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Currents

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Wind Energy: Being Green Isn't All Black and White

With climate change legislation stalled in Congress, pending challenges to EPA's plans to include CO₂ in air quality new source review, and little progress made at the Copenhagen climate summit in December, there is more uncertainty than ever about how the U.S. will ultimately address the climate change issue. But one thing is certain: with or without regulatory pressure, developers of power resources in the U.S. are actively pursuing alternatives to fossil fuels, and wind energy will be a significant part of the mix. According to a 2009 EPRI report, to meet the Waxman Markey goal of a 17 percent reduction in CO₂ emissions by 2020 below 2005 levels, wind energy may have to shoulder about 5 percent of the nation's power demand — the equivalent of the output of about 35 new *base-loaded* coal-fired power plant units!

Unlike traditional energy sources, the path toward regulatory approval of new wind-to-electricity facilities (wind farms) is less well understood; both regulators and wind farm developers are now realizing that environmental aspects of wind farm projects may not clearly fall under the jurisdiction of existing rules and guidance. But this doesn't let developers off the hook; in the current environment of tight credit markets, intense public scrutiny, and regulatory confusion, developers must provide lenders and other stakeholders assurance that all potentially problematic environmental issues for new wind farm sites have been satisfactorily addressed.

Clearly, analyzing a site's wind resource potential, determining whether the site is accessible, available, and suitable for constructing the facility, and evaluating the feasibility of connecting the power source to the grid are some of the first considerations in wind farm development. But, not far behind these, the project developer must also identify environmental issues, regulatory requirements, and socioeconomic impacts that could potentially affect the feasibility, cost, and schedule of the project. This activity can be assigned many names, but "critical path environ-



mental constraints and regulatory requirements analysis", or CA, is one of the more common. Depending on the findings of the CA, developers may need to further investigate areas of concern, develop strategic permitting and mitigation plans, and implement public outreach programs.

A comprehensive CA must account for the numerous and far-reaching federal and state environmental regulatory programs that can affect wind farm projects. These include a variety of notification, permitting, and consultation requirements established under the National Environmental Policy Act, the Endangered Species Act, the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, the Clean Water Act, and the Oil Pollution Act. And beyond the environmental sphere, requirements imposed by the Federal Aviation Administration, the Federal Communications Commission, the Department of Agriculture, the Federal Energy Regulatory Commission, and the Department of Transportation come into play.

Although many of the requirements are fairly well established and understood, wind farm development raises issues that are not so clear-cut — issues that may be of great concern to the community and have the potential to kill the project. For example, the National Park Service recently ruled that

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FROM THE TRENCHES

My “Scare Tactics” Project

It is 1:35 a.m., I’m standing in the middle of an open field in the dark measuring the nighttime noise, and I think I must finally be losing my mind — a bat, no, a gigantic MONSTER bat is flying toward me and I’m pretty sure this situation was not covered in my Site Safety Plan. I clap my hands to scare off this monster bat, but it keeps flying right towards me. Aaieeee!

It all started when a project manager walked into my office and told me to head to rural Louisiana to collect baseline noise data in support of the construction of a new, grassroots industrial facility. The survey would include monitoring for two days and nights to record both weekday and weekend noise at several predetermined locations (potentially sensitive receptors), including a couple of small retail establishments, an active quarry, several local neighboring residences, and, wait a minute, at a...GRAVEYARD? Now that sounded seriously creepy!

With the first round of daylight noise monitoring complete, it seemed as though this was going to be a smooth job. However, upon returning to the area later that night and easing my way through the dark to each monitoring location (including the GRAVEYARD), with only my flashlight and GPS to guide me and with sticks and leaves crunching loudly under foot, it was turning out to be a little spookier than I had imagined. Was this just a standard noise monitoring project or an episode of “Scare Tactics”!?

