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Wind Power in Nevada

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Wind Power in Nevada

By

Hamedah Dhalai,

UNLV, Class of 2010

November 6, 2010

Introduction

This bibliography compiles scholarly information and new reports on the topic of wind power in Nevada. As a senior at UNLV majoring in both Economics and French, I began this project in June 2010 in consultation with William E. Brown, Jr., director of planning and communications at Brookings Mountain West. This research topic interests me greatly, and I believe that expanded research and commercial development of alternative energy, including wind power, is essential to the growth and development of Nevada. My service as a Student Ambassador in the College of Business, a position that allows me to represent UNLV to the larger Las Vegas community, has confirmed this belief.

The goal of this project is to provide a resource for information on wind power in Nevada. This bibliography includes websites that focus on wind energy and articles regarding the wind industry in Nevada. References to information in a variety of formats, including videos and maps, are available. The bibliography does not contain detailed scientific analysis of wind energy, rather, it offers a view of contemporary wind power activity in Nevada and works that discuss the future of the wind industry.

Included in the list of articles and resources are numerous news articles pertaining to future wind projects, as well as a section dedicated to commercial projects that failed or did not materialize. References to individual wind power projects document each project's progress, or lack thereof. As many of these projects are in their beginning phase, one is advised to search for information that may be produced following publication of this bibliography.

I would like to extend a special thanks to Marianne Buehler, UNLV urban sustainability librarian for her guidance with this project.

Hamedah Dhalai

UNLV Class of 2010

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I. Articles

- (2009, September 22). *Treasury, Energy Surpass \$1 Billion Milestone in Recovery Act Awards for Clean Energy Projects*. <http://www.energy.gov/8038.htm>

Nevada has been awarded over \$60 million by the U.S. Department of Energy to “expand the development of clean, renewable domestic energy.”

- Berliant, L. (2010, March 17). Wind Turbine Production Plant Comes to Nevada. Retrieved from <http://www.energyboom.com/wind/wind-turbine-production-plant-comes-nevada>

Power Energy Generation Systems (NasdaqGS: APWR) and American Nevada Group (ANC) and U.S. Renewable Energy Group (US-REG) plan to develop and construct a new wind turbine production and assembly plant in Nevada that will supply project developers in North and South America.

- Choate, A. (2009, August 10). Catching Wind Energy. *Las Vegas Review Journal*. Link unavailable.

There are roughly 20 of these generators in the Reno area and three in Southern Nevada including the one installed Friday, which is the first in Las Vegas at a business.

- Edwards, J.G. (2009, June 16). Nevada Clean Energy Thrives. *Las Vegas Review Journal*. Link unavailable.

Nevada requires NV Energy to obtain increasing amounts of their power from renewable resources, such as solar and wind power, and provides tax incentives to build utility-scale solar power plants.

- Johnny G. (2008, September 15). Commercial Wind Energy Production Comes To Washoe. *The Nevada Observer: Vol. 5, No. 22*. Retrieved from, http://www.nevadaobserver.com/TNO%20Transfer%20Folder%20080915/commercial_wind_energy.htm

Journal addressing the need for wind power in Nevada.

- Robison, J. (2008, September 10). ‘Clean’ Investment Said to Create Jobs. *Las Vegas Review Journal*. Link unavailable.

The report, which the Center for American Progress and the Nevada Conservation League released Tuesday, analyzed the job growth that would come from a two-year, \$100 billion investment in a nationwide "clean energy" strategy designed to reduce greenhouse gas emissions and "create a low-carbon economy.

- Robison J. (2009, June 26). Wind Farm is Talk of Town. Las Vegas Review Journal. Link unavailable.

Other projects facing recent hurdles include NV Energy's 1,500-megawatt Ely Energy Center, a coal-fired power plant halted officially on June 15 after a years-long fight with environmentalists, and a major solar operation at the outskirts of Nellis Air Force Base's training range.

- Robison, J. (2009, August 11). From Here, Future Looks Green. Las Vegas Review Journal. Link unavailable.

Danny Thompson, head of the Nevada chapter of the AFL-CIO, noted that Nevada's portfolio standard, instituted about a decade ago, gave the state's utilities incentive to push construction of the nation's largest photovoltaic array, a 72,000-panel, 14-megawatt solar plant that supplies the Nellis Air Force Base with more than 25 percent of its power.

