity. Sensitivity to both sound and electromagnetic waves differs among individuals and may explain why not everyone in the same home experiences similar effects. Ways to mitigate the adverse health effects of wind turbines are presented.*"

GG-64

NOISE ALSO HURTS WILDLIFE

In addition to its mandate to protect public health and safety, the County also has an obligation and responsibility to recognize and address the potentially cumulatively significant adverse impacts on wildlife, their habitat, foraging and reproduction, corridors & migration:

GG-65

Wind projects are often proposed along ridgelines in major migration routes and sensitive habitats. Much of rural San Diego County is located in the Pacific Flyway with diverse resident populations and active migration routes Turbine generated EMF/RFR/ and other project related emissions may cause disruption in the earth's natural magnetic fields and micro pulsations that wildlife relies on for a sense of place and compass to guide migration routes and their every move.

GG-66

[96] Barry Funfar Turbine Torture testimony: http://www.windaction.org/stories/29332
[97] http://www.capecodonline.com/apps/pbcs.dll/article?AID=/20111226/NEWS/112260313
[98] http://docs.wind-watch.org/Bull-Sci-Technol-Soc-2011-Havas-0270467611417852.pdf

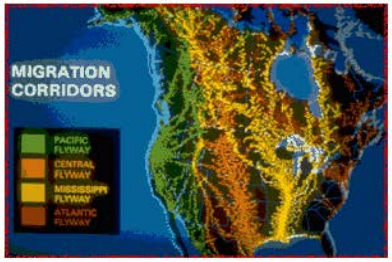
GG-64 See response to comment V3.

GG-65 The County's Guidelines for Determining Significance for Biological Resources addresses impacts from noise (see Section 4.1.H of the Guidelines). These Guidelines also require projects to address direct, indirect, and cumulative impacts to wildlife, habitat and corridors. Mitigation Measure M-BIO-1 of the DEIR proposes to apply the County's Guidelines for Determining Significance for Biological Resources to all future large wind projects.

In addition, the DEIR for this project includes discussion of direct, indirect and cumulative impacts from large wind turbines on biological resources in Section 2.4.

GG-66 The County General Plan requires development to protect ridgelines; therefore, it is not likely that future large wind turbines will be developed along ridgelines. The County agrees that large wind turbine projects may affect wildlife movement, including avian migration. This information is consistent with the existing content of the DEIR. The County is proposing to include the latest guidelines from state and federal agencies in its Guidelines for Determining Significance for Biological Resources (e.g., the CEC Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development). This is described in mitigation measure M-BIO-2 in DEIR Section 2.4.6.1.

	This measure would ensure that the most up-to-date standards for addressing impacts from wind energy development would be used in assessing potential impacts to avian migration routes.



The non-human world is also affected by electromagnetic radiation that can cause trees to lose leaves prematurely and become more susceptible to diseases. Evidence shows that RF from cellular, TV and radio towers lowers milk production in cows, causes deformities in amphibians, lowers reproduction in animals and birds and causes confusion, navigational disruption and death in migratory birds. Bee's navigational abilities are known to be sensitive to low-level EMF. **The U.S. Fish and Wildlife Service now offers a conservative estimate that between 4 to 5 million bird deaths per year may result from bird collisions with towers.** The songbird populations of industrialized countries are plummeting for myriad reasons. But RF may play a role as an attractant to birds, since their eyes, beaks, and brain tissue are loaded with magnetite, a natural mineral highly sensitive to external magnetic fields that birds use in navigation. Noted ornithologist, Robert Beason, discovered rapid neuronal firings in avian brain tissue exposed to cell frequency RFs at very low intensities. And there are also indications that RF may be contributing to global warming through agitation of hydrogen molecules in the upper atmosphere and ionosphere, like microwave oven agitates water molecules in a coffee cup. Maybe greenhouse gases are not the only culprits in global warming. RF may prove a significant but hidden factor, according to some research.[99]

Humans, avians, and other living creatures have been found to have "chains and concentrations of magnetite crystals in their brain tissue and the ethmoid bone above the eyes and sinuses has a high concentration, and so does the blood- brain barrier (the discovery of magnetite in these areas is significant because of the proximity of the ophthalmic nerves, which carry much information to the brain)"[100] that may help explain some of the adverse reactions and confusion linked to exposure to changes in earth's natural electromagnetic fields, that birds and other species use to guide their migration and daily lives. These can be influenced and disrupted by natural interference like solar flares, or earthquakes or UNATURAL MANMADE INTERFERENCE/DISRUPTION INFLUENCED BY THE IN INTRODUCTION OF INCREASED RADIOFREQUENCY RADIATION, ELECTROMAGNETIC, AND MICROWAVE RADIATION EMISSIONS.

"Birds' navigation tools are the position of the sun and stars and the earth's magnetic ley lines, which always indicate the position of polar north and south, but on overcast days birds navigate by means of the earth's magnetic field alone...Migratory birds rarely get lost, but they sometimes end up thousands of miles off course, due to disruptions in the magnetic fields, either naturally caused by storms or artificially caused by man. Homing pigeons have been unable to find their destinations in experiments in which contact lenses or small magnets were attached to their heads, both items would interfere with their ability to sense the earth's magnetic fields."[101]

[99] Excerpt from Forewardof Electromagnetic Fields, A Consumer's Guide to the Issues and how to protect ourselves by B.Blake Levitt (Authors Guild Blackprint.com edition updated 2007)
[100] Excerpt from Page 73 Natures Electromagnetic Sixth Sense: Electromagnetic Fields by B.Blake Levitt
[101] Excerpt from Page 74-75: Electromagnetic Fields by B. Blake Levitt

GG-67

GG-68

GG-69

GG-67 Potential indirect biological impacts from electromagnetic radiation from wind turbines are not discussed in guidelines from State and federal agencies (e.g. CEC Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development, the USFWS Wind Energy Guidelines, or the USFWS draft Eagle Conservation Plan Guidance). Moreover, there is no substantial evidence that electromagnetic radiation from wind turbines result in adverse environmental or health effects. Nonetheless, indirect impacts to biological resources from future large turbines were discussed in the DEIR and found to be significant (see DEIR Section 2.4.3.1).

GG-68 The County agrees that large wind turbine projects have resulted in significant numbers of bird collisions. This is not inconsistent with the existing content of the DEIR.

GG-69 See response to comment GG67.

This linked documentary video, "They're Not Green," by award winning producer/director Nettie Pena[102] includes interviews with Independent Consultant Biologist, Shawn Smallwood on the staggering numbers of Golden Eagle and other avian deaths related to collisions with wind turbines, including the distance from wind turbines that he has found dead and severely wounded birds:

GG-70

Noise effects on wildlife can be profound and devastating in regards to habitat, foraging, alert calls, reproduction, and overall health and survival as documented in numerous studies and reports.[103, 104, 105]

This linked Fish & Wildlife report on the "Effects of Noise on Wildlife" includes concerns with adverse impacts related to wind turbine noise, low frequency noise and vibrations.[106]

Studies show that sound can increase stress hormones, which can lead to illness.[107, 108] Functioning ecosystems depend on natural acoustical environments. Many animals, insects, and birds decipher sounds to find desirable habitat and mates, avoid predators and protect young, establish territories, and to meet other survival needs.

Scientific studies have shown that wildlife can be adversely affected by sounds and sound characteristics that intrude on their habitats. Although the severity of the impacts varies, depending on the species being studied and other conditions, research has found that wildlife can suffer adverse physiological and behavioral changes from intrusive sounds and other human disturbances. Some sound characteristics have been associated with suppression of the immune system and increased levels of stress-related hormones in animals.

GG-71

Studies have also shown that songbirds that live in places with increasing sound levels have to sing louder than birds in quieter environments, and not all species have the ability to adapt in this way. Birds forced to sing at a higher volume have to expend increased levels of precious energy to attract a mate or warn of predators.

Bighorn sheep are less efficient at foraging for food when they are exposed to aircraft, and mountain goats often flee from the sound of helicopters and airplanes. Still other research has demonstrated that intrusive sound

[102] http://web.me.com/thrnotgreen/thrnotgreen/Bios.html; http://web.me.com/thrnotgreen/thrnotgreen/Episode_6.html

[103] http://www.fws.gov/windenergy/docs/Noise.pdf
[104] http://www.acousticecology.org/wildlandbiology.html
[105] http://www.nonoise.org/library/fctsheet/wildlife.htm
[106] http://asirnews.org/archives/category/wildlands/effects-of-noise-on-wildlife
[107] http://www.fws.gov/windenergy/docs/Noise.pdf
[108] http://www.nature.nps.gov/naturalsounds/impacts/

GG-70 County staff reviewed the information provided in this comment, which focuses on the significant bird and bat impacts identified at the Altamont Pass Wind Resource Area. The County agrees that the Altamont Pass Wind Resource Area has been extremely detrimental to golden eagles. As such, future large wind turbine projects must be designed to avoid the mistakes made at Altamont Pass. The latest guidelines from State and federal agencies are proposed be applied to large wind turbine projects in the County as part of this project (see M-BIO-1 and M-BIO-2 in DEIR Section 2.4.6.1).

GG-71 The County's Guidelines for Determining Significance for Biological Resources addresses impacts from noise (see Section 4.1.H of the Guidelines). Mitigation Measure M-BIO-1 of the DEIR proposes to apply the County's Guidelines for Determining Significance for Biological Resources to all future large wind projects.

properties can adversely affect reproductive success in caribou and communication in whales. When these effects are combined with the other stressors faced by wildlife such as winter weather, disease, insect harassment, and food shortages, sound impacts can have important implications for the health and vitality of wildlife populations."

Bighorn Sheep historically extended into the Sawtooth and Tierra Blanca Mountains and the McCain Valley area, according to members of local Native American tribes whose families hunted them for food as late as the last two decades. Locals who previously or currently live in the McCain Valley, Walker Canyon and Ribbonwood Road area have witnessed Bighorns in the south end of McCain Valley as recently as 2010 and near Cameron Station/Kitchen Creek Road and I-8 in 2011.

