Hunt Research Corporation
Founded 1979
JAMES W. HUNT, President

March 3, 2011

Dr. Fisher (CPUC) and Mr. Thomsen (BLM)
c/o Dudek
605 Third Street
Encinitas, California 92024

Re: Comments regarding the ECO Substation, Tule Wind, and ESJ Gen-Tie Project Draft EIR/EIS, Section D.15, Fire and Fuels Management

Dear Dr. Fisher (CPUC) and Mr. Thomsen (BLM):

Thank you for the opportunity to provide the following comments on the Draft Environmental Impact Report/Environmental Impact Statement for the East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Projects (Draft EIR/EIS).

Following are my comments, observations, and suggestions regarding certain information in Section D.15, Fire and Fuels Management of the Draft EIR/EIS. The comments are provided with the objective of offering possible revisions to help the Draft EIR/EIS to present an objective, real-world review of the net fire risks associated with the Tule Wind project, after considering the extensive project design features incorporated into the project's planning and design, proposed mitigations and the recent improvements in public fire protection. Please respond to these comments as part of the Final EIR/EIS. My comments are limited to the Tule Wind Farm.

I. INTRODUCTION AND STATEMENT OF QUALIFICATIONS

My name is James W. Hunt, and I am the principal of Hunt Research Corporation. I have 48 years of experience in fire protection as a firefighter and Battalion Chief/Incident Commander with major fire departments, an adjunct faculty member/ instructor in various subjects including firefighting, fire service management, emergency management, and Incident Command System (ICS) for the FEMA National Fire Academy and State Fire Academy, the University of California, Santa Barbara, and California State University, Long Beach. I have also served as a Fire Department Training officer and have 32 years experience as a fire protection consultant. My resume is attached to this letter.

POST OFFICE BOX 291 • SOLVANG, CALIFORNIA 93464 • PHONE: (805) 688-4625 • 1-800-737-2826 • FAX: (805) 688-0275
E MAIL: jhunt2@gte.net WEBSITE: www.huntresearch.com

Iberdrola Renewables (IRI) requested that I review the Draft EIR/EIS, Section D.15, Fires and Fuels Management, insofar as it relates to the Tule Wind Farm, and provide any comments as a third-party reviewer.

II. THE DRAFT EIR/EIS OVERSTATES REGIONAL ASSETS AT RISK

Section D.15.1.2, Project-Specific Environmental Setting/Affected Environment, includes a discussion on page D.15-24 of Regional Assets at Risk. This section discusses a potential wildland fire spreading to all communities and structures to the west of the project, in east and southeast San Diego County. It also states that over 2,000 structures could be at risk. (See also page D.15-49).

The most intensive area for downwind spotting from a fire is about ½ to 1 mile downwind of the fire. The general vicinity of the project is characterized as a very rural setting and, based on my observations, is composed primarily of ranches on large rural-use properties.

Therefore, when making decisions as the Incident Commander on such a fire (a Fire Service chief officer), fire units would be assigned to the main fire and to patrol downwind in the area of potential spotting; primarily within one half (½) to one (1) mile downwind. Spotting is common at wind driven fires in similar vegetation.

Wildland Fire Risk

Property owners, including homeowners, are responsible to maintain their properties' fire safety and to provide 100 feet of fuel modification, whether or not this project is built. Fire Departments can, and do conduct regular fire safety inspections of private properties and conduct public education programs for property owners. The 2,000 structures at risk that is noted in the Draft EIR/EIS appears high to me because it does not take into account the recent improvements in firefighting capacity and capabilities within San Diego County.

Any wildland fire or any other type of fire, regardless of where it starts, can obviously continue to burn if not controlled. This is true in any county and for any property or development. Any development, including residential developments, presents ignition sources, which can start a fire. The purpose of fire protection planning is to minimize ignition sources and define mitigation that addresses fire ignition potential and ways to control and respond to a fire if it occurs. The fire does not burn in a vacuum devoid of any fuel modification or attack by fire forces. The vast number of wildand fires are controlled by initial attack forces.

Wildland Fire Response

In San Diego County, CALFIRE states that it contains 90 to 95% of all wildland fires to 10 acres or less. (Hunt Research Corporation, personal communication with Chief Nick Schuler, CALFIRE, January 10, 2011). This is their stated goal for initial attack in State Responsibility Areas (SRAs) and would apply to the Tule Wind project. The Draft

EIR/EIS states that 95% of all wildfire ignitions are controlled during initial attack. (D.15-49). This impressive data mirrors the statewide CALFIRE data and the experience of the San Diego Rural Fire Protection District (SDRFPD). A 95% success rate is almost a perfect record! The NFPA standard on emergency response uses a quality factor of 90% when recommending response standards as it recognizes that a 100% standard is not practical.