I was settling into the idea of monitoring in the dark for five hours when I looked into the sky and saw, to my surprise, a bat flying around. The bat altered its flight path, and curiously it was now flying right towards me. And to my horror, the closer it got, the bigger it got. This bat quickly morphed into a 4-foot wingspan “MONSTER BAT”, and it was still coming my way! Well, I had just about enough of that craziness, so in an attempt to scare off the bat, I clapped my hands and gave a loud yell. When the monster bat was just about 10 feet from my head, it banked hard and veered away, but not before I turned on my headlamp to discover that it wasn’t really a monster bat at all; it was a HUGE owl! I regained my composure and then realized that because of my vocal outburst I had just bought myself some additional noise monitoring time in the dark.

The following morning, the work went very smoothly, which left only one more round of night time monitoring before I would be done. But ominous storm clouds were beginning to form overhead. My heart sank — with this job almost completed, I couldn’t bear the thought of getting rained out. So, I returned to the hotel to anxiously watch the weather reports. I calculated the best time for departure and went for it.



Later that evening, I was just about to wrap up and starting to feel relieved that I had dodged the weather when, suddenly, the skies opened up and it started pouring. My heart jumped; I was almost a half mile from my 4 x 4 truck and didn’t have long in this heavy rain before I’d be trapped in the rising waters of the quarry. So I snatched up my equipment and sprinted to the truck, flinging my wet, heaving body behind the wheel and hauling out of there as fast as safely possible. The gravel quarry road was already a muddy quagmire, and the 4 x 4 fishtailed across a now water-filled drainage swale. I made it through this water trap and was about halfway up the slippery berm on the other side before my tires spun out. To my relief, they finally regained traction, and slowly, I made it up and over the berm and out the quarry gate. This project was certainly providing its share of adrenaline rushes! With all my data collected and properly documented, I was finally done with the project and ready to get home.

Field work can be very demanding, both physically and mentally, and this particular job was no exception. But, even in light of these unexpected events, all of the required data were collected and the final baseline noise monitoring report was completed and delivered to the client on time. Still, I smile to think that when our client reviewed the results, she wouldn’t really know how much “excitement” went into doing just a little noise monitoring. I can’t wait until the day when I’m the manager of a project like this, and I can tell an unsuspecting colleague that “I need you to go to a graveyard in rural Louisiana in the middle of the night and collect some data . . .” ✨

Rob von Czoernig
Staff Geologist

Green Building Brings New Challenges to Owning and Leasing

Climate change legislation approved by the House Energy and Commerce Committee on May 21 would, if made law, require buildings to use 30 percent less energy in 2012 and 50 percent less energy in 2016 than buildings built in accordance with current national standards. It would also subject certain industrial facilities and buildings using fossil fuel-fired combustion devices that emit 25,000 or more tons of CO₂ to the cap and trade program. Furthermore, a growing number of U.S. cities are mandating the construction of green buildings within their jurisdictions, including several Texas cities such as Dallas, Austin, and Frisco. Green buildings can be good for the bottom line because of improved operational efficiencies, improved employee performance, and a growing market demand. Whatever the force behind green buildings, landlords and tenants are beginning to grapple with some of the issues presented by their construction and ongoing operation and maintenance.

Landlords and tenants must first make decisions about what enhanced green construction standards the building and tenant improvements will meet and who will pay for any required certifications, ratings, or accreditations. Several green building standards exist, so the parties will need to think about what is important to them so they can wisely set goals. For example, they may choose a different standard for the office component of an industrial processing facility because indoor air quality issues differ in the different use areas.

The two most well known U.S. green construction standards include the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) certifications and the EPA's Energy Star ratings. Choosing the appropriate standard requires an understanding of what the standards require and what benefits they offer. For example, achieving LEED certification means the design and construction have received a minimum number of points in some or all of multiple categories addressing site selection, water efficiency, energy efficiency, use of materials and management of waste, and indoor environmental quality. LEED certification can be obtained under alternative rating systems and may require the landlord and tenant to work together to achieve the desired result. Alternatively, if the parties want to target only utility costs, achieving an Energy Star rating of 75 means that the building performs better in energy and water consumption than 75 percent of similar buildings nationwide, based upon a survey conducted by the Department of Energy.