The 1981 BLM Eastern San Diego County MFP also documents their extended territory, as well as most of McCain Valley and surrounding area as Raptor Nesting.[109] Golden Eagles have been undercounted, according to sightings by local residents across Eastern San Diego and Western Imperial Counties. No one can honestly say that there will not be significant cumulative effects to these creatures who have already lost so much of their habitat,[110] including recent reductions that we believe were politically motivated in order to accommodate the Sunrise Powerlink and industrial wind turbine projects.

How will the introduction of hundreds/thousands of wind turbines and their noise, infrasound low frequency, EMF/RF, blade flash, and FAA lighting further impact their fragile existence?

[111] **"Impacts of Noise on Wildlife Fact Sheet"**:[112] National Park Services' Annotated Bibliography on the Effects of Noise on Wildlife: The USFWS Wind Turbine Guideline committee continues to be dominated by wind industry and its friends, despite growing evidence of high avian mortality rates at wind turbine projects[113, 114, 115, 116, 117, 118] and even at wind energy substations[119] AND the public outcry[120] and alarm at the gutting of previous and much-needed new protections for Golden Eagles and other at-risk species, including voluntary instead of mandatory enforcement of the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Livestock and their owners suffer from wind turbine pollution impacts as well... In the May 19, 2011 issue of Recharge, Christiana Sciaudone, Rio de Janeiro, reported that protesters blocked work at Iberdrola Renovables' La Venta Oaxaca wind project and that the company declined to comment on the accusations, which also included claims of deforestation, dead cattle and damaged crops.[121]

Livestock operations have been damaged or abandoned due to stray voltage and other adverse conditions and impacts like the one in photograph from Canada below. Similar reports have come from goat, dairy, beef cattle,

[109] Critical Habitat: http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pdfs/elcentro_pdfs/esandiegoplan.Par.bbe11475.File.pdf/ESDC_MFP.pdf
[110] http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pdfs/elcentro_pdfs/esandiegoplan.Par.e7631351.File.dat/map%207%20-%20criticalhabitat8X11.pdf
[111] wind-power-problems.org wind-turbine-bird-kill.jpg
[112] http://www.nature.nps.gov/naturalsounds/pdf_docs/wildlifebiblio_Aug2011.pdf
[113] Eagle Deaths investigated at wind farm: http://articles.latimes.com/2011/aug/01/local/la-me-wind-eagles-20110803
[114] http://www.foxnews.com/scitech/2011/08/16/energy-in-america-dead-birds-unintended-consequence-wind-power-development/
[115] WSJ: Windmills are killing our birds: one standard for oil companies another for green energy sources: http://online.wsj.com/article/SB10001424052970203706604574376543308309048.html
[116] Wind Farm turbines blamed for bird kills: http://articles.boston.com/2011-08-30/news/29945844_1_wind-turbines-wind-farms-wind-industry
[117] Unexpected Downside of Wind Power: http://www.wired.com/science/planetearth/news/2005/10/69177?currentPage=all
[118] Video: Bird killed by Green Energy: http://www.youtube.com/watch?v=wVz5hdAMCGU
[119] http://green.blogs.nytimes.com/2011/11/09/nearly-500-birds-found-dead-at-wind-farm/
[120] http://www.wind-watch.org/documents/comments-on-the-revised-draft-guidelines-for-land-based-wind-energy-projects/
[121] http://www.rechargenews.com/bardcopy/article237538.ece ; http://www.rechargenews.com/energy/wind/article257059.ece

GG-71 Cont.

GG-72

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GG-76

GG-72 Issues raised in this comment are not inconsistent with the existing content of the DEIR. Section 2.4 of the DEIR discusses potential direct, indirect, and cumulative impacts to special status species, including peninsular bighorn sheep and golden eagle.

GG-73 It is not known how many wind turbines may be approved and constructed under the proposed ordinance. However, potential impacts from noise, bird and bat collisions, and lighting are discussed in the DEIR (Sections 2.1, 2.4, and 2.8). Moreover, project-specific analyses and mitigation for these impacts will be included in the environmental review of future large wind turbine projects. See also response to comment GG-67 regarding electromagnetic radiation effects.

GG-74 The County acknowledges that noise from large wind turbine projects can have significant effects on wildlife. See responses to comments GG71, GG72 and GG73 above.

GG-75 The County appreciates this information. Project-specific analyses of and mitigation for potential impacts to agriculture and biological resources will be required for future large wind turbines (mitigation measures M-AGR-1 and M-BIO-1).

GG-76 The County could not find reliable studies to substantiate claims regarding impacts to animals from

	stray voltage. However, the County acknowledges that large wind turbine projects can adversely affect agriculture and/or biological resources. See response to comment GG75 above.

alpaca[122, 123] and crop farmers. Some residents have also reported damaging surges and brownouts from fluctuating power that destroyed sensitive equipment. Most families cannot sustain the intense and expensive legal battles against well-heeled and politically entrenched wind energy and utility companies who are at the root of their problems--so they are forced to walk away with their family finances destroyed. GG-77

THIS TYPE OF BEHAVIOR SHOULD NOT BE THE ALLOWED, CONDONED OR SUPPORTED BY OUR COUNTY, STATE, OR FEDERAL AGENCIES THAT ARE SUPPOSED TO ENSURE THAT THESE TYPES OF LIFE-THREATENING IMPACTS GO UNPUNISHED--NOR SHOULD DEVELOPERS BE REWARDED FOR THEIR NEGLIGENT AND FRAUDULENT ACTIONS AND INACTIONS. GG-78

APPENDIX B: GENERAL PLAN AMENDMENT GG-79

Borrego Community Plan: We strongly support the proposed amendment to "prohibit large wind turbine projects within this important scenic resource" that is intended to protect Montezuma Valley.

However, we have to question the obvious bias when compared to proposed amendments to the Boulevard Plan that will remove protections for scenic resources that are important to the residents and property owners who have made investments to live near and enjoy the expansive views and to local businesses who depend on them to attract visitor traffic to their venues. The value of those scenic resources is reflected in the updated Boulevard Community Plan,[124] which was approved by the Board of Supervisors in August 2011. GG-80

A similar bias was evident during the Sunrise Powerlink review process where East County's valued resources and impacted communities were obviously and erroneously viewed by decision makers as second or third class, less worthy of protection and available for sacrifice. As a result, significant adverse land use changes were allowed or forced and are now being ushered through in an unlawful and arbitrary manner. GG-81

Boulevard Community Plan: All of the proposed changes in the Boulevard Community Plan are unjustified, unwarranted, unconscionable, unsupportable, unlawful, AND they must be denied outright. GG-82

WIND TURBINE PROJECTS ARE NOT A CIVIC USE. THEY ARE COMMERCIAL INDUSTRIAL UTILITY SCALE ENERGY GENERATION FACILITIES REGARDLESS OF WHERE THEY ARE LOCATED. GG-83

DPLU staff has been well aware of the Boulevard Planning Group's concerns with the adverse effects of industrial wind turbine projects as reflected in remarks documented in numerous hearings including the linked minutes from the General Plan Update Steering Committee meeting held on January 10, 2009[125]: GG-84

"*Ms. Tisdale recommended that policies should be added to noise, safety, and fire to address wind towers. She further commented that currently there are several proposals for wind farms in the Boulevard community and other communities should be aware of not just the positive effects but also the negative impacts of wind farms.*"

New peer-reviewed and other information provided in these and previous comments (including those in Appendix C), submitted into this record by the Boulevard Planning Group, our non-profit groups and others--and for the record, on similar cumulative impact projects--do serve as fair notice to County decision makers that they can and should be held liable for future harm or damages to people and property[126] resulting from inadequate non-science-based research, analyses, restrictions, setbacks, mitigation, monitoring and/or approvals of this Wind Energy Ordinance & Plan Amendment DEIR, the Tule Wind MUP GPA and any large-scale wind turbine projects. GG-85

[122]Wirtz family abandon home and alpaca breeding over turbine impacts
http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pdfs/elcentro_pdfs/esandiegoplan.Par.e7631351.File.dat/map%207%20-%20orticalHabitat8x11.pdf
[123]http://betterplan.squarespace.com/todays-special/2010/4/15/41510-why-did-the-wirtz-family-abandon-their-wisconsin-home.html
[124] http://www.sdcounty.ca.gov/dplu/gpupdate/docs/BOS_Aug2011/C_2_10a_BOULEVARD_08.03.11.pdf
[125]http://www.sdcounty.ca.gov/dplu/gpupdate/docs/scminutes_011009.pdf
[126] Life with turbines: http://www.goodhuewindtruth.com/LIFE_IN_A_WIND_FARM.html

GG-77 This comment does not raise a significant environmental issue for which a response is required; however, the information in this comment will be included in the Final EIR for review and consideration by the County Board of Supervisors.

GG-78 See response to comment W3.

GG-79 The commenter's support for the proposed amendment to the Borrego Community Plan is acknowledged.

GG-80 The County acknowledges the commenter's opposition to the proposed amendments to the Boulevard Community Plan. Since the majority of the wind resource in the County occurs in the Boulevard Community, the County would be remiss if it did not analyze in the DEIR a General Plan Amendment (GPA) to the Boulevard Community Plan to allow for wind turbine projects. The proposed GPA action would help to meet the stated project objectives. However, a reduced alternative that does not include the GPA is also analyzed in the DEIR for consideration by the decision makers.

GG-81 This comment pertains to a different project and does not raise an environmental issue with the Wind Energy Ordinance.

GG-82 The County acknowledges the commenter's opposition to the General Plan Amendment proposed for the

	Boulevard Community Plan. Both the Limited Large Wind Turbine Alternative and the No Project Alternative would maintain the existing language within the community plan. Ultimately, the County Board of Supervisors will determine whether to approve the project or an alternative or to maintain the status quo. The information in this comment will be in the Final EIR for review and consideration by the Board. **GG-83** See response to comment K5. **GG-84** The County concurs with this comment. **GG-85** This comment does not raise a significant environmental issue for which a response is required.