National data demonstrates that the San Diego County and California record of fire containment compares to national containment rates. The National Institute of Science and Technology (NIST) provided the following national data:

- From 1995 to 2005, 97% to 99% of wildland fires were suppressed on initial attack. Initial attack fires are considered to be less than 10 acres.
- About 3% of fires escape and become larger fires. This information was provided by NIST from an article titled, "*Federal Forest Fire Policy in the United States*" (published in Ecological Applications, 2005) by Scott Stephens and Lawrence Ruth, University of California, Berkeley. The article also stated that the size of the majority of these fires was <0.1 ha (hectare) which equals 0.24 acres.

The National Fire Protection Association (NFPA) study, "Brush, Grass and Forest Fires," August 2010, states the following:

- 77% of wildland fires contained to 1 acre or less.
- Only 4% were more than 10 acres
- Most were intentionally set (arson)
- 4% were caused by electrical power/utility lines
- 4% caused by lightning.
- Local Fire Department responses to wildland fires for pipelines, power lines and other utility Rights of Way (ROWs) equals 1% of the fires.
- Electrical failure/malfunction caused 6% of wildland fires.
- Transformers are involved in ignition of 1% of wildland fires

This data indicates most wildland fires are less than 1 acre, and the number of ignitions involving electrical equipment is insignificant. In my experience, most fires are intentionally set. Most wildland fires are arson caused or other man made causes, such as tractors striking a rock on a farm, off road vehicles, roadside fires caused by vehicles, such as on I-8, careless smoking or campfires, etc. For example, there have been no fires in the route of the Southwest power link project along the border since at least 1976 (35 years). (Hunt Research Corporation, personal communication with Chief Nissen who obtained information from retired CALFIRE Division Chief Scully, January 2011).

It is recommended that the text of the Draft EIR/EIS be revised to include some of the information and perspective provided above to present a more real world picture of the conditions and response that would be provided by the fire agencies so the layperson

reviewing the Draft EIR/EIS is not lead to believe that every wildland fire is a catastrophic event or that wind farms cause or have been statistically linked to causing large wildland fires. No one disputes that a fire could occur onsite, or spread through the site. This is why extensive fire protection features have been proposed for the turbines and equipment so that such turbines and equipment do not increase the existing fire risk beyond what the responding fire agencies are capable of handle during the initial attack. In general, a fire is more likely to occur during construction of a project such as the Tule Wind project or other land use development, than during operation, it will be important to have an approved Construction Safety Plan.

It is also respectfully requested that the Draft EIR/EIS please give credit where credit is due, regarding the efforts of the Fire Service including additional fire apparatus, staffing, improved Fire and Building Codes, stringent requirements on new development, fire suppression systems, modern training programs, qualified fire fighters, the Incident Command System, firefighting aircraft, emergency communications and built in fire detection, protection, and suppression systems proposed by the Tule Wind project. It seems like despite the comprehensive improvements in Fire Protection in San Diego County, no credit is given to the fire agencies and other first responders towards mitigation of the fire risk. That is like saying despite all safety improvements in automobiles, they are no safer than the Ford Model T of 1915, or saying that despite the modern redundant safety systems on modern aircraft, they are no safer than the Wright Brothers Bi Plane of 1903. The 1970 Laguna Fire burned in the area, 41 years ago. The way Section D. 15 Fire and Fuels Management is written, the layperson who is not a firefighter is lead to believe that every wildland fire in an area where there was a large wildland fire in the past, will become a catastrophic fire. That is just not the case. There have been substantial improvements in the County fire service delivery system and response capabilities since 1970.

Wildland Fire Response and Equipment Improvements

Some examples of recent improvements in San Diego County include:

- Recent creation of the SDCFA with the objective of improving staffing and apparatus for small fire agencies and CSA's in the County
- The recent improvements, which should significantly improve fire response and mitigation, but are not given credit in the EIR, include:
    - Stipend Firefighters:The SDCFA is funding Stipend Firefighters at the following fire stations:
        - Boulevard
        - SDRFD stations:
            - Jacumba
            - Lake Morena
            - Harbison
            - Deerhorn
            - Dehesa

- Jamul
- Otay
- Descanso
- Palomar
- Shelter Valley
- Mt. Laguna
- Campo
- De Luz
- Intermountain
- Warner Springs stations 52 and 53
- San Pasqual
- Pine Valley
- Ranchita
- Ramona stations 80, 81, and 82
- Sunshine Summit
- Ocotillo Wells

Stipend firefighters are paid to be on duty on a regular schedule. This results in 3 to 4 firefighters on duty at a schedule A station and 2 at a non-schedule A station. The term Schedule A refers to the amount of paid staffing on duty every day. This is a tremendous improvement in fire service response capability since historical fires and must be given credit when determining any net risk of a project:

SDCFA Equipment - Recent purchases of fire apparatus since 2010:

- 11 water tankers
- 13 Type II engines,
- 3 Type 1 engines
- One (1) Type 11 engine (including new engines at Boulevard, Jacumba, Campo, and Lake Moreno.
- 2 rescue vehicles.