Although lease negotiations often focus on defining landlord and tenant responsibilities for operation and maintenance of the common areas and leased premises and how the costs will be



shared, the O&M of green buildings adds another dimension to these negotiations. A typical net lease, in which operating costs are generally passed through to the tenant, creates little incentive for the landlord to apply efficient management or sustainable principles to minimize operating costs. However, if a tenant has selected a particular building because of certain operating efficiency expectations, it will want the lease to create incentives for delivering these operating efficiencies throughout the lease term. Meanwhile, the landlord may have made capital investments to gain operating efficiencies and want to seek the best way to reap the benefits of its investments. Consequently, the parties may want to negotiate cost allocations and maintenance obligations that differ from a typical lease.

In addition, green leases often address responsibilities and cost sharing for the collection and reporting of data on the building's greenhouse gas emissions, re-commissioning of the building, seeking further green certifications, properly training janitorial and maintenance personnel, purging the building air of off-gasses from furnishings and other materials, and otherwise maintaining the green building goals of the parties. The parties to a green lease may also want to define requirements for furnishings, cleaning products, and other materials allowed in the building in order to maintain healthful indoor air quality, how recycling and waste

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News Briefs

national news

EPA Proposes More Stringent Ozone Standard

On January 7, EPA proposed to revise the National Ambient Air Quality Standard for ozone. The revised primary standard would fall within a range of 60 to 70 parts per billion, averaged over an 8-hour period. If adopted as proposed, the allowable ozone concentration could be reduced by as much as 20 percent below current limits. EPA will hold public meetings in Virginia, Texas, and California on this proposed rule in early February, and plans to issue the final standard by the end of August. For more information contact Bill Jones at 410.312.7910 or bjones@zephyrenv.com.

EPA Pursues Multi-pollutant Strategy

On October 7, EPA Assistant Administrator Gina McCarthy provided details on EPA's unfolding multi-pollutant regulatory strategy, spelling out the primary goal of this initiative — to make progress on clean air as a whole, not just on individual pollutants, so that a better environmental outcome will result. This strategy would involve coordinating multiple regulations covering multiple pollutants such as the CAIR replacement, the utility MACT, the NAAQS, and climate change regulations. EPA plans to propose the CAIR replacement in early 2010 and the final MACT rule for power plants by November 2011. In addition all criteria pollutant standards will have been reviewed by 2011 — a new lead standard was promulgated in 2008, new NO₂, SO₂, and ozone standards have just been proposed, and a proposal for particulate matter is on the way. For more information, contact Roger Brower at 410.312.7907 or rbrower@zephyrenv.com.

EPA Proposes to Tailor Title V and NSR Programs for Greenhouse Gases

On October 27, EPA proposed to “tailor” the Title V and Prevention of Significant Deterioration (PSD) air quality permitting programs to justify separate emissions thresholds for greenhouse gases (GHGs). For Title V, EPA is proposing a major source applicability threshold of 25,000 tons per year (tpy) of carbon dioxide equivalent (CO₂e) GHG emissions. For the PSD program, the proposed major stationary source threshold is 25,000 tpy CO₂e and the major modification significance level will fall between 10,000 and 25,000 tpy. Without the tailoring rule, the

current thresholds for criteria pollutants of 100 tpy for Title V permits and 250 tpy for the PSD program would apply. For more information, contact Brett Davis at 512.879.6628 or bdavis@zephyrenv.com.

EPA Concludes Greenhouse Gases Threaten Health and Environment

On December 7, EPA announced that GHGs threaten public health and welfare. This “endangerment” finding covers emissions of six key GHGs — carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Although it imposes no emission reduction requirements, the finding provides a basis for EPA to finalize GHG standards for new light-duty vehicles, which in turn, could open the door to the permitting of GHG emissions under the federal air permitting rules. To prevent EPA from making further progress in implementing its own GHG permitting program, some Congressional and industry leaders are urging Congress to break the legislative log jam and pass separate climate-change legislation. For more information, contact Brett Davis at 512.879.6628 or bdavis@zephyrenv.com.