Our groups and others have provided more than adequate documentation in this comment letter and others[127] to support the fact that noise, infrasound, vibrations and stray voltage/dirty electricity generated by large wind turbines and related infrastructure can and do result in adverse health and safety effects, disease, loss of quality of life, loss of jobs, loss of income, loss of property values and increased medical and housing expenses. GG-86

ADVERSE IMPACTS TO PROPETY VALUES ARE ALSO WELL DOCUMENTED IN THIS AND OTHER COMMENT LETTERS, CONTRARY TO THE NOW-DISCREDITED INDUSTRY-TOUTED DENIALS THAT ARE BASED ON AT LEAST ONE REPORT THAT EVEN CO- AUTHOR BEN HOEN HAS NOW RECANTED.

Wind turbine project developers should be required to offer property value guarantees to non-participating-property owners. This should not be a problem for them if they really believe their own claims that there are no adverse impacts. GG-87

APPENDIX D: CEQA INITIAL STUDY

NO ONE MOVES TO THE COUNTRY TO LIVE NEXT TO 400- to 500-FOOT-TALL CHURNING, GROANING, FLASHING AND BLINKING WIND TURBINES, AND THE WEB OF BUZZING AND EMF EMITTING POWERLINES AND SUBSTATIONS THAT THEY RELY ON. The CEQA Initial Study (Appendix D) should have checked these boxes for the following reasons:

Land Use Planning: After over a decade of regional and community planning through the General Plan Update, we are now faced with major amendments potentially impacting over 800,000 acres, mostly zoned for low-density, just months after formal approvals in August 2011[128]. GG-88

The County's August 2011 press release on the GP approval included the following statements:
1. General plans guide community development. Generally, they set the philosophy and policies that determine what gets built where.
2. The General Plan Update accomplishes that in part by shifting an estimated 20 percent of the development expected to occur in the future to western unincorporated communities with established infrastructure such as roads, fire protection and sewer services.
3. Benefits of the plan when compared to the previous plan include:
   1) Accommodating a roughly 41 percent increase in population in unincorporated communities while still cutting projected growth in the old general plan by 15 percent.
   2) Cutting potential greenhouse gas emissions by 550,000 metric tons a day by reducing new road construction by 780 lane miles and eliminating up to three million vehicle trips a day.
   3) Reducing wildfire threats by locating more growth closer to existing fire stations.
   4) Reducing potential direct effects of development on biological habitat

4. The General Plan Update was developed with broad public input from developers, business owners, environmentalists, farmers, homeowners, landowners and renters. To see the plan, go to www.sdcounty.ca.gov/dplu/gpupdate. GG-89

Greenhouse Gas Emissions: Increased reliance on large-scale intermittent energy projects located in rural areas can result in increased and cumulative GHG emissions, due to the need to ramp up and down for load balancing of non-renewable backup generation and construction trucks having to climb steep roads from either east or west supply sources. Even the DOE is aware of the challenges of integrating more wind power and that the stress and strain of an influx of intermittent wind energy can play havoc with grid stability and reliability.[129] GG-90

[127] ECO Tule ESJ protest: http://backcountryagainstdumps.org/ECO%20Sub%20-%20Volker%20%20protest%209-14-09(1).pdf
[128] Supervisors Approve General Plan Update: http://www.sandiegocountynews.com/2011/08/04/county-supervisors-approve-general-plan-update/
[129] DOE Report Outlines Challenges of Integrating Wind: http://www.nawindpower.com/e107_plugins/content/content.php?content.9103

GG-86 The County agrees that low frequency noise can result in significant effects. This is discussed in DEIR Section 2.8; and provisions have been added to the draft Wind Energy Ordinance to regulate low frequency noise.

While the DEIR acknowledges public interest and concern regarding potential health effects from turbines, it concluded that scientific evidence available to date does not demonstrate a direct causal link between turbines and adverse health effects. Disagreement among experts does not result in an inadequate EIR (CEQA Guidelines Section 15151).

The comment raises concerns regarding jobs, income, and property values. Social and economic effects need not be considered in an EIR (see CEQA Guidelines sections 15064(e) and 15131).

GG-87 See response to comment GG41.

GG-88 See response to comment W3.

GG-89 The County agrees with this comment, which quotes information on the General Plan.

GG-90 Potential greenhouse gas emission impacts, including those described in this comment, are discussed in DEIR Section 3.1.1.

3.26: Utilities and Service Systems: The electric grid is the most impacted utility that was inexplicably left out of this DEIR. The proposed and reduced Projects represent adverse impacts to the grid, including induced infrastructure growth necessary to accommodate export of considerable amounts of intermittent energy that is far beyond any local usage, increased destabilization of the grid and need for additional backup generation or storage of some kind to balance the load. GG-91

- SDG&E'S Sunrise Powerlink AND proposed ECO Substation are both slated for expansions and similar utility infrastructure IS part of the whole of the project under CEQA.
- New CEC December 2011 reports show Sunrise Powerlink is already planned to have an additional 940 MW of expansion/upgrade to accommodate more renewable energy projects in CREZ South San Diego and CREZ Imperial North and South, up to 1,700 MW. GG-92
- The ECO Substation EIR documents show that it is planned to accommodate up to five 500kV lines, nine 230 kV lines and nine 138 kV lines (4800 MW).
- Impacts to utility/grid infrastructure and reliability when switching from steady 60Hz base load energy for highly intermittent, unreliable and volatile energy sources, especially so when the proposed Project and reduced Project may result in highly concentrated and potentially dense large-scale industrial wind and solar projects located in and around rural communities and sensitive habitat and resources, with limited or old infrastructure. GG-93
- **Congress is now, belatedly, discussing the drastic changes in energy production that are being rushed forward without proper research, planning, valid mitigation or funding** that all point to potentially severe impacts on grid reliability[130] and GE advertises that "GE's Gas-Fired Plants Could Enable More Wind and Solar Power"[131]: "*We have a lot to understand about when we transform to a varying supply.*" GG-94
- The variability of solar power and wind power can play havoc with the grid. In a political era where California and other states are mandating 20 percent or 33 percent or even 40 percent Renewable Portfolio Standards, the current system is not designed to deal with that level of variability, according to Jim Detmers, former COO of the California Independent Systems Operator (CAISO): "*The system is not designed to accept that proportion of renewables." increasing penetration of renewables like wind and solar actually require an increase in the amount of natural gas-fired backup. And natural gas plants are at their least efficient when they are ramped up and down. Natural gas, despite its recent good press for being cleaner than coal and of domestic origin, is still a fossil fuel that pollutes the air when combusted and the water when extracted via fracking. Estimates from the Energy Information Administration suggest that shale gas could make up 45 percent of all natural gas production in the U.S. by 2035 -- up from the current 14 percent.*" GG-95

Transportation/Traffic: The size, bulk, and scale of large wind turbine components often require the construction of new access roads and/or the expansion or alteration of existing rural roads that were never designed, engineered, or built to handle 70-ton cranes or parts. GG-96

[130] http://www.powermag.com/POWERnews/4276.html?hq_e=el&hq_m=2352931&hq_l=5&hq_v=771ce143f5
[131] http://www.greentechmedia.com/articles/read/ge-launching-gas-fired-plants-better-suited-to-wind-and-solar-power/

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GG-91 The County used the questions in CEQA Guidelines Appendix G, section XVII regarding Utilities and Service Systems. These questions ask whether the project would cause potential environmental impacts associated with creating a need for new or expanded facilities for providing water, treating wastewater, handling storm water or disposing of solid waste. The County does not agree that the proposed ordinance would significantly impact utilities or service systems (see DEIR Section 3.2.6).

GG-92 It is unclear what this comment means or how it relates to the proposed project and, therefore, no response is provided.

GG-93 It is not entirely clear what this comment means. Nonetheless, see responses to comments W3 and GG91.

GG-94 This comment does not raise a significant environmental issue for which a response is required.

GG-95 It is unclear how this comment relates to the County's proposal to revise and update its zoning regulations related to wind energy turbines. Nonetheless, see responses to comments W3 and GG91.

GG-96 The County agrees with this comment; however, this issue is not a transportation/traffic impact. A proposed large wind turbine project may need to expand or

	improve roads. The potential environmental impacts of that project component would be analyzed in various other EIR sections depending on the resources affected. For example, Section 2.4.3.1 of the DEIR discusses potential biological impacts from access roads associated with large wind turbine projects. It should be noted that during the Major Use Permit process, the County will apply the General Plan Policies in the Mobility Element. Goal M-9 of the Mobility Element states: "Reduce the need to widen or build roads through effective use of the existing transportation network and maximizing the use of alternative modes of travel throughout the County." Should new roads need to be built as part of a large wind turbine project, the policies in the Mobility Element also require environmentally sensitive road design (e.g., policies M-2.3 and M-2.5).

Cumulative impacts. See photos below for an idea of how massive each wind turbine blade and transport vehicles are. Some rural roads or intersections will need to be widened which means mature oaks or other vegetation and unique rock formations may need to be removed or blasted out of the way, as proposed for the Tule Wind project with impacts to Ribbonwood Road, McCain Valley Road, and the addition of a new road across the blue line Tule Creek 100 year floodplain. **This was not covered in the DEIR and should be.**

GG-97

[132]

Public Services: The introduction of hundreds or thousands of new large wind turbines and related infrastructure throughout San Diego County's backcountry, or concentrated in disproportionately impacted areas like Boulevard and Jacumba, represent significant, cumulative and potentially catastrophic fire ignition sources into underserved and previously inaccessible rural areas.

GG-98

Waste: Turbine blades on composite and non-recyclable waste hydraulic fluid from industrial wind turbines, tens of thousands of gallons of turbine and transformer fluids, dust suppressant, herbicide impacts on groundwater.