SDCFA has existing orders for the following vehicles:

- 6 additional water tenders, including for Jacumba and Lake Morena.
- One (1) additional type I fire engine and one (1) additional Type VI engine.

In addition, the SDRFPD will have a new aerial ladder truck in service this summer.

This additional fire apparatus is extremely impressive, effective, and important, and significantly improves response to the general project area addressed by the Draft EIR/EIS as all of these apparatus are available for response to a fire in the general project area. This greatly exceeds the resources available during historical fires in the County.

Such improvements in staffing and fire apparatus must be given credit and factored in when determining net risk of the Tule Wind and other projects analyzed in the Draft EIR/EIS. This substantial level of staffing and apparatus is funded at great expense for

the very purpose of mitigating fire risks in the County. The SDRFPD and the County Fire Authority as well as CALFIRE must be given credit for their efforts in this regard!

To supplement the existing fire and apparatus provided by SDRFPD, SDCFA, and CALFIRE as you may be aware, the SDRFPD Board of Directors approved a Fire and Emergency Protection Services Agreement with the Tule Wind Project on November 2, 2010. The agreement between Tule Wind, LLC and SDRFPD requires annual payments from Tule Wind, LLC to SDRFPD to support fire and emergency services in the vicinity of the project area. Additionally, I am aware that Tule Wind, LLC is currently discussing the terms and conditions of a fire services agreement with SDCFA. Approval of this fire services agreement would provide some level of additional fire staffing and/or apparatus that would be utilized within the vicinity of the Tule Wind project and other projects analyzed in the Draft EIR/EIS.

The current fire forces which would respond to a wildland fire at this site should be able to confine the fires to 10 acres, which is consistent with the goals of the SDRFPD and CALFIRE.

III. THE DRAFT EIR/EIS OVERSTATES WIND TURBINE-RELATED FIRE RISK

Despite the application of wind turbine nacelle fire suppression, and other wind turbine fire avoidance features, the Draft EIR/EIS concludes that the wind turbine facility will be pose a significant fire risk that cannot be mitigated below a level of significance.

Mitigation Measure FF-5 requires the installation of automated fire suppression systems in the wind turbine nacelles. In November 2010, prior to the publication of the Draft EIR/EIS, Tule Wind, LLC voluntarily committed to installing automated fire suppression systems in the wind turbine nacelles. (RC Biological Consulting, Inc., Fire Protection Plan for the Tule Wind Project, at 49 (November 2010).

The likelihood of a fire starting in a wind turbine appears to be remote. According to a study by Iberdrola Renewables, Inc., only four (4) wind turbine fires occurred in California between 2008 and 2010, an average rate of approximately 1.3 fires in turbines per year. (Letter from Harley McDonald, Iberdrola Renewables, Inc. to James Pine, San Diego County Fire Authority, (October 25, 2010)). Considering that there are 11,000 operating wind turbines in California, the annual risk of a wind turbine fire is approximately 0.01%. The study notes that these fires undoubtedly occurred in turbines without automatic fire suppression systems. Although industrial fire suppression systems are common, it is a technology just recently being applied to wind turbines.

In my experience, fire suppression systems are highly effective at preventing an ignition from escaping the room of origin in a structure. A recent National Fire Protection Association (NFPA) study; *"U.S Experience with Sprinklers and other Automatic Fire Extinguishing Systems"*; John R Hall Jr, September 2010, indicates that Fire Sprinkler systems have a 96% effectiveness rate in controlling and extinguishing fires. It showed

that flames were contained to the room of origin in 95% of all fires compared to 73% when no automatic fire suppression is present. The wind turbines will have approved automatic fire suppression systems (such as a clean agent or equivelant) in the nacelle of each wind turbine.

In discussions with Fire Chief Nissen, SDRFPD, he has determined that these systems will be considered to be equivalent to wet pipe fire sprinkler systems, subject to all appropriate UL listings, and also State Fire Marshal approvals for the alarm system components of the system. It should be noted that the fire suppression systems proposed for the wind turbines will actually be superior to a wet pipe system commonly used in other industrial settings, as a Fire Pump (which can fail) will not be required and the system is not dependent upon electrical power sources. A gaseous system will also not be affected by any obstructions as a wet pipe sprinkler flow can be, and there would be no costly water damage, or shock hazard due to application of water.