Greenhouse Gas Monitoring Plans due April 1

The federal GHG reporting rule, which went into effect on December 29, requires facilities that emit GHGs in excess of certain amounts to follow established rule protocols in monitoring their emissions. To ensure that the protocols are followed and to ensure acceptable data quality, covered facilities must prepare and implement GHG monitoring plans, which are due no later than April 1. These plans must specify in detail how data will be collected, how emissions will be calculated, and how monitoring device quality will be assured. As of January 1, affected facilities must begin monitoring of their GHG emissions. For further information, contact David Mahler at 410.312.7909 or dmahler@zephyrenv.com.

EPA Proposes New Air Quality Standard for Sulfur Dioxide

On November 16, EPA proposed to revise its air quality standards for sulfur dioxide, replacing the existing 24-hour and annual primary standards (140 ppb and 30 ppb, respectively) with a standard that would fall in the range of 50 ppb and 100 ppb based on the 3-year average of the fourth highest 1-hour daily concentration measured each of the three years. The 3-hour secondary standard will remain in place. EPA plans to issue a final rule by June 2, 2010. For more information, contact Bill Jones at 410.312.7910 or bjones@zephyrenv.com.

EPA to Propose HAP Standards for Power Plants

EPA will propose technology-based standards to control emissions of mercury and other air toxics from fossil fuel-fired power plants by March 2011, according to a proposed consent decree filed in the D.C. District Court in October. The decree would further require EPA to issue final maximum achievable control technology standards for hazardous pollutant emissions from power plants by November 2011. The proposed consent decree is the result of a lawsuit filed in 2008 by environmental and public health organizations seeking “a mandatory and enforceable schedule” for EPA to issue the standards. For more information, contact Edward Rapier at 512.879.6649 or erapier@zephyrenv.com.

OSHA Issues Guidance for Protection of Emergency Responders

On November 30, OSHA issued *Best Practices for Protecting EMS Responders During Treatment and Transport of Victims of Hazardous Substance Releases*, a document which provides guidance to emergency medical service providers on how to protect themselves when treating persons potentially contaminated with hazardous materials. While this document does not add new regulations, it suggests that following the guidance will assist employers in meeting the requirements of OSHA’s general duty clause and the HAZWOPER standard. For more information, contact Tiffany Giles at 512.879.6630 or tgiles@zephyrenv.com.

EPA Proposes to Withdraw the Emission Comparable Fuels Rule

On December 8, EPA proposed to withdraw its emission comparable fuels (ECF) rule, which went into effect only one year ago. The rule makes it possible to burn, as fuels in industrial boilers, certain materials with emissions similar to fuel oil, but which would otherwise be regulated as hazardous waste under RCRA. EPA announced its intention to withdraw the rule in May in response to criticisms by environmental groups that it provides a method to evade the hazardous waste regulatory system and by certain industry groups that the conditions for excluding ECFs from RCRA requirements are too burdensome. For more information, contact Betty Moore at 512.879.6622 or bmoore@zephyrenv.com.

EPA Sets New Timetable for Revising Fine Particle Air Standard

In response to a court remand, EPA has accelerated its schedule for issuing revised air quality standards for fine particles (PM_{2.5}), shooting for a July 2010 proposal, with a final rule by April 2011. According to EPA’s draft risk assessment, an estimated 1.7 to 6.7 percent of all deaths in 2007 in 15 cities were attributable to long-term exposure to fine particles and lowering both the annual and 24-hour standards for PM_{2.5} could reduce the mortality risk from this exposure by as much as 89 percent in some urban areas. For more information, contact Lou Corio at 410.312.7912 or lcorio@zephyrenv.com.