GG-99

Recreation: Section 3.2.5[133] erroneously and contradictorily states that that "No impacts to recreational facilities would result from the development of large wind turbines" and then regarding impacts to regional resources says "projects in the region would have the potential to result in cumulatively considerable impacts to recreational facilities" AND then states "The proposed project will not result in any significant impacts to recreational facilities; therefore, no mitigation measures are required."

The installation of large-scale industrial wind turbines inside recreation areas like the Lark Canyon OHV Park and Campground and the Cottonwood Campground, and around non-motorized trails and rock-climbing areas throughout McCain Valley Conservation and Recreation Area and other rural recreation areas IN THE OVER 800,000 ACRES OF THE IMPACTED PROJECT AREA AND OVER 400,000 ACRES OF REDUCED PROJECT AREA could prove to be devastating not only to the resources and quality of experiences and ambiance,

GG-100

[132] Whitelee Blade Stunner: http://www.eveningtimes.co.uk/news/whitelee-blade-stunner-1.1161441
[133] DEIR page 3.2.5.3

GG-97 This comment raises concerns regarding the potential effects to vegetation, unique rock formations, or floodplains from construction activities of large wind turbines. Potential construction impacts to vegetation and sensitive species are discussed under "Large Turbine(s)" in DEIR Section 2.4.3.1. Potential impacts to scenic rock formations are discussed in DEIR Section 2.1.3.2. And potential effects to floodplains are discussed in DEIR Section 3.1.2.3.7. Furthermore, the site specific environmental review for a proposed large wind turbine project would include an analysis of these potential impacts and a description of measures to mitigate the impacts.

GG-98 The County is not proposing to introduce hundreds or thousands of new large wind turbines to the County's backcountry. Rather, the proposed Wind Energy Ordinance would update and clarify the existing regulations for large wind turbines. Evaluation of environmental impacts related to fire protection services is provided in the Public Services chapter of the DEIR (Section 3.2.4). However, the comment also raises concerns regarding potential hazards from wildland fires, which is analyzed in DEIR Section 2.6.3.7. It should also be noted that future large wind turbine projects will be required to comply with the Safety Element of the County General Plan. Policies S-3.1 through S-3.7 of the Safety Element require development projects to reduce potential risk of fire

	hazards. **GG-99** It is unclear what the comment means. Assuming that the comment means that wind turbines use hydraulic fluid, transformer fluid, dust suppressant and herbicides that may impact groundwater, the response is as follows: Discussion of hazardous substances and materials related to large wind turbine projects is provided in DEIR Section 2.6.3. Potential impacts to groundwater and surface water quality will be regulated by State regulations, as well as County ordinances and policies (see DEIR Sections 3.1.2 and 3.26). Furthermore, site specific environmental review for proposed large wind turbine projects will include an analysis of potential impacts to groundwater and a description of measures to mitigate potentially significant impacts. **GG-100** The County does not agree with this comment. See response to comment AA3.

but also to the tourist draw itself that would reduce use and related tourism dollars going to support local businesses.

The DEIR fails to recognize and address or identify the potentially cumulative significant adverse impacts on recreational resources with the introduction of large industrial wind turbine projects in and around a wide variety of recreation areas and resources. The maps in the DEIR do not even show the Lark Canyon OHV Park & Campground or the Cottonwood Campground[134] or all the non-motorized and motorized trails in the Eastern San Diego County BLM Resource Management Plan[135] that are severely impacted by the proposed Tule Wind Project [136]or the Cleveland National Forest, or other areas that the public believes are protected--all of which may be adversely impacted by the Proposed Project/Reduced Project Alternatives.

Trails: None of the trails in the McCain Valley, Sawtooth, Jacumba or Carrizo Gorge area are referenced or documented as being located in the high impact Project Area of influence. See linked BLM map[137]

Air Quality: In addition to increased GHG emissions from construction and operation equipment and load balancing backup generation, there will be an increase in other air pollutants from potentially significant and cumulative impacts from SF6 from proliferating transmission lines, increased loss of vegetation, increased erosion and airborne dust pollutants.

1. Electromagnetic (EMF) Radio Frequency Radiation (RF) and Microwave Radiation (MCR), are a form of air pollution now a recognized carcinogen[138] and can be generated by wind turbines, inverters, transformers, power lines, substations, and wireless communications systems for remote operation of projects.

2. The Proposed and Reduced Projects will subject impacted residents, livestock and wildlife to potentially and cumulatively significant electromagnetic radiation exposures and biological experimentation without protective safety limits and without the public's informed consent.

3. Mounting scientific evidence shows with increasing clarity that wireless radiation is not benign. It harms our bodies, brains, cells, and DNA. Peer-reviewed studies released this year demonstrate this fact, as the following sampling illustrates:

1) **In February 2011, scientific research conducted at the California Institute of Technology** demonstrates, electrical fields as weak as one volt per meter robustly alter the firing of individual (brain) neutrons. Exposure to one volt is in stark contrast to the FCC's allowable exposure limits for cell phones: 47 volts/m for the 800 MHz frequency and 82 volts/m for the 850-1990 MHz range.

2) While the federal government promotes wireless technology nationwide, the World Health Organizations International Agency for Research on Cancer (IARC) announced in May 2011 its decision to classify radio frequency electromagnetic fields as a class 2B possible human carcinogen, like lead and asbestos.

3) Also in May 2011, the Parliamentary Assembly of the Council of Europe (PACE) passed a resolution calling for, among many actions, a ban on WiFi and mobile phone use in schools, stating that children especially need to be protected.

4) **In the February 2011 issue of "The Journal of the American Medical Association," another study from the National Institutes of Health** reports that 50 minutes of exposure to cell phone radiation can affect the normal functioning of the human brain. Dr. David Carpenter, a neurophysiologist and director of the Institute for Health and the Environment at the State University of New York at Albany, comments, *"It is going to be very difficult to deny that RF radiation from a cell phone does not alter nervous system activity."*

[134] BLM East County map Notice of Significant Change: http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/elcentro/planning/2007/fesdrmp.Par.84414.File.dat/SignificantChangeEnergyDev080701.pdf
[135] BLM East County RMP map showing designations and routes of travel: http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/elcentro/planning/2007/fesdrmp.Par.37764.File.dat/resource_planning_p-1.pdf
[136] BLM East County RMP map showing designations and routes of travel: http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/elcentro/planning/2007/fesdrmp.Par.37764.File.dat/resource_planning_p-1.pdf
[137] BLM map: http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/wilderness/maps_1page.Par.68494.File.dat/carrizo_gorge.pdf
[138] Is Dirty Electricity Making You Sick?: http://www.emrpolicy.org/files/prevention_jan_2010.pdf ; Studies demonstrating Biological effects from RFR http://www.emrpolicy.org/science/research/index.htm;

GG-100 Cont.

GG-101

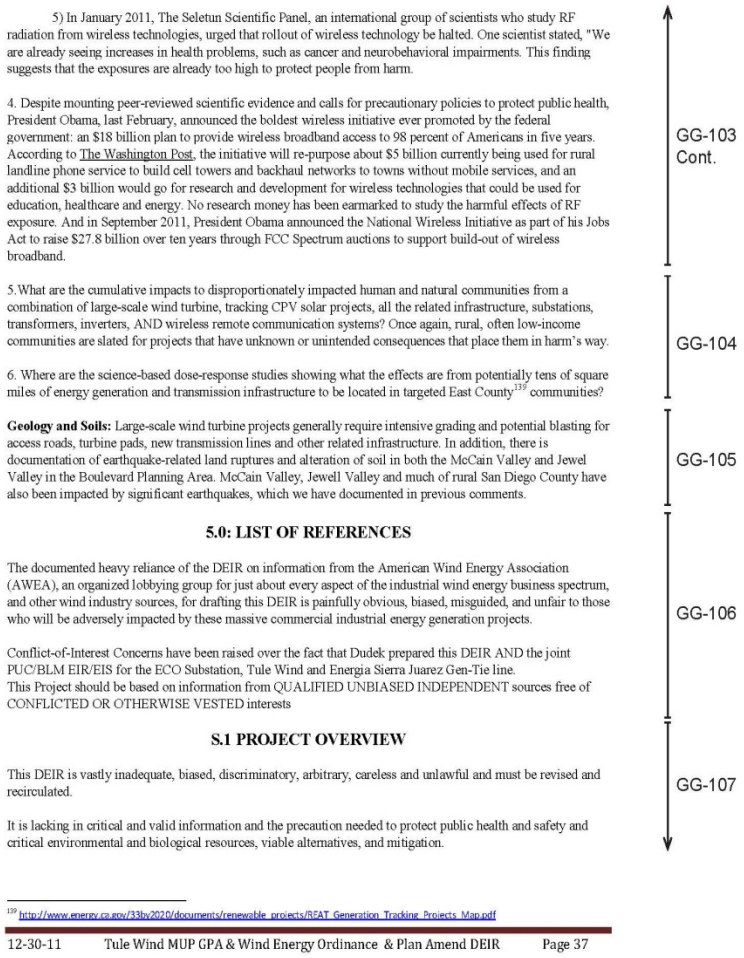
GG-102

GG-103

GG-101 This comment raises concerns with regard to trails; however, the type of potential impact is not clear from this comment. Aesthetic impacts to public trails are discussed in DEIR Section 2.1. Potential conflicts with the County Trails Program and Community Trails Master Plan would be identified during the discretionary review process for large wind turbine projects.

GG-102 The County does not agree with this comment. Section 2.3 of the DEIR identifies potentially significant impacts to air quality based on CEQA Guidelines Appendix G and the County's Guidelines for Determining Significance for Air Quality.

GG-103 The County does not agree with this comment. Concerns regarding electric and magnetic fields (EMF) are discussed in DEIR Section 2.6.7. There is no substantial evidence that EMF, radio frequency or microwave radiation from wind turbines have adverse effects on people and/or the environment. Scientific evidence available to date does not demonstrate a direct causal link between wind turbines and adverse health effects.