- Robison, J. (2010, March 12). Companies to Bring Large Wind Turbine Plant to Valley. *Las Vegas Review Journal*. Link unavailable

Washington, D.C.-based private-equity firm U.S. Renewable Energy Group will partner with A-Power Energy Generation Systems of China and Henderson-based developer American Nevada Co. to launch the project, which would turn out enough wind turbines to generate 1,100 megawatts of power a year.

- Rogers, K. (2008, August 19). Clinton Touts Clean Energy. *Las Vegas Review Journal*. Link unavailable.

To focus the nation on affordable energy free of greenhouse gas emissions, the federal government needs to offer tax credits for companies to invest in large-scale solar plants and wind farms complete with a more efficient transmission system. Bill Clinton Nevada to lead the nation toward energy independence by developing its vast potential for solar and wind power.

- Spivey, S. (2008, May 13). Wind power potential seen brewing. *Las Vegas Review Journal*. Retrieved from <http://www.lvri.com/business/18887479.html>

Wind power could provide 20 percent of the nation's electricity by 2030, according to a report released Monday by the Department of Energy that advances a plan for the industry's growth.

- Taveres, S. (2009, February 6). Web Site Estimates Solar and Wind Electricity Potential. *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2009/feb/06/web-site-estimates-solar-and-wind-electricity-pote/>

The National Renewable Energy Lab has created an online tool that might make the decision on installing solar or wind generation a lot easier. The energy lab recently launched an online application called In My Backyard which it says is capable of estimating solar photovoltaic (PV) and wind electricity capacity for locations across the country.

- Tavares, S. (2009, February 13). Wind-Energy Industry Hopes to Regain its Momentum. *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2009/feb/13/wind-energy-industry-hopes-regain-its-momentum/>

Nearly \$17 billion in investments helped increase the nation's total wind power generating capacity by 50 percent last year. That also accounted for more than 40 percent of power-producing capacity increases across all electric generation types, the organization said.

- Tavares, S. (2009, February 15). Wind Power's Potential in Peril? *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2009/feb/15/wind-powers-potential-peril/>

Nevada is not among the top states in wind energy potential — it's ranked 21st in the nation. And so far it has no utility scale wind farms (although several are in the planning stages). Yet the boost the American wind industry could see as a result of federal legislation could be a boon for the state.

- Tetreault, S. (2009, February 13). Energy Official: Nevada's Future is in Renewables. *Las Vegas Review Journal*. Retrieved from <http://current.com/1fin04c>

Nevada can generate enough electricity from renewable sources to justify building a major transmission line without constructing any more coal-fired power plants. The development of wind, solar and geothermal sources coupled with the aggressive pursuit of energy efficiency in Las Vegas could allow the state to be powered entirely by Mother Nature within the next 15 to 20 years, said Jon Wellinghoff, a Nevadan who is acting chairman of the Federal Energy Regulatory Commission."

- Vogel, E. (2009, September 9). Committee: Lines should Link Renewable Energy in Nevada. *Las Vegas Review Journal*. Link unavailable.

A governor's committee recommended Thursday that power companies spend about \$3 billion on transmission lines to carry renewable energy potential available in rural Nevada to existing transmission lines

II. Miscellaneous

- (1986, October). " *Regional Summaries,*" *Wind Energy Resource Atlas of the United States.* Retrieved from <http://rredc.nrel.gov/wind/pubs/atlas/chp3.html#southwest>
- (2005, March). *Small Wind Electric Systems: a Nevada Consumer's Guide.* " U.S. Dept. of Energy, Energy Efficiency and Renewable Energy. Retrieved from <http://www.nrel.gov/docs/fy05osti/37630.pdf>

Topics discussed in the guide include how to make a home more energy efficient, how to choose the correct turbine size, the parts of a wind electric system, how to determine whether enough wind resource exists, how to choose the best site for a turbine, how to connect a system to the utility grid, and whether it's possible to become independent of the utility grid using wind energy.

- (2009, July). *2008 Renewable Energy Data Book.* Retrieved from <http://www.nrel.gov/analysis/pdfs/45654.pdf>

Overview of renewable energy in the U.S. Helpful to see where the United States stands compared to the rest of the world in renewable energy. Also gives the reader some background info on renewable energy itself. One can see that Nevada is lagging behind nearby states such as California, Oregon and Idaho who