DOT Requires Integrity Management Program for Gas Distribution Pipelines

On December 4, DOT amended its pipeline safety regulations to require operators of gas distribution pipelines to develop and implement integrity management programs. Similar to programs already in place for gas transmission pipelines, the proposed program is intended to enhance pipeline safety by identifying and reducing pipeline integrity risks. The new program is tailored to account for the differences between the gas distribution and gas transmission pipelines. For more information, contact Betty Moore at 512.879.6622 or bmoore@zephyrenv.com.

EPA Amends Performance Standards for Coal Preparation and Processing

On October 8, EPA amended its new source performance standards for coal preparation and processing plants, revising limits on opacity and emissions of particulate matter for affected facilities. In addition, new SO₂, NO_x, and CO emissions limits and work practice standards were established for thermal dryers commencing construction, modification or reconstruction after May 27, 2009. Also, the rule revisions added open storage piles as affected sources and established work practice standards to control their dust emissions. For more information, contact Lynne Spector at 410.312.7906 or lspector@zephyrenv.com.

Alfredo Armendariz Named EPA Region 6 Administrator

On November 5, President Obama appointed Dr. Alfredo Armendariz as regional administrator of EPA’s Region 6. Prior to his appointment, Dr. Armendariz was a professor in the Department of Environmental and Civil Engineering at Southern Methodist University. Throughout his career, Dr. Armendariz has volunteered his time to various environmental groups and to the Volunteer Center for North Texas. For more information, contact Ed Fiesinger at 281.668.7353 or efiesinger@zephyrenv.com.

EPA Amends Hazardous Pollutant Emissions Standards for Refineries

On October 28, EPA amended its hazardous air pollutant (HAP) emission standards for refineries to add new standards for heat exchange systems that are in organic HAP service. The new standards require monthly sampling and analyses for heat exchangers in organic HAP service using the TCEQ’s Modified El Paso Method and repair of leaks within 45 days of detection, unless a delay is allowed. The standards apply to sources on a continuous basis, including periods of startup, shutdown, and malfunction. New sources must comply upon startup or on the effective date of the rule, whichever is later, and existing sources must comply no later than October 29, 2012. For more information, contact Shahjabeen Hashim at 281.668.7359 or shashim@zephyrenv.com.

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EPA Issues Hazardous Air Pollutant Standards for Chemicals Area Sources

On October 29, EPA issued a final rule for emissions of HAPs from nine area source categories in the chemical manufacturing sector including agricultural chemicals and pesticides manufacturing, cyclic crude and intermediate production, industrial inorganic chemical manufacturing, industrial organic chemical manufacturing, inorganic pigments manufacturing, miscellaneous organic chemical manufacturing, plastic materials and resins manufacturing, pharmaceutical production, and synthetic rubber manufacturing. This rule sets management practices for each chemical manufacturing process unit, emission limits for certain process vents and storage tanks, and management practices and other emission reduction requirements for wastewater systems and heat exchange systems. All existing area sources subject to this final rule must comply by October 29, 2012, and new area sources must comply upon startup. For more information, contact Ellen Ward at 512.879.6634 or eward@zephyrenv.com.

state news

TCEQ Responds to EPA Criticisms of Texas NSR Program

On December 9, the TCEQ approved a rule proposal addressing public participation in the air quality permitting process — the first of several TCEQ rules intended to resolve EPA concerns and threats of SIP disapproval over aspects of the TCEQ's NSR program. The rule changes would extend the requirement to provide public notice of minor new source review applications and spell out all persons to whom notice must be given. In a related action, on December 18, the TCEQ proposed revisions to its Chapter 116 rules that would formally incorporate the EPA definition of Best Available Control Technology. Other EPA concerns relate to flexible permits, qualified facilities, and new source review reform components of the TCEQ permitting program. For more information, contact Karen Olson at 512.879.6618 or kolson@zephyrenv.com.