5) In January 2011, The Seletun Scientific Panel, an international group of scientists who study RF radiation from wireless technologies, urged that rollout of wireless technology be halted. One scientist stated, "We are already seeing increases in health problems, such as cancer and neurobehavioral impairments. This finding suggests that the exposures are already too high to protect people from harm.

4. Despite mounting peer-reviewed scientific evidence and calls for precautionary policies to protect public health, President Obama, last February, announced the boldest wireless initiative ever promoted by the federal government: an $18 billion plan to provide wireless broadband access to 98 percent of Americans in five years. According to The Washington Post, the initiative will re-purpose about $5 billion currently being used for rural landline phone service to build cell towers and backhaul networks to towns without mobile services, and an additional $3 billion would go for research and development for wireless technologies that could be used for education, healthcare and energy. No research money has been earmarked to study the harmful effects of RF exposure. And in September 2011, President Obama announced the National Wireless Initiative as part of his Jobs Act to raise $27.8 billion over ten years through FCC Spectrum auctions to support build-out of wireless broadband.

5.What are the cumulative impacts to disproportionately impacted human and natural communities from a combination of large-scale wind turbine, tracking CPV solar projects, all the related infrastructure, substations, transformers, inverters, AND wireless remote communication systems? Once again, rural, often low-income communities are slated for projects that have unknown or unintended consequences that place them in harm's way.

6. Where are the science-based dose-response studies showing what the effects are from potentially tens of square miles of energy generation and transmission infrastructure to be located in targeted East County[139] communities?

Geology and Soils: Large-scale wind turbine projects generally require intensive grading and potential blasting for access roads, turbine pads, new transmission lines and other related infrastructure. In addition, there is documentation of earthquake-related land ruptures and alteration of soil in both the McCain Valley and Jewel Valley in the Boulevard Planning Area. McCain Valley, Jewell Valley and much of rural San Diego County have also been impacted by significant earthquakes, which we have documented in previous comments.

5.0: LIST OF REFERENCES

The documented heavy reliance of the DEIR on information from the American Wind Energy Association (AWEA), an organized lobbying group for just about every aspect of the industrial wind energy business spectrum, and other wind industry sources, for drafting this DEIR is painfully obvious, biased, misguided, and unfair to those who will be adversely impacted by these massive commercial industrial energy generation projects.

Conflict-of-Interest Concerns have been raised over the fact that Dudek prepared this DEIR AND the joint PUC/BLM EIR/EIS for the ECO Substation, Tule Wind and Energia Sierra Juarez Gen-Tie line.
This Project should be based on information from QUALIFIED UNBIASED INDEPENDENT sources free of CONFLICTED OR OTHERWISE VESTED interests

S.1 PROJECT OVERVIEW

This DEIR is vastly inadequate, biased, discriminatory, arbitrary, careless and unlawful and must be revised and recirculated.

It is lacking in critical and valid information and the precaution needed to protect public health and safety and critical environmental and biological resources, viable alternatives, and mitigation.

[139] http://www.energy.ca.gov/33by2020/documents/renewable_projects/RPAT_Generation_Tracking_Projects_Map.pdf

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GG-103 Cont.

GG-104

GG-105

GG-106

GG-107

GG-104 To date, the County has not approved any large-scale wind turbine projects. The proposed project would update and clarify the regulations, but does not propose any specific development. Potential direct and cumulative impacts to people and the environment are analyzed in the DEIR.

GG-105 Land modification is heavily regulated by the County. As discussed in Section 3.2.1, Geology and Soils, geologic hazards will be investigated during the discretionary review process for large wind turbine projects.

GG-106 This comment does not raise a significant environmental issue for which a response is required. In particular, the comment does not identify any information or analysis in the EIR that is inaccurate.

GG-107 The County does not agree with this comment. The DEIR closely follows CEQA Guidelines. The level of analysis and the conclusions provided in the DEIR are appropriate for the kind of project being proposed. The County is not proposing specific development at this time, but is proposing a revised ordinance to clarify the regulations for future large wind turbines. Past, present, and probable future projects were included in the cumulative impact analysis. Additional cumulative information has also been added to Table 1-4d since receipt of this comment. The County does not know with certainty where wind turbines will be proposed in

	the future or what specific environmental impacts they will have. To provide a meaningful analysis at this stage, some assumptions were made, and reasonably foreseeable effects were discussed in the DEIR.

Missing information includes the number, size, and cumulative scope, scale and density of projects and/or impacts/effects of currently proposed commercial industrial wind, solar, and transmission AND other large-scale projects. Therefore, this DEIR cannot be legally relied upon to justify, support, evaluate and/or certify the effects the whole of the proposed project and must be revised and re-circulated or outright DENIED.

GG-107 Cont.

What is SDG&E's Master Plan for rural San Diego? Does the County know? It should be part of this DEIR, as it is part of the whole of the project.

GG-108

The protection of viewsheds and the socioeconomic and health values that go with them are critical. However, the DEIR does not provide any explanation or justification for why the viewsheds in the Borrego Community (Plan) are deserving of protection from being "adversely impacted"[140] by large wind turbine projects, through prohibition, while the Boulevard Community Plan is diametrically and discriminately proposed to be AMENDED/gutted in order to facilitate and streamline the permitting of large wind turbines and the related destruction of viewsheds (and so much more) that this DEIR has already identified as Significant and Unavoidable in Table S-1?

GG-109

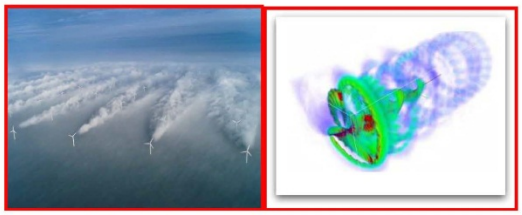
Rural residents in the proposed project area should not be treated any differently than any other County residents who benefit from the protection of scenic resources INCLUDING THOSE WHO LIVE IN URBAN ENCLAVES, ALONG THE COAST OR IN ANZA BORREGO.

GG-110

These massive projects will likely be required to install numerous 20,000- to 30,000-gallon water tanks that will further clutter up rural viewsheds. Some may have to have water trucked in to them.

GG-111

What are the cumulative wind turbine wake effects (WHICH ALSO GIVE AN INDICATION OF NOISE AND VIBRATION IMPACTS) and how will they impact local temperature, air flow,[141] storm systems, rainfall, and related impacts to the current conditions?



GG-112

The wake effects are unknown--as indicated by the ongoing studies in Colorado[142]: From CU-Boulder leading study of wind turbine wakes: *"Today's massive wind turbines stretch into a complicated part of the atmosphere," said Lundquist, who also is a joint appointee at NREL. "If we can understand how gusts and rapid changes in wind direction affect turbine operations and how turbine wakes behave, we can improve design standards, increase efficiency and reduce the cost of energy."*

"Even fluctuations in air temperature throughout the day can affect wind turbine wakes," said Lundquist. "The resulting changes in wake behavior can impact the productivity of wind farms with many rows of turbines, so it's important to observe them in detail and understand how to minimize their impacts."

[140] DEIR page S.1
[141] Wake photos and info: http://www.windturbinesyndrome.com/news/2011/wind-turbine-turbulence-what-are-the-micro-climate-effects/
[142] http://colorado.edu/news/r/de4f104b4d5944697247ebe3a76cb5a5.html

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GG-108 The County does not agree with this comment. San Diego Gas and Electric's plans are not part of this Wind Energy Ordinance project.

GG-109 The scope of the project is based on the need to meet project objectives combined with evaluation of where wind resources occur in the County (see Wind Resources Map in Figure 1-4). Only a small portion of Borrego Springs has sufficient wind resource potential to support large wind turbine projects. That small area also supports Montezuma Valley Road, an important scenic resource. Availability of this scenic area for development of large wind turbines is not essential to support the objectives of the project. Therefore, the GPA for the Borrego Springs Community Plan was modified only to the extent that it would allow for small wind turbine development. Conversely, most of the County's wind resource potential occurs in the Boulevard Community. Based on staff's review, the GPA proposed for the Boulevard Community Plan would be necessary to achieve the objectives of the project..

GG-110 It is unclear what this comment means. For small wind turbines, the proposed project covers all privately owned lands in the unincorporated area of the County. For large wind turbines, the proposed project would be confined to the areas identified on the Wind Resource Map (Figure 1-4). For large wind turbine projects,

visual resource studies will be required in the site specific environmental review to analyze potential impacts to scenic resources. Mitigation measures would be identified for significant impacts.

GG-111 The County agrees that water tanks may be part of a wind turbine project. All structures must be shown on the Major Use Permit plot plan and will be analyzed for environmental impacts including visual resource impacts. Water supply will also have to be evaluated during the environmental review process.

GG-112 This comment claims that wind turbine wake effects can impact local weather. However, the supporting evidence suggests that wake effects may simply alter wind turbine efficiency. Therefore, this is not an environmental issue. County staff could find no research supporting the assertion that wind turbine wakes affect local weather or microclimate.