A statistical analysis was done regarding the potential of a fire starting in a wind turbine, to cause a fire that exceeds 10 acres in size. This analysis was based on three principal factors:
(1) recent NFPA sprinkler fire suppression data that shows that sprinkler systems prevent fires from escaping the "room" of origin (here, the wind turbine nacelle) 95% of the time; and that the Fire Agency considers the alternative systems equivalent to fire sprinklers for this application;
(2) less than 0.01% of wind turbines cause a fire in any given year; and
(3) for any wildland fire started, only 3% spread beyond 10 acres in size after initial attack. The probability of an unsuppressed nacelle fire escaping initial clearance and initial attack is 0.000028% per year. Put another way, the probably of an uncontained nacelle fire is less than 1 every 3.5 million years The probability of an unsuppressed nacelle fire escaping the nacelle and the clearance and initial attack for the Tule Wind project as a whole is 0.0036% per year. That is 99.9964% effective, or a likelihood of less than 1 uncontained turbine caused wildfire every 27,000 years (This information is from the letter from Dr. Rich Thompson, Ph.D., California Polytechnic State University, San Luis Obispo, to Patrick O'Neill, HDR Engineering, Inc. February 14, 2011. This is an insignificant probability in my opinion based upon the proposed mitigations and Dr. Thompson's analysis Based on the extensive project design features and the required, and fire agency accepted, mitigation measures identified in the February 28, 2011 FPP. I can say for your consideration that, in my opinion as a fire protection consultant, that the net offsite wildland fire risk can now be considered insignificant.

IV. THE DRAFT EIR/EIS OVERSTATES ELECTRICAL LINE RISK TO FIREFIGHTERS

The Draft EIR/EIS states firefighters may face challenging and unusual conditions due to the special training and equipment required to respond to emergencies involving live wires. (D.15-61).

In my professional opinion, the Draft EIR/EIS overstates this risk.

Basic firefighter training includes dealing with electricity, including downed power lines. They are not unusual and are typically not very challenging incidents. I can speak from actual experience as a firefighter responding to power line down calls. The risk of electrical shock to firefighters is greater in a structure fire such as a home or building, while firefighters are in the building or on a ladder on a building, as it may not be known if the electricity has been shut off. The electrical lines at the wind farm would be de energized much quicker than downed power lines in a residential tract, etc., and will probably be shut off automatically prior to arrival of the first fire company. The wind farm transmission line will be de energized at SDG&E's direction, which can occur upon request from the Fire Incident Commander on site.

Electrical Emergency Training

The IFSTA training manuals, as used by the State and local fire departments, include information on handling electrical emergencies. Firefighters are also trained in handling electrical emergencies in wildland fires, during certified Wildland Firefighting classes. In addition, fire department training programs include training on handling of downed electrical wires. The fire department training officer and the Officer of the fire company (engine or truck company) are required to provide ongoing training on electrical hazards and emergencies. Fire Companies pre plan occupancies, such as the wind farm, on an ongoing basis so they are familiar with the properties, occupancy and the risks. They also meet with the on site operational staff of a facility such as the proposed Tule Wind project to discuss the potential hazards and emergency procedures. In fact, IRI will offer to provide on site training for firefighters on an ongoing basis. Firefighters are also trained in the use of electrical wire handling tools and electrical safety gloves.

The Draft EIR/EIS discusses 10 firefighter fatalities due to electrical structure contact during wildland fires. This information should be quantified as to what the contact was and what type of lines were involved. This information should be included in the Final EIR/EIS or deleted if the source is not accurate. The Draft EIR/EIS mentions that firefighters should maintain a 500 foot safety buffer around electrical structures, and states that the decision may be made to let a fire burn through the area before attacking with ground and aerial firefighting resources. It is questionable that this decision to do nothing on the site would actually be made. The International Fire Service Training Association (IFSTA) Fire Department Training manual *"Fundamentals of Wildland Firefighting"* 3rd edition, states on page 304 that firefighters should stay a distance away from downed power lines a distance equal to one span between power poles (the reason this distance is typically the longest distance that a wire could fall, and then they typically only fall at one end) until they are sure the power is off.