Houston Air Data Show Fine Particle Concentrations Exceed Standard

On October 8, EPA notified the TCEQ that it was investigating potential exceedances of the ambient air quality standard for fine particles (PM_{2.5}) recorded at the Clinton Drive monitor — a site located in close proximity to unpaved shipyards along the Houston Ship Channel. The TCEQ has responded that these incidents should not affect the current attainment status of the area, considering mitigating factors that may have contributed to the abnormally high monitor readings. Texas governor Rick Perry has until February 5 to request that Houston not be recognized as failing to meet the fine particles standard. For more information, contact Bryan Osborne at 512.579.3815 or bosborne@zephyrenv.com.

TCEQ Establishes Office of Water

On December 1, the TCEQ announced formation of a new Office of Water, comprised of the Agency's three existing major water divisions: Water Planning, Water Supply, and Water Quality. According to Commissioner Bryan Shaw, the Office of Water was established because of the need for greater attention to water issues to ensure adequate water quality and quantity to meet future demand in a state whose population is projected to double in the next 30 years. L'Oreal Stepney will serve as the Office's Deputy Directory. For more information, contact Betty Moore at 512.879.6622 or bmoore@zephyrenv.com.

TCEQ Clarifies Enforcement Discretion for Chemical MSS Permit Applicants

On December 8, the TCEQ issued a memorandum which identified the conditions for continued enforcement discretion for maintenance, startup, and shutdown (MSS) emissions now that the Agency's January 7 MSS permit issuance deadline for chemical permits has passed. The memorandum states that, for permit applications assigned to TCEQ permit reviewers in 2008, enforcement discretion will continue to be afforded for unauthorized, planned MSS activities if the draft MSS permit is agreed to (including modeling) by April 30, 2010. For permit applications assigned in 2009, draft MSS permits must be agreed upon by April 30, 2011 to continue to be afforded enforcement discretion. For more information, contact Karen Olson at 512.879.6618 or kolson@zephyrenv.com. ✨

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management will be handled, energy or water efficiency standards for building equipment and fixtures, and construction procedures and standards for any alterations made after lease execution. It will also be worthwhile for the parties to negotiate how to manage future changes in green building requirements to maintain the building's certification status or to comply with changes in law. Finally, the parties should think now about who will pay for any required greenhouse gas emission reductions and who will get the benefit of any offset credits awarded under any cap and trade program. ✨

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Clean Coal – Myth or Opportunity?

Arguments about “clean coal” have been heating up lately, especially with the impending regulation of greenhouse gas emissions, either as a consequence of EPA’s recent endangerment finding, through Congressional action, or as some combination of the two. Many environmentalists contend that there is no such thing as “clean coal” — a term most often used to describe combustion of coal in association with the capture and storage/sequestration of the greenhouse gas, CO₂.

There is no question that combustion of coal is a significant contributor to greenhouse gas emissions even when compared to combustion of other carbon-based fuels. According to EPA, combustion of coal produces twice the greenhouse gases (in CO₂ equivalents) as natural gas and 20 percent more than residual fuel oil. Additionally, environmentalists point out that combustion of coal, in comparison to other fuels, has other consequences, including higher emissions of mercury and oxides of nitrogen and sulfur, and environmental impacts associated with the mining and transportation of coal. For these reasons, many opponents to coal plants maintain that the U.S. should make a massive investment in developing alternative energy from wind and solar. Some voices on both sides of the coal divide even contend that we should be taking a new look at nuclear power which, notwithstanding its other complexities, emits no greenhouse gases.

Despite the objections raised about burning coal, its abundance and ready availability in North America have made it the most reliable and inexpensive source of base-load power in the U.S. Just looking at the numbers, coal provides about 50 percent of our electric power, natural gas and other fossil fuels come in a distant second at about 22 percent, and nuclear comes in at about 19 percent. Wind, solar, and geothermal together satisfy barely two percent of our nation’s current energy demand. Clearly, in the next few decades, “green” power simply cannot grow quickly enough to eliminate the need for coal.