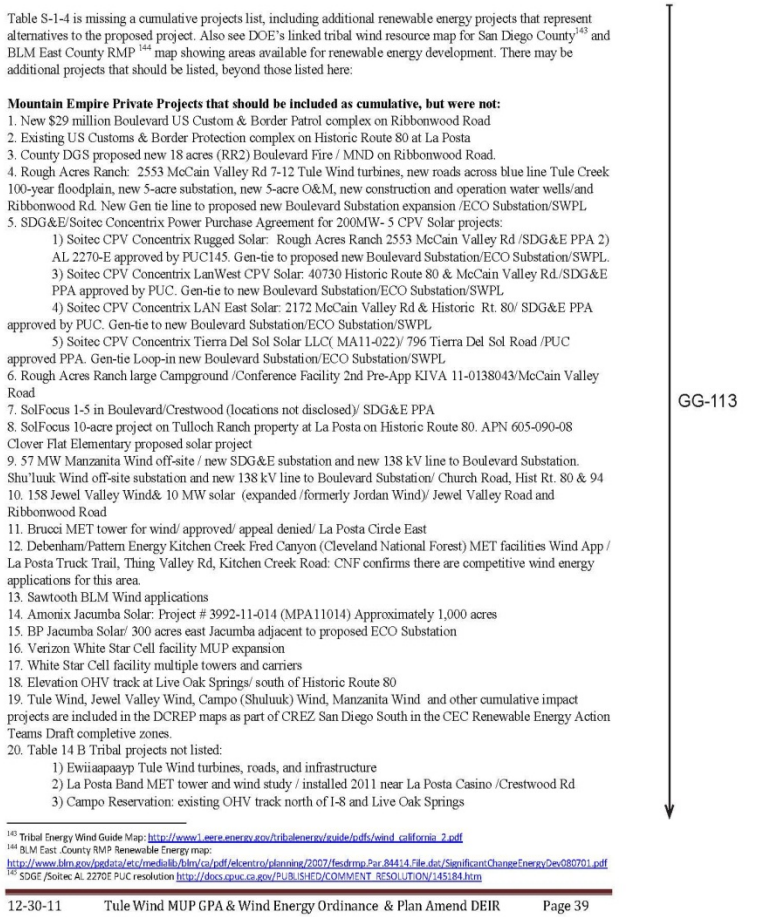

TABLE S-1-4 HAS NO CUMULATIVE PROJECTS LIST

Table S-1-4 is missing a cumulative projects list, including additional renewable energy projects that represent alternatives to the proposed project. Also see DOE's linked tribal wind resource map for San Diego County[143] and BLM East County RMP [144] map showing areas available for renewable energy development. There may be additional projects that should be listed, beyond those listed here:

Mountain Empire Private Projects that should be included as cumulative, but were not:

1. New $29 million Boulevard US Custom & Border Patrol complex on Ribbonwood Road
2. Existing US Customs & Border Protection complex on Historic Route 80 at La Posta
3. County DGS proposed new 18 acres (RR2) Boulevard Fire / MND on Ribbonwood Road.
4. Rough Acres Ranch: 2553 McCain Valley Rd 7-12 Tule Wind turbines, new roads across blue line Tule Creek 100-year floodplain, new 5-acre substation, new 5-acre O&M, new construction and operation water wells/and Ribbonwood Rd. New Gen tie line to proposed new Boulevard Substation expansion /ECO Substation/SWPL
5. SDG&E/Soitec Concentrix Power Purchase Agreement for 200MW- 5 CPV Solar projects:
   1) Soitec CPV Concentrix Rugged Solar: Rough Acres Ranch 2553 McCain Valley Rd /SDG&E PPA 2) AL 2270-E approved by PUC145. Gen-tie to proposed new Boulevard Substation/ECO Substation/SWPL.
   3) Soitec CPV Concentrix LanWest CPV Solar: 40730 Historic Route 80 & McCain Valley Rd./SDG&E PPA approved by PUC. Gen-tie to new Boulevard Substation/ECO Substation/SWPL
   4) Soitec CPV Concentrix LAN East Solar: 2172 McCain Valley Rd & Historic Rt. 80/ SDG&E PPA approved by PUC. Gen-tie to new Boulevard Substation/ECO Substation/SWPL
   5) Soitec CPV Concentrix Tierra Del Sol Solar LLC(MA11-022)/ 796 Tierra Del Sol Road /PUC approved PPA. Gen-tie Loop-in new Boulevard Substation/ECO Substation/SWPL
6. Rough Acres Ranch large Campground /Conference Facility 2nd Pre-App KIVA 11-0138043/McCain Valley Road
7. SolFocus 1-5 in Boulevard/Crestwood (locations not disclosed)/ SDG&E PPA
8. SolFocus 10-acre project on Tulloch Ranch property at La Posta on Historic Route 80. APN 605-090-08 Clover Flat Elementary proposed solar project
9. 57 MW Manzanita Wind off-site / new SDG&E substation and new 138 kV line to Boulevard Substation. Shu'luuk Wind off-site substation and new 138 kV line to Boulevard Substation/ Church Road, Hist Rt. 80 & 94
10. 158 Jewel Valley Wind& 10 MW solar (expanded /formerly Jordan Wind)/ Jewel Valley Road and Ribbonwood Road
11. Brucci MET tower for wind/ approved/ appeal denied/ La Posta Circle East
12. Debenham/Pattern Energy Kitchen Creek Fred Canyon (Cleveland National Forest) MET facilities Wind App / La Posta Truck Trail, Thing Valley Rd, Kitchen Creek Road: CNF confirms there are competitive wind energy applications for this area.
13. Sawtooth BLM Wind applications
14. Amonix Jacumba Solar: Project # 3992-11-014 (MPA11014) Approximately 1,000 acres
15. BP Jacumba Solar/ 300 acres east Jacumba adjacent to proposed ECO Substation
16. Verizon White Star Cell facility MUP expansion
17. White Star Cell facility multiple towers and carriers
18. Elevation OHV track at Live Oak Springs/ south of Historic Route 80
19. Tule Wind, Jewel Valley Wind, Campo (Shuluuk) Wind, Manzanita Wind and other cumulative impact projects are included in the DCREP maps as part of CREZ San Diego South in the CEC Renewable Energy Action Teams Draft completive zones.
20. Table 14 B Tribal projects not listed:
   1) Ewiiaapaayp Tule Wind turbines, roads, and infrastructure
   2) La Posta Band MET tower and wind study / installed 2011 near La Posta Casino /Crestwood Rd
   3) Campo Reservation: existing OHV track north of I-8 and Live Oak Springs

GG-113

[143] Tribal Energy Wind Guide Map: http://www1.eere.energy.gov/tribalenergy/guide/pdfs/wind_california_2.pdf
[144] BLM East .County RMP Renewable Energy map: http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/elcentro/planning/2007/fesdrmp.Par.84414.File.dat/SignificantChangeEnergyDev080701.pdf
[145] SDGE /Soitec AL 2270E PUC resolution http://docs.cpuc.ca.gov/PUBLISHED/COMMENT_RESOLUTION/145184.htm

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GG-113 There is no Table S-1-4 in the DEIR. Table S-1 is a summary of project impacts and need not include cumulative projects or alternatives. Tables 1-4a through 1-4d are lists of some of the cumulative projects analyzed. However, as described in Section 1.7, the County used a combination of the list method and the plan projections method. Therefore, the cumulative analysis in the DEIR represents the projects and projections noted in Section 1.7.

4) Existing Campo Materials & sand mining operations on Church Road between Historic Rt. 80 & 94.

21. Table 1 4c: proposed projects in Mexico not listed;

1) Sempra's 1,250 Energia Sierra Juarez[146,147] (approximately 60 miles of turbines, 5,020MW[148])

2) Sempra's proposed 100MW $500 million Baja SunEnergy[149] project west of Mexicali & planned cross border connection at La Rosita.

3) Sempra's new gasoducto[150] line through Jacume near Jacumba

4) New water pipeline installed through the same area in 2008 or so.

5) Additional wind turbine facilities are planned for Baja Norte for export to California and for use within Baja Norte.

Other major & cumulative impact projects not listed:

1. SDG&E's existing 500kV Southwest Powerlink
2. SDG&E's 500 kV Sunrise Powerlink
3. Sunrise Powerlink Upgrades or new lines to increase capacity by an additional 940MW from current 760MW to 1700MW in order to allow for increased renewable energy generation in CREZ 27 San Diego South and CREZ 30 Imperial South CREZ 31 Imperial North (California Energy Committee's RETI December 2011[151] table 2)
4. SDG&E's Proposed 60- to 85-acre ECO Substation[152] east of Jacumba
ECO Substation's expansion plans for up to 5 -500kV, 9-230 kV and 5-138 kV lines
5. SDG&E's Proposed new 3-acre Boulevard Substation (Initial Study MND dated 9-22-11)
6. SDG&E's Proposed ECO/Boulevard 13.3 mile 138 kV line
7. SDG&E's PUC approved 26MWdc Utility-Owned Generation Solar PV Program AL 2210-E/ Resolution E-4338.[153]
8. Soitec Desert Green: 375 Di Giorgia Road, Borrego
9. Soitec CPV panel assembly manufacturing plant announced for construction in Rancho Bernardo[154]
10. SolFocus Alpine
11. SolFocus Ramona[155]
12. SolFocus 10-21[156] (part of SDG&E Power Purchase Agreement / locations unknown to us)
13. SDG&E's approved PPA with LS Power Associates for 110-130 MW Centinela SolarEnergy LLC [157] energy to be exported to San Diego County from Calexico via SDG&E's Imperial Valley Substation and Sunrise Powerlink
14. SDG&E approved PPA with Solar Gen 2158 for 150MW of solar energy to be exported to San Diego County via SDG&E's Imperial Valley Substation and the Sunrise Powerlink
15. Imperial Irrigation District's $300 million in identified Infrastructure improvements required to move new solar project energy to grid and SDG&E's IV Substation and 2 Powerlinks.[159]
16. IID Dixieland IV Substation 230kV line /new Leibert Substation[160]
17. SDGE PPA for CSolar West161 to connect to IV Substation and Sunrise Powerlink
18. Imperial Valley Solar project: 6,500 BLM Acres[162]

GG-113
Cont.

