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Aspen Congratulates Ruth Villalobos on her Retirement



Aspen congratulates Ruth Villalobos, Chief, Planning Division, Los Angeles District, US Army Corps of Engineers, who was a mentor for over ten years on two of Aspen's three consecutive indefinite delivery/indefinite quantity Miscellaneous Environmental Services contracts. We will miss her guidance and expertise.

Samples of Newly Awarded Contracts

Long-term Procurement Resource Planning Framework Technical Support Services for the California Public Utilities Commission

Alta Windpower Development EIR for Kern County

Technical Assistance for the Renewable Energy Program, subcontractor to KEMA for the California Energy Commission

Technical Support and Training for Electricity Supply Analysis for California Energy Commission

Lompoc Wind Energy Project EIR for County of Santa Barbara Planning and Development, Energy Division

Solar Gold Rush

California utilities are working toward meeting the State's first target deadline of 2010 for compliance with the Renewable Portfolio Standards, which define the state-mandated percentage of each utility's generation portfolio that is to be made up of renewable generation. By that year, the investor-owned utilities are required to have 20% of their generation from renewable sources. As a result, solar generation companies have been aggressively staking claims on Bureau of Land Management (BLM) land in the California desert, eager to land utility contracts. However, this aggressive shift to renewable resources, as important as it is to the implementation of climate change initiatives, creates adverse environmental impacts of its own.

If all current applications to build solar generation facilities on BLM land were constructed, they would cover over half a million acres of the desert with various types of mirrors, photovoltaic panels, and power towers. It's highly unlikely that all these

projects will get built – each applicant needs to complete several steps: (1) complete an application including design details and environmental effects; (2) obtain a contract with a utility; and (3) go through a complete environmental review process under the National Environmental Policy Act (NEPA). In addition, all generators proposing to construct facilities producing over 50 megawatts (MW) of thermal power generation must also get a license from the California Energy Commission (CEC) by filing an Application for Certification in a process that complies with the California Environmental Quality Act (CEQA). The CEC and BLM have developed a Memorandum of Understanding to allow a single environmental report to serve both CEQA and NEPA requirements.

There are 98 applications on BLM's current Solar Energy tracking table (available at http://www.blm.gov/ca/st/en/fo/cdd/alter_native_energy.html), but 16 of these are shown as having been rejected for environmental reasons (in desert tortoise or Mohave ground squirrel habitat) or for lack of diligent development. The remaining 82

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Specialist John Candelaria Energy Planning and Analysis Staff Expands

Aspen is proud to announce that John Candelaria has joined our Energy Planning and Analysis department. Mr. Candelaria has a degree in Electrical Engineering and an MBA and is a senior level specialist in power production, electric and gas resource planning, regulatory policy, and utility regulation. He has 25 years of experience in the electric utility industry working with investor owned utilities and regulatory agencies. Most recently he served as a Policy Advisor for the Public Utilities Commission of Nevada where he provided advice to Commissioners, including former Commissioner Carl Linvill, who joined Aspen in 2006.

Mr. Candelaria provided the Commissioners with consultation and recommendations on a wide range of issues. These included electric and gas resource planning; conventional and renewable generation options; and conventional and renewable long and short-term purchase power contracts.

His responsibilities at the Commission also included transmission plans; Demand Side Management plans; long

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Nevada's Energy Future Aspen's Report in the Press

Carl Linvill, Suzanne Phinney, and Chris Cooke of Aspen and Richard McCann of M.Cubed prepared a report in February for the Energy Foundation entitled "Laying a Foundation for Nevada's Energy Future." The report assessed the potential for highly probable renewable energy and energy efficiency alternatives to fill energy deficits if proposed coal plants in Nevada are further delayed or cancelled. Recommendations from the report emphasize the construction of a flexible infrastructure that utilizes a diversity of resources and avoids the risks associated with large-scale centralized generation. Chief among these recommendations is the construction of a north-south transmission intertie to unify Nevada's electrical system and access renewable energy projects around the state regardless of whether the controversial coal-fired Ely Energy Center is built. The report was well received by the media and generated coverage as the lead article in SNL Power Week West and additional coverage by the Las Vegas Review-Journal, CNN, Forbes, MSNBC, Platts, and California Energy Markets. To view some of the articles in detail, please see the following articles:

- Platt's Electric Power Daily, Feb. 14, '08 pp. 5-6
- California Energy Markets, Feb. 15, '08 item 7
- SNL Power Week West, Feb. 18, '08 p. 1
- "Where the Jobs Are," March 24, '08, Page R12, WSJ, by Rebecca Smith

Pursuant to his presentations on Global Environmental Issues in several Chinese Universities in October of last year, Dr. Rastegar, Aspen's founder and President, was invited to make presentations at Xi'an International University. The university is located in



Aspen's President in China



the ancient City of Xi'an (which contains the most significant archeological excavation of 20th century, the Terra Cotta Warriors) in the Shaanxi Province. Dr. Rastegar and his wife Dr. Mitra Rastegar also visited the construction site of one of the international educational projects that Aspen has supported over the last two years: the building of the School of the Nations in Macau, which will be completed this summer.

Dr. Rastegar was in China during the tragic recent earthquake, and Aspen has made contributions to the Red Cross to assist the victims.

Solar Gold Rush

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applications range from 15 acres (for a pilot project to demonstrate the feasibility of a specific technology) to as large as 50,000 acres per project. The average size of these projects is between 3,000 and 7,000 acres – from 5 to 10 square miles. These projects propose to use two general methods of converting solar power into electricity.

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1. **Solar Thermal Technologies:** In this general category the sun's thermal energy would be concentrated and used. At scales never before constructed, several types of technologies currently under consideration in this category include:

- Stirling engine – Mirrored dishes 45 feet tall focus sunlight on an enclosed engine in the center of the dish. As many as over 37,000 dishes would be constructed in a single field to generate up to 1000 MW
- Solar trough – The most established technology, but with new variations in design, these long rows of mirrors focus sunlight on a tube enclosing a heat transfer fluid, which flows to a turbine powered by steam (made by boiling water using the HTF)
- Power tower – Concentric circles of mirrors focus sunlight on a 300 to 500 foot tall tower, in which water is boiled to generate steam to run a turbine.

2. **Photovoltaics:** Just like rooftop solar panels, these panels would directly convert the sun's light into electricity using the photoelectric effect. Generation of hundreds of megawatts of energy through use of this technology would result in covering of thousands of acres of desert floor.

Given the size of each project, the environmental impacts of most concern are loss of habitat, loss of cultural resources, effects on desert vistas, and potential for erosion and degradation of surface water quality. In addition, because most projects would be entirely fenced, these huge projects could also affect desert recreation and disrupt wildlife migration patterns. The first joint NEPA/CEQA document to evaluate a large solar proposal in the desert is now being prepared by BLM and the CEC. The project is the Ivanpah Solar Electric Generating Station, proposed by BrightSource Energy. The Draft document will be released later in 2008.

(View <http://www.brightsourceenergy.com/>)



Alta Wind Power

Aspen will Assist Kern County to Permit the Largest Wind Farm in California

Aspen is excited to announce that we were recently awarded a contract to prepare the Environmental Impact Report (EIR) for California's largest proposed wind energy project. Under contract to Kern County, Aspen will prepare the EIR for the Alta Windpower Development located in unincorporated Kern County, southeast of the city of Tehachapi and west of the town of Mojave. The proposed project is the first phase of the Alta Wind Energy Center, designed to produce at least 1,500 MW of wind energy. Phase one is a wind development that would produce 800 megawatts (MW) of wind energy using 320 wind turbines located on approximately 9,679 acres. It is to be located within the Tehachapi Wind Resource Area (TWRA), which is California's largest wind resource area. Wind power plants in this area are responsible for over 40 percent of California's wind energy generation and currently produce approximately 710 MW of energy, more power than any other wind development in the United States. Therefore, Alta Windpower Development's first phase alone will surpass the area's current generation capacity, and future phases of project would more than double it. This will be a big step in achieving the State of California's Renewables Portfolio Standard.

Power generated by the proposed project would be interconnected to Southern California Edison's (SCE's)

transmission system, via upgrades planned as part of SCE's Tehachapi Renewable Transmission Project (TRTP). Aspen is currently preparing an EIR/EIS for Segments 4 through 11 of the TRTP for the CPUC and Forest Service.

In addition to the TRTP EIR/EIS, Aspen has recently worked on several projects within the same vicinity as the Alta Windpower Development, including the environmental impact analysis for Antelope Transmission Project (Segments 1, 2, and 3), which includes construction of the new Windhub Substation in the TWRA. We look forward to applying Aspen's knowledge and experience to help bring more renewable energy resources on line in California.



Existing wind turbines in the TWRA.

Maricopa County Combining Multi-Use Needs for Regional Drainage

The Aspen Consulting Engineers division is working in Arizona with the Flood Control District of Maricopa County to develop a regional drainage plan that is distinctive in that it is driven in part by multiple-use needs of the area. The proposed construction of the Loop 303 freeway in western Maricopa County provides this opportunity. The freeway will be built in an area that is traditionally agricultural, but is developing rapidly into residential housing. Construction of the freeway requires a regional drainage solution with large detention basins. Aspen, in cooperation with the County, a local landscape architect, and local stakeholders, is developing drainage solutions with locations, configurations, and design driven in part by the multiple-use and landscaping needs of the area. Solutions are based primarily on hydrologic and hydraulic need. But within this context, the landscape character and regional park needs of the local communities help determine the appropriate location of basins and channels. These are being designed as recreational and multiple-use destinations and corridors for use by the communities during the long periods of dry weather that occur in Maricopa County.

This design approach to allow multiple-use and aesthetic features to help determine drainage concept design is a relatively new approach in Maricopa County. Aspen works with the public and local stakeholders to assess local interest and needs for this project.

Alternatives being explored range from:

- A semi-soft structural approach, consisting of predominantly earthen materials with overall drainage structure designed to emulate the character of natural landforms in the surrounding landscape, to
- A hard structural method, consisting of a traditional concrete channel, with aesthetic treatment.

Multiple features stand out:

- Landscape design themes complement the natural Sonoran Desert.
- Channels are designed as multi-use, multi-modal corridors.
- Detention basins are designed as passive-recreational parks or for active recreation including features for sports, children, and dogs.

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Energy Planner: Candelaria

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and short-term fuel procurement plans; load forecasts; financial plans; rate-making; rule-making; and other regulatory issues. He managed the Nevada Commission staff's effort to develop revised resource planning regulations and helped develop State mandated renewable energy regulations. Mr. Candelaria also assessed the Nevada utilities efforts to achieve compliance with the State's Renewable Portfolio Standard. He was the Nevada Commission's representative on the Western Electricity Coordinating Council's Planning and Coordinating Committee. He is knowledgeable about reliability issues related to resource adequacy, transmission planning, and power system operation and design.

In the near future, Mr. Candelaria will be working on a number of projects including:

- a) Providing guidance to clients on resource adequacy models;
- b) Assisting clients with the enhancement of the risk assessment and probability analysis features of the supply adequacy models;
- c) Representing clients in group regional planning committees.

Current Projects on which he is working include assisting the Bureau of Consumer Protection, a Nevada Agency, with the evaluation of resource plan amendments. In this capacity, he is evaluating the adequacy of the Nevada Utilities transmission and generation expansion plans. In addition, he prepares documents for various Aspen projects and proposals.

<http://www.AspenEG.com>