With respect to the Tule Wind project, improved access roads will enable ground-based firefighters to reach places that were previously inaccessible by vehicle and will enable quicker ingress and egress to the project area to fight fires, and four (4) additional water tanks to be installed in SDRFPD-approved locations throughout the project area will improve both ground-based and aerial firefighting effectiveness. As discussed above and below, firefighters are trained to operate and fight fires around electrical transmission lines. Moreover, Development Agreements entered into with SDRFPD and SDCFA will

provide funding for equipment, staffing, and training that will improve firefighting effectiveness. Finally, proposed mitigation measure FPP-11 provides for de-energizing the Tule Wind Project in coordination with the fire agency liaison and SDG&E if necessary. Taken together, the Tule Wind Project features will improve ground-based firefighting effectiveness, not diminish firefighting effectiveness.

Paid and volunteer Firefighters responding to a fire at the Tule Wind project or other project analyzed in the Draft EIR/EIS will be trained by CALFIRE. This includes CALFIRE firefighters, SDRFPD, and Boulevard Fire Department Firefighters. All Firefighters receive electrical and power line hazard training at the level of Firefighter 1 (entry level). Further training is received at the CALFIRE State Fire Academy at Ione, California.

The training requirements include the following, which all address response to electrical hazards, downed power lines, etc.:

1. State Fire Fighter 1 Academy
2. State Volunteer Fire Fighter Academy (SB 1207 mandates that volunteers receive the same training as full time Firefighters). Volunteers must go through an 80-hour training course of which Electrical hazards are a part.
3. CALFIRE Fire Protection Training Procedures (4300) Training Manuals.
4. State Fire Training Firefigther 1 and 11 training program.
5. Wildland firefighting certification classes S-130 and S-190
6. Training classes conducted by the power company (SDG&E). Boulevard FD states that there are about 4 of these per year.

As a former Training Chief for a major Fire Department, and having conducted a major mandated training study, it is my opinion that Firefighters in California are among the best-trained firefighters in the world.

The required fuel modification in the transmission line corridor should result in a relatively small fire in the power line right of way under wires. It should also eliminate any phase to ground shorts. Fire which is away from any downed lines (until they are verified as shut down) can be fought as long as water is not applied to the high voltage lines, and it does not need to be anyway. The number one strategic priority in firefighting, after rescue, is to protect exposures. This is what would be done rather than any direct attack on a power line, which might be arcing until shut down. There will be a Safety Officer position activated at the emergency as part of the Incident Command System (ICS).

The Firefighter approach to an incident involving downed power lines would be similar to the following, based on my experience as a Fire Department Incident Commander:

Let's take for example an incident where a high voltage electrical line has fallen and is on the ground. The power line has ignited vegetation. The power line has coiled back into the shape it was in when on a coil before installation. CALFIRE HAS a very strict safety policy for dispatch and response procedures when there is a known or suspected power line down. Once the power is off, the fire is simply a Class A combustible fire.

1. When the first fire engine company arrives, the fire officer on board will size up the situation, take command as the initial incident commander, and will order his/her crew and incoming crews to stay back as there may be live wires. It will be obvious where the wire is. He or she will contact the on site SDG&E incident liaison, who will communicate with Tule Wind, LLC to determine if the power is off, or needs to be turned off.

2. The CALFIRE "three stripes policy" will be implemented; flag the area off with flagging, stay a distance of at least a 25-foot radius back and wait for confirmation that power is off. Subsequent arriving units will stage away from the electrical line right-of-way (ROW). There is no need to approach the ROW or the power lines. Firefighters do not rush in to a fire involving electricity. There is no hurry to handle the situation. The fire may be contained around the ROW without applying water to the area where the wires are. The fire in the ROW in the proximity of the wire can be allowed to burn out. The ROW will have fuel modification to mitigate the wildland fire threat. The ICS will be activated and a Safety Officer Position will be established by the Incident Commander. The Safety Officer is responsible to observe all operations for safety, stop unsafe operations, and to develop an Incident Safety plan.

3. Any need to move a downed wire is done by use of proper Electrical handling poles and tools operated by trained persons wearing electrical gloves and not standing in any water. Firefighters will be guided by trained Tule Wind, LLC personnel.

    a. Speaking from actual firefighting experience, a downed electrical line incident is much easier to handle than a fire in a structure such as a house, garage or industrial building where the firefighter does not know what is in the structure.

With respect to aerial firefighting effectiveness, the Tule Wind Project's 138kV transmission line has been designed to parallel the Sunrise Powerlink route. The Tule Wind 138kV transmission line will be approximately 75' high, while the Sunrise Powerlink will be approximately 130' to 160' in height. Accordingly, the Tule 138kV line will not add any significant vertical obstructions that will not already be part of the built environment. Furthermore, for those few places where the Tule Wind 138kV transmission line does not parallel the Sunrise Powerlink, its 75' height will not impede aircraft maneuverability, or significantly increase the risk of contact by aircraft or water buckets. Water drops are performed at 150 feet above the ground, otherwise known as the

"150 foot drop zone." The 138kV transmission towers are proposed to be 75 feet in height, less than half the height of the "150 foot drop" zone.