[146] http://www.sustainablebusiness.com/index.cfm/go/news.display/id/20252
[147] http://www.prnewswire.com/news-releases/sdge-sempra-generation-sign-wind-power-contract-120226294.html
[148] La Rumorosa wind: Power Point with graphics: http://www.bateswhite.com/media/pnc/5/media.265.pdf
[149] Baja Sun Energy: http://www.signonsandiego.com/news/2011/sep/12/planned-solar-project-outside-mexicali-would-gener/
[150] Sempra's border gasoducto (pipeline): http://www.gasoductorosarito.com/English/index.htm
[151] RETI Dec 2011: Table 2 page 21: http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-LCD.pdf
[152] http://docs.cpuc.ca.gov/efile/RULINGS/154892.pdf
[153] PUC Energy Div approval letter for Soitec LanWest, LanEast, Rugged, Tierra Del Sol, and Desert Green Solar projects dated 4-12-11 http://regarchive.sdge.com/tm2/pdf/2210-E.pdf
[154] Soitec Rancho Bernardo: http://online.ws.com/article/BT-CO-20111216-714819.html
[155] http://www.ramonasentinel.com/2011/12/22/solar-project-questions-remain/
[156] SDG&E SolFocus PPA Advice Letter: http://regarchive.sdge.com/tm2/pdf/2268-E.pdf
[157] PUC approval Centinela Solar PPA: http://regarchive.sdge.com/tm2/pdf/2171-E.pdf
[158] Solar Gen PPA resolution: http://docs.cpuc.ca.gov/PUBLISHED/COMMENT_RESOLUTION/146500.htm
[159] IID's Interconnection Generators Process: http://www.energy.ca.gov/2011_energypolicy/documents/2011-05-17_workshop/presentations/07_Steve_Keene-IID.pdf
[160] http://www.blm.gov/ca/st/en/fo/elcentro/nepa/dixieland.html
[161] Tisdale Imperial Solar Energy Center West DEIR/EIS comments:http://www.affiliatedrecon.com/studies/CA/imperial_County/ISEC/West/Draft_EIR/Comments-Donna-Tisdale-01-14-2011.pdf
[162] http://www.blm.gov/ca/st/en/fo/elcentro/nepa/stirling.html

19. SDGE PPA for 200MW CSolar South[163] to connect to IV Substation and Sunrise Powerlink
20. SDGE PPA for Centinela Solar[164] to connect to IV Substation and Sunrise Powerlink
21. SDG&E's 14 MW Ocotillo Sol[165] to connect to IV Substation and Sunrise Powerlink
22. SDG&E's PPA for 450 MW[166] of gas-fired peaker backup generation to "balance load" from intermittent wind/solar projects--like the Pio Pico Peaker Plant that is currently won initial APCD approval[167]
23. SDG&E's approved PPA for 30MW of re-engineered Mesa Wind[168] energy
24. Desert Conservation Renewable Energy Plan (DCREP) Draft EIR/EIS December 2011 scoping report.[169]
25. RETI Map Dec 2010[170]
26. Desert Conservation Renewable Energy Plan Report [171]
27. CEC's Lead Commissioner's December 2011 Integrated Energy Policy Report (IEPR) shows 29 San Diego County energy projects in the CAISO Grid connection Queue (as of June 1 2011),[172] representing 1094 MW of renewable and 1,453MW of conventional energy:
28. CALISO Q shows many more projects in line as of 12-29-11[173]
29. Kitchen Creek Helitanker facility at Cameron Station north of I-8/Cameron Valley

This list is incomplete due to lack of time. There are approximately 15,000 to 20,000 acres of productive irrigated Imperial County farmland currently slated for conversion to industrial solar.

The total acreages for these cumulative impact projects must be added up and analyzed for regional impacts related to loss, degradation, fragmentation of wildlife habitat, impacts to nesting, foraging and migration, survival, potential loss of carbon sequestration from intact desert, high desert and currently growing crops that are mostly grass crops that reportedly absorb carbon and generate oxygen. You also need to count the backup generation GHG emissions that can be higher from peaker plants that need to ramp up and down quickly to balance a growing intermittent load.

None of the above has been properly assessed in this DEIR.

GG-113 Cont.

S.3 SUMMARY OF SIGNIFICANT EFFECTS AND MITIGATION MEASURES THAT REDUCE OR AVOID SIGNIFICANT EFFECTS

Utilities 3.26: This section erroneously states that the "*Proposed Project would result in less-than-significant impacts to utilities from the development of large wind AND that the proposed project would not impact utilities and service systems including wastewater treatment, imported water supply, and solid waste within the County. Therefore, the proposed project would not contribute to a cumulative impact that would adversely affect utilities and service systems.*" The document adds "*Wind turbines and temporary MET facilities are not anticipated to generate any solid waste, nor place any burden on the existing permitted capacity of any landfill or transfer station within the County. Therefore, the proposed project would not result in significant adverse impacts to utilities and service systems.*"

GG-114

[163] http://www.blm.gov/ca/st/en/fo/elcentro/nepa/isec_south.html
[164] entinela:http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/elcentro/nepa/centinela.Par.46280.File.dat/ca670_ea1128_9references.pdf
[165] http://www.blm.gov/ca/st/en/fo/elcentro/nepa/isec_south.html
[166] SDGE's 450 MW gas-peaker PPA http://www.prnewswire.com/news-releases/sdge-proposes-adding-450-mw-of-local-peaking-power-122455188.html
[167] http://www.energy.ca.gov/sitingcases/piopico/documents/others/2011-12-20_San_Diego_Air_Polution_Control_Districts_Preliminary_Determination_of_Compliance_TN-63192.pdf
[168] http://www.westernwindenergy.com/s/News_Releases.asp?ReportID=498392&_Type=News-Releases&_Title=30-MW-Mesa-Wind-Farm-Executes-New-PPA
[169] http://www.westernwindenergy.com/s/News_Releases.asp?ReportID=498392&_Type=News-Releases&_Title=30-MW-Mesa-Wind-Farm-Executes-New-PPA
[170] RETI Dec 2010 Map showing CREZ 27 San Diego South that includes Eastern San Diego County: http://www.energy.ca.gov/reti/documents/phase2B/Southern%20CA_CREZ_Conceptual_Transmission_Segments_New_and_Existing_Corridors.pdf
[171] http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-LCD.pdf
[172] Figure 9 pg 87 : http://www.energy.ca.gov/2011publications/CEC-150-2011-002/CEC-150-2011-002-LCF-REV1.pdf
[173] http://www.caiso.com/Documents/ISOGeneratorInterconnectionQueue.pdf

GG-114 See response to comment GG91.

However, this view ignores the mountains of waste that will be generated by these projects:

1. WIND TURBINE BLADES CREATE A MOUNTAIN OF CARBON FIBER WASTE THAT CANNOT BE RECYCLED[174]: Large scale industrial wind turbines have massive composite blades that reportedly cannot currently be recycled: "*Wind turbine blades are not only exploding near people's homes, but they're also causing a large waste problem: the carbon fiber used in the blades isn't recyclable.*"

2. EVEN VESTA'S TURBINE MAKER ADMITS IT CANNOT RECYCLE ITS BLADES IN AN EFFECTIVE MANNER[175] AND the blade disposal problem grows with the number of turbines. What they don't admit is that their wind turbine blades are not lasting the projected 20 years. Instead, they need much more frequent replacement AND disposal than anticipated.

3. THIS MEANS THAT THE COUNTY WILL NEED EXTRA DISPOSAL CAPACITY FOR TONS OF COMPOSITE CARBON FIBER BLADES /WASTE.[176]

GG-115

On rotor blade maintenance[177]: "*Technicians will become more commonplace as wind turbines continue to proliferate and amass operating hours. This is especially so, given that wind farm operators, aware of the reputation of composites for durability, have tended to neglect inspection and preventive maintenance. Many are now learning that turbine blades cannot simply be 'fit and forget' items. They are subject to bird strikes, lightning strikes, leading edge erosion--especially towards the tips that can be moving through the air at around 200 mph--sometimes in sand- and salt-laden air--trailing edge damage and materials fatigue, plus surface erosion from rain, hail, ice and insects. Even without actual damage, surface roughness caused by minor pitting and particle accretion can spoil the aerodynamic efficiency of the blades, detracting from turbine productivity. With a growing number of blades now in service--many well outside their warranty periods--rotor blade maintenance is becoming a major issue.*"

GG-116

From "On wind blade repair: Planning, safety, flexibility,"[178] by Scott Stephenson of Composites Technology: "*Somewhat lost in the buildup of the wind energy industry during the past few years is an important challenge that is getting more attention among wind farm managers and the composites industry: wind blade maintenance and repair. These structures are exposed constantly to mechanical and heat load cycles. Each is struck by lightning at least once in its lifetime, must withstand the force of wind and all the debris it brings with it, and thus, must be regularly maintained to remain functional... Complicating matters, Rosenow notes, is the proprietary nature of resin, fiber and manufacturing systems used in wind blade manufacturing--varying ply patterns and core types, epoxy vs. vinyl ester, infusion vs. prepreg, etc. For repair specialists, who most often don't have access to the original (legacy) material, the challenge is to find composite products (resins, fabrics, adhesives) that are equivalent to the legacy material in the blade.*

"*Further, the blade repair community is, for the most part, unregulated, which results in a variety of repair capabilities among specialists. Blade repair is no trivial matter for wind farm managers. The sources of blade damage include mishandling during delivery and/or installation, lightning strikes, ice, thermal cycling, leading and trailing edge erosion, fatigue, moisture intrusion and foreign object impact (often bullets). An out-of-service turbine can cost $800 to $1,600 (USD) per day, with most repairs taking one to three days. If a crane is required to repair or replace a blade, the cost can run up to $350,000 per week. An average blade repair can cost up to $30,000. A new blade costs, on average, about $200,000. Wind Turbine maintenance and oil changing can also generate waste, including contaminated used oil from gear boxes.*"[179]

GG-117

[174] http://www.caiso.com/Documents/TSOGeneratorInterconnectionQueue.pdf
[175] Vestas:Oct 2010 http://inn10.quadrant.uk.com/uploads/04%20-%20AD%20-%20Vestas%20-%20Recycling%20Project%20121010.pdf
[176] Recycling Wind Blades 6-20-11: http://www.wind-watch.org/documents/recycling-wind-blades/
[177] Blade Repair: http://www.renewableenergyfocus.com/view/21860/the-challenge-of-wind-turbine-blade-repair/

[178] http://www.compositesworld.com/columns/wind-blade-repair-planning-safety-flexibility(2)
[179] Turbine maintenance: http://www.compositesworld.com/columns/wind-blade-repair-planning-safety-flexibility%282%29

GG-115 Removal, replacement and maintenance of turbines will be components of any Major Use Permit that is analyzed for future large wind turbine projects. The proposed ordinance includes provisions in Section 6952.j that require a decommissioning plan and secured agreement for the removal of all components of each large wind turbine and the restoration of the site to a condition compatible with surrounding properties within 180 days of the wind turbine becoming non-operational.