Innovations in boiler design promise that the next generation of coal plants will be even more efficient. Consequently, the environmental footprint of generating every megawatt of electricity, from the mining and transporting of the coal to firing it in the boiler, will be smaller. And advancements in air pollution control technologies, in concert with improvements in process design, continue to significantly drive down the emissions from burning coal. Also, the capture and injection of CO₂ from coal combustion into underground formations may someday be a commercial



option for both reducing the emissions of CO₂ to the atmosphere and enhancing the recovery of oil from older, low-producing fields. Importantly, these advances in clean coal technology could lead to the formation of businesses (and jobs), enabling the U.S. to sell its technology to nations, such as India and China, that are bringing on line additional coal-fired power generation capacity almost weekly.

These factors taken together have led policymakers at all levels of government to support the development of clean coal technology and provide the needed tax abatements, streamlined permitting processes, grant funding, and other incentives to enable clean coal projects to move forward. For example, the FutureGen project in Illinois, an integrated gasification combined cycle (IGCC) power plant with carbon capture and sequestration (see “FutureGen is in our Future”, Currents, July 2006), has been revived with the infusion of funds from the Department of Energy. And many other private and public partnerships, such as the “Texas Clean Energy Project” initiative in West Texas, are hard at work developing clean coal technology and facilities. At this point, it seems clear that “clean coal” is more of an opportunity than a myth. ✨

Joe Zupan
President

Zephyr is a professional services firm providing worldwide consulting, training and data systems to the industrial, commercial and public sectors. The firm’s major areas of practice are air and water quality, waste issues, worker and community safety, and incident management.

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Nantucket Sound, the location of the proposed offshore Cape Wind project, is eligible for listing in the National Register of Historic Places. The ruling came after two Native American tribes argued that a proposed off-shore wind turbine project would disturb ancestral burial grounds and interfere with spiritual rituals that require clear views across the Sound.

The potential impact on wildlife is another public hot button to address in the CA; bird and bat fatalities from collisions with wind turbines, meteorological towers, and transmission lines, and alteration of wildlife habitat can raise public hackles. For example, in opposition to the expansion of wind generation capacity in the Altamont Pass area east of Los Angeles, a spokesman for the opposition alleged that "birds come into the pass to hunt and get chopped up by the blades." To head off these kinds of attacks "at the pass", the CA may conclude that a numerical census of specific species of birds may be needed, requiring detailed field-point counts, habitat mapping, and raptor nest surveys. Pre-construction studies for bats might also be indicated including acoustic surveys, mist netting, night vision/thermal imaging, and radar surveys. Then, the developer will be equipped to make an informed assessment of the potential for impacts on birds and bats and communicate the facts to the public.

The public, and especially those living in rural areas where wind turbines are typically placed, are often concerned about the intrusion of unusual noises on their environment — people sometimes compare the sound of a wind turbine to wind passing through trees with an unnatural pulsating characteristic. According to an opponent of a wind farm project planned for a rural site in North Texas, "I don't want to hear them when now I hear nothing up here except the sounds of nature." To

field genuine concerns of these kinds, the findings of the CA may direct the developer to conduct surveys of pre-existing noise levels. These studies can be useful in a number of ways — from helping in equipment selection and siting to aiding in the development of an outreach program to the community.

Wind energy is a clean and renewable energy source and will be an important component of our nation's future energy portfolio. However, positive public acceptance of wind projects is not a given because, more so than many other traditional sources of electric power, a wind farm can interrelate closely with the daily life of its neighbors. Therefore, it is critical that the developer evaluate not only the potential for impacts on the natural environment but also how the project may affect and alter the local economy, property values, agricultural resources, recreational areas, tourism, visual resources, and historical and culturally sensitive sites. And it is just as important that the developer effectively communicate the findings of these studies to the public. After all, being green isn't all black and white. 

Celeste Wiley
Principal