With respect to the 128 wind turbines proposed for the Tule Wind Project, the turbines are located approximately one-quarter mile apart, which would allow helicopters to navigate around the towers. Pursuant to FAA regulations, all turbines will be equipped with safety lighting and low-reflectivity neutral white paint. These safety features will enable firefighting aircraft to operate safely around the turbines. Furthermore, due to the rugged nature of the terrain and existing Campo Wind Project turbines, aerial firefighting professionals already will be focused on aerial impediments. Chief Nissen (SDRFPD) spoke with Ray Chaney (CALFIRE Battalion Chief, Special Operations Battalion) who stated that the determination to perform aerial operations would be made on a case-by-case basis and would not be prohibited just by the presence of the Tule Wind Project (Robin Church personal conversation with Chief Nissen).

The modern, highly trained, well-equipped firefighter and fire agency needs to be given credit in the Draft EIR/EIS for their ability to evaluate the risks and intelligently and properly handle a fire at the property. This is what they are trained and paid to do. Public fire protection in San Diego County has vastly improved since 1970 and since the wildland fire of 2007. A fire at the Tule Wind project facility should be a fairly routine fire to handle, rather than a catastrophic event.

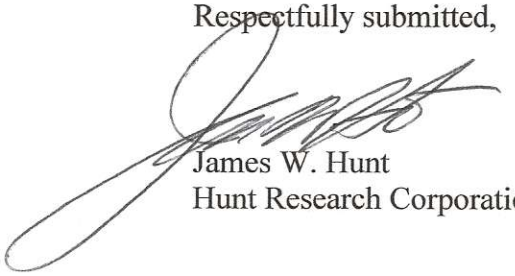
Since 1970, emergency fire service communications have improved ten-fold in the County according to long time local CALFIRE Division Chief Pete Scully. The ICS was created and is now used on all emergencies. Training programs have improved, and fire equipment and apparatus have vastly improved. This includes newer fire apparatus, which is much faster and safer than older fire apparatus. Staffing, fire station locations, and apparatus in San Diego County have been increased in recent years, as noted above. OSHA mandated training has resulted in more comprehensive training programs for Firefighters. The statewide fire mutual aid program and response configurations have been significantly improved and expanded since 1970. Today, resources are available state wide simply by making the request. This includes the Strike team concept and the ability to activate specially trained ICS incident management teams. Aircraft capabilities have also improved due to new technologies. Firefighting tactics have improved significantly.

It is respectfully requested that the Draft EIR/EIS be revised to more accurately and objectively characterize the net risk based upon the probabilities and mitigations discussed in this letter. The Draft EIR/EIS analysis needs to take into consideration the well trained and equipped fire service agencies and the project design features and mitigation measures (e.g., fire suppression in turbines nacelles) proposed by the Tule Wind project. Based on the extensive project design features and the fire agency required and accepted mitigation measures identified in the February 28, 2011 FPP, I can say for your consideration that the potential for project-related transmission lines to significantly reduce the effectiveness of ground-based firefighting or aerial firefighting can now be considered less than significant in my opinion as a fire protection consultant and former firefighter.

V. CONCLUSION

The preceding comments reflect my opinions, experience and research and are submitted with the objective of providing information regarding wildland fire protection and firefighting to help the Draft EIR/EIS preparers and reviewers to better understand, evaluate/analyze the potential fire risks at the Tule Wind project based on the extensive project design feature (built in fire protection, fuel modification) proposed mitigation (turbine nacelle fire suppression) and the current improved fire agencies and associated staffing and apparatus. Please do not hesitate to contact me with any questions.

Respectfully submitted,



James W. Hunt
Hunt Research Corporation

Resume

James W. Hunt
P. O. Box 291
Solvang, California
93464
(805) 688-4625/800-737-2826
Fax (805) 688-0275
Jhunt2@gte.net
March 2011

EXPERTISE:

Fire Protection Planning, Fire Code compliance, and Risk Analysis for residential, institutional, commercial, industrial and petrochemical and energy related developments. Wildland Urban Interface Fire Protection Planning, Vegetation Management plans, Hazardous Materials Management, Standards Development, Plan Review, Emergency Planning and Risk Management. Risk Management Plans, Business Plans, Hazardous Materials Management Plans, scenario based corrective actions, Fire Station location studies, Fire Department Strategic Plans, Fire safety elements of EIR's and General Plans.

FIRE SERVICE EXPERIENCE:

48 years extensive Fire Service related experience in Southern California. 16 years Fire fighting experience. Served in all Fire Service ranks including Battalion Chief with the City of Huntington Beach.

Responded to and commanded numerous structural, petroleum, hazardous materials, EMS and wildland emergencies, as a Captain and Chief Officer.

Served as Fire Department Training Officer and Assistant Fire Marshal. Established and enforced new development conditions for numerous petroleum and hazardous materials facilities. Designed and enforced Fire codes and standards in petroleum and hazardous materials facilities. Have served as an instructor in the field of emergency management, ICS, firefighting, fire protection and fire prevention, since 1967.

CONSULTANT EXPERIENCE:

President of Hunt Research Corporation since 1979. Specializing in Risk Management, Fire Protection Planning, Fire Vegetation Management Plans, Fire Code compliance, Emergency Planning and Hazardous Materials Management. Serve as consultant to governmental agencies and industry. Extensive experience

conducting Fire Department studies, Preparing Strategic Plans, and conducting Fire Station location studies.

Fire Protection Projects Involving Commercial, Industrial, Residential and Institutional Facilities:

Extensive experience in Hazard Analysis, Risk Assessment, Fire Code compliance, and Fire Protection planning for oil and gas facilities, refineries, pipelines, airports, water treatment facilities, chemical plants, power plants, energy related projects, hazardous materials users, Storage facilities, plating plants, LNG facilities, Hydrogen gas plants, solar plant, wind farm, and other industrial/commercial facilities, retirement communities, shopping centers, institutions, residential developments in wildland/urban interface areas. Review of detailed Fire protection system and equipment plans and specifications. Project consultant for all stages of development including Environmental Impact Reports, Specific Plans, planning and plan review. Produce Fire Protection plans, Vegetation Management plans, Business Plans, Hazardous Materials Management Plans, and Risk Management Plans. Develop Public Safety elements for General Plans. Conduct Fire Station Location Studies. Conduct vegetation and Structural Risk Assessments of Communities. Have extensive background in planning and specifying Fire protection equipment systems and procedures for protection of complex fire risks, P&ID review and review of various documents for compliance with codes and standards, and the review of process safety and Fire prevention procedures.

Project Involvement:

Have been involved in projects for the following companies as a consultant for the company or the local governmental agencies. Some of those projects include the following:

Commercial, Industrial, Residential:

Camino Real Marketplace Shopping Center
Chevron Texaco Hydrogen Fuel Processor Test Facilities
Western LNG Facility: Southern California Gas Company
Union Pacific Railroad LNG Facility (Los Angeles)
Burlington Northern Santa Fe Railroad Tank Farm (Los Angeles)
Sempra Energy company
Blythe Solar plant
Iberdrola Wind Farm
County of Santa Barbara
Los Angeles County Fire Department
Hyatt Hotels
Red Lion Hotels
Sheraton Hotels
Hampton Hotels
Santa Barbara Resort and Spa
Santa Barbara Botanic Garden

Heritage House assisted living facility
Maravilla Retirement Community
Spectrum Chemical Company
Valley Plating Works
Reno International Airport
Pacific Offshore Pipeline Company
Coastal Oil & Gas
Conoco Oil
Exxon USA
General Motors Corporation
Mobil Oil Company
Chevron USA
Texaco
All American Pipeline Company
Phillips Petroleum
Shell Chemical Company
Husky Oil
Atlantic Richfield Company (ARCO)
ARCO L.A. Refmery Hydrogen Plant
Unocal
Mariposa Pipeline
Pacific Pipeline
Stocker Resources Inc. Gas Plant
Hallidor Petroleum
Colton Bishops Storehouse
Tidelands Oil Production Company
Delco Electronics (Hughes Aircraft)
Los Angeles Department of Water & Power
Gruber Engineering
Wilco Products
City of Santa Cruz Golf Course
AMV AC Chemical Company
Shell Equilon Chemical Company
Molino Energy Company
Benton Oil & Gas Company
Air Products & Chemical, Inc.
Standard Pacific properties
Spring Pacific Properties
Signature Properties
Bluegreen West
Providence Landing Project
Reliant Energy Power Plant; Casagrande Arizona
Duke Energy Power Plant; Morro Bay
Otay Mesa (Cal Pine) Power Plant; San Diego
AES Power Plant; Huntington Beach
Blythe Power Plant

Vernon Power Plant
Orange Grove Power Plant; Fallbrook
Lagasse Brothers Janitorial Supply
Reinhold Plastics
Los Angeles Chemical Co, South Gate
Royal Paper Co., Santa Fe Springs
Flint Group Ink Company; Santa Fe
Springs.
Sonoma County Hazardous Waste facility
J.B Dental Supply; Carson Cal and Coppell Texas
Roland Corp; Commerce Cal
Burlington Northern Santa Fe Modular Trailer storage facility; Commerce Cal
Burlington Northern Santa Fe Rail /truck loading facility; Los Angeles
Imation Corp, Camarillo
Kemiron Pacific, Fontana Cal
Vulcan asphalt plant; East Otay
Emultech asphalt tank farm; West Sacramento
CCA prison; East Otay
Texaco Global Energy
Miller Brewing Company
MSE Environmental; Camarillo Calif.
General Plating Co, Commerce Calif
LDS church project; Fallbrook Calif
Pinamonte Development; Fallbrook Calif
Shea Homes
Covington Development
Centex Homes
Cypress Land Co
Zurn Products
Galaxy Botanicals Co, Oxnard
Yosemite Plaza Shopping Center; Groveland Cal
Barona Reservation; San Diego County
Viejas Reservation; San Diego County

Numerous additional clients for residential, industrial and commercial Fire Protection and Vegetation Management Plans in the Urban Wildland Interface areas (over 150 completed).

Emergency Planning Projects:

Experience includes Risk Assessment, writing and reviewing emergency response plans, spill response plans, emergency checklists, design of Incident Command Systems, Standardized Emergency Management Systems (SEMS), Emergency operations center design, exercise design, conducting major exercises. Have designed or reviewed emergency plans for major nuclear facilities, petroleum installations, government agencies, high rise and hotels. Have designed model emergency response plans for government and industry. Have taught Incident Command System and emergency management courses throughout the country, since 1975. Introduced the Incident Command System to the Federal Emergency Management Agency (FEMA) National Fire Academy in 1980. Co-inventor of the nationally used "Incident Command System" vests, and mobile command post hardware.

Project Involvement:

Have been involved in projects for the following companies as a consultant to industry or government (refer to next page)

City of Ventura
County of Ventura Public Health
Los Angeles County Jail
City of Huntington Beach
County of Santa Barbara
City of San Luis Obispo
Livermore Nuclear Laboratories (DOE) (held a secret clearance)
Chevron USA
Exxon USA
Texaco
Shell Oil Company
All American Pipeline Company
Unocal Corporation
Pacific Offshore Pipeline Company
ARCO Oil & Gas
Hallidor Petroleum
Diablo Canyon Nuclear Plant
City of Dallas, Texas
Red Lion Hotels
Cuesta College
Santa Maria School District
Molino Energy Company
Santa Barbara Club Resort & Spa
Casa Grande Arizona Fire Department
Karl Stortz Imaging
City of Azusa

EDUCATION & CERTIFICATION

Associate in Arts Degree	Police Science	1963
Associate in Arts Degree	Fire Science	1966
Lifetime Instructors Credential;	State of California	1976
Bachelor of Science Degree	Fire Science	1985
National Fire Academy	Graduate	1989
Hazardous Materials Management Specialist	Certificate	1990
Professional Fire Safe Inspector	California	1999
California State Fire Academy	Graduate	1996

COMMITTEE MEMBERSHIP

- Fire Prevention Officers Association: Flammable Liquids & Gases, & Wildland-Urban Interface Fire code committees;
- U.S. Task Force on Sheltering-in-Place During Hazardous Materials Emergencies; EPA/FEMA

* Santa Barbara Fire Safe Council
* Western Fire Chiefs Association Wildland-Urban Interface Planning Task Force;
* Community Awareness & Emergency Response (CAER), Santa Barbara County.
* National Fire Protection Association Wildland Fire Management Section.

PUBLICATIONS

- 18 articles in National Fire Protection publications regarding hazardous materials and other fire protection issues;
  Book: *Development Strategies in the Wildland-Urban Interface* (WFCA 1991);
- Four nationwide training courses for the National Fire Academy;
- Multi-Agency Oil Spill Response utilizing the Incident Command System "Occupational Health & Safety Magazine" June 1993.
- Book: *"The I Zone: California's Mitigation Strategies"* (State Fire Marshal; 1996)
  Paper: *"Scenario Based Fire Protection Planning for New Development"* presented to the California Fire Prevention Officers Institute (Jan 2002)

ADJUNCT FACULTY INSTRUCTOR AND CURRICULUM DEVELOPMENT EXPERIENCE:

- FEMA (Dept of Homeland Security) National Fire Academy
- California State Fire Academy
- California State Fire Service Training
- UCSB
- Long Beach State University
- Santa Barbara City College
- Hancock College
- Bakersfield College
- Idaho State Fire Service Training