GG-116 This comment seems to raise concerns regarding necessary maintenance of large wind turbines and does not raise an environmental issue.

GG-117 The concerns raised in this comment regarding maintenance costs and logistics are not related to an environmental issue. Concerns regarding the transport, use, or disposal of hazardous materials are addressed in DEIR Section 2.6.3.1.

Blogger John O. Sullivan reports on the findings: "*Dr. Mason cites evidence that many small turbines have collapsed in close proximity to human dwellings, and recently, two big Danish wind turbines lost blades and scattered sharp pieces of glass fiber up to 500 meters from the tower base in high winds. Similar events have also been reported in Sweden, northern England and Scotland. Blade failure can be lethal and catastrophic, as shown by video footage.*"

GG-118

"A gigantic mountain of scrap blades is building up": In a story from Denmark's leading business newspaper Dagbladet Borsen (June 10, 2011) experts warn, "*As the wind becomes a central part of the energy supply, a huge waste problem is growing with similar speed." Windy Scandinavia has hit this unanticipated hurdle because a key material in constructing wind turbines, carbon fiber composite, cannot be recycled and is fast filling landfills or else is being burned, creating toxic emissions. The report admits, "a gigantic mountain of scrap blades is building up."*[180]

GG-119

S. 4 AREAS OF CONTROVERSY

Potentially significant and cumulative groundwater impacts: Section 3.26 admits that. "*The County adopted the San Diego County Groundwater Ordinance in 1991, which establishes regulations for the protection, preservation, and maintenance of groundwater resources. The purpose of the ordinance is to ensure that development will not occur in groundwater-dependent areas of the County unless adequate supplies are available to serve both existing and proposed uses (County of San Diego 1991)"* AND that, *"A significant impact would result if sufficient water supplies are not available to serve the project from existing entitlements and resources, or if new or expanded entitlements are needed."*

GG-120

Groundwater impacts can be exacerbated by S.B. 267, sponsored by Senator Michael J. Rubio (D-East Bakersfield), exempts solar PV and wind projects from the requirement to prepare a S.B. 610 water supply assessment[181]. Under the bill, solar photovoltaic and wind energy projects are exempt from the requirement, provided they demand no more than 75 acre-feet of water per year. The bill's authors intentionally omitted solar thermal projects, which traditionally require much larger amounts of water than solar PV projects.

GG-121

Water Assessment Study requirements for wind and non-thermal solar projects: How will this water use waiver for large industrial-scale energy projects impact our fragile groundwater basins and resources in the groundwater-dependent Project Impact Area? How will individual and cumulative impacts be addressed, monitored or mitigated--especially in disproportionately impacted areas like Boulevard and Jacumba? How will adversely impacted private well owners be able to document adverse impacts/well interference in order to be compensated for damages?

GG-122

Seismic/vibration impacts from industrial wind turbines[182] The linked "Seismic Noise by Wind Farms: A case study from the Virgo Gravitational Wave Observatory, Italy" report includes the following: "*Wind turbines are large and vibrating cylindrical towers strongly coupled to the ground through a massive concrete foundation, with rotating turbine blades generating low-frequency acoustic signals noise. The vibrations depicted show a complex spectrum, which includes both time-varying frequency peaks directly related to the blade-passing frequency, and stationary peaks associated with the pendulum modes of the heavy rotor head and tower, and to flexural as in flexing modes of the tower.*

These disturbances propagate via complex paths including directly through the ground or principally through the air and then diving locally into the ground. Though weak, such vibrations may be relevant, once compared to the local levels of seismic noise. Schofield (2001) found that the intense low frequency seismic disturbances from the Stateline Wind Project (Washington-Oregon, USA) were well above the local seismic background till up to distances of 18 km from the turbines. Similar distance ranges were found by Styles et al. (2005), who analyzed the

GG-123

[180] http://www.compositesworld.com/columns/wind-blade-repair-planning-safety-flexibility(2)
[181] MOFO Client Alert: http://www.mofo.com/files/Uploads/Images/110913-2011-California-Renewable-Energy-Legislation-Watershed-Year.pdf
[182] "Seismic Noise by Wind Farms: http://www.windturbinesyndrome.com/news/2011/seismologists-say-wind-turbines-produce-airborne-infrasound-plus-ground-borne-vibration-up-to-6-8-miles-from-the-wind-farm-italy/

GG-118 This comment raises concerns with the safety of small and large wind turbines. Both small and large turbines will be required to comply with the building code and safety standards like all structures permitted by the County.

GG-119 The County appreciates this information. See response to comment GG115 above.

GG-120 The County agrees with this comment.

GG-121 This comment is not related to the proposed project.

GG-122 All Major Use Permits must comply with the County's Groundwater Ordinance. A waiver from having to conduct water supply assessments does not result in a waiver from the Groundwater Ordinance. As discussed in DEIR Section 3.1.2.3.2, future large wind turbine projects that propose to use groundwater will be required to demonstrate an adequate supply of water. In addition, General Plan Policy LU-13.2 requires adequate water supply be identified prior to approval of new development.

GG-123 It is not clear what environmental impact is being suggested by this comment. The DEIR acknowledges that large wind turbines can have significant low-frequency noise impacts. Future large wind turbine projects will be required to prepare a noise study and meet certain standards for low frequency noise. In

	addition, any potential geologic hazards will be investigated during the discretionary review of specific proposed large wind turbine projects.

possible influence of a project wind park at Eskdalemuir (Scotland) in the vicinity of the UK Seismic Array. Fiori et al. (2009) studied the seismic noise generated by a wind park in proximity to the GEO-600 interferometric antenna (Germany), and observed the signal from the turbines till at distances of about 2000m (2km = 1.24 mi)."

GG-123 Cont.

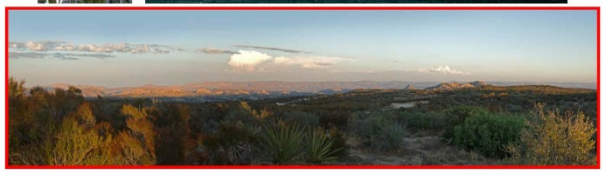
Smart Grid /meter expenses/ issues /problems including complaints of increased utility bills, adverse health effects, cyber attack vulnerabilities are exposed in two Department of Homeland Security warnings[183]

GG-124

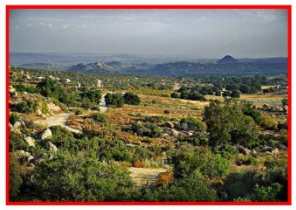
Visual Resources and Values: Large-scale industrial wind turbines are approximately 500 feet tall, with some closer to 600 feet tall. To put that into perspective, San Diego's tallest building, One Plaza is 500 feet tall--about the same as new large industrial wind turbines. Hundreds or even thousands of structures of this scale and scope strung along our uncluttered ridgelines and sloping valleys is unconscionable and can in no way be considered as compatible with bulk and scale of rural land uses. Loss of visual resources and amenities will result in loss of property values and quality of life.

GG-125

GG-126



Above: View of Sierra Juarez from Tierra Del Sol Road in Boulevard Entire near and far viewshed is planned for industrial wind turbine projects (credit Bill Parsons).



Above: McCain Valley in Boulevard is slated for Sunrise Powerlink and Tule Wind. Immediate foreground will be filled with Sunrise Powerlink towers, lines, in addition to Tule Wind power lines and 5-acre substation. Tule Wind turbines are planned for east south west and north of his location that happens to be culturally significant and sensitive.

GG-127

[183] http://www.greentechmedia.com/articles/read/the-top-5-smart-grid-disappointments-of-2011/
[184] San Diego's tallest buildings: http://en.wikipedia.org/wiki/List_of_tallest_buildings_in_San_Diego

GG-124 Based on the statement and the supporting documentation in this comment, it does not appear to raise a significant environmental issue but questions the merits of doing wind energy projects. The commenter's opposition to the project is acknowledged and will be included in the documentation provided to decision makers.

GG-125 The County agrees that large wind turbine projects will have significant aesthetic impacts. This is discussed in Section 2.1 of the DEIR.

GG-126 The County is not proposing to introduce hundreds or thousands of new large wind turbines to the County's backcountry. Rather, the proposed Wind Energy Ordinance would update and clarify the existing regulations for large wind turbines. Future proposals for large turbines will have to undergo environmental review, including the effects to any ridgelines or valleys. See also responses to comments GG66, and GG110.

GG-127 The County appreciates this information. The DEIR includes the stated projects in its cumulative analysis. In addition, future large wind turbine projects will be required to evaluate direct and cumulative impacts on the surrounding environment.

Above: El Monte Valley, El Cap and Golden Eagle. The remaining Golden Eagles will be placed at risk of complete decimation if the Proposed Project or Reduced Large Turbine Project moves forward. They have been undercounted and protections removed or unenforced in order to accommodate unnecessary highly destructive and low performing large-scale wind turbine projects.

GG-128

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GG-128 The County is not aware of the removal of any protections for golden eagle. Any future large wind turbine projects will be required to utilize the latest eagle protection guidelines per mitigation measures M-Bio-1 and M-Bio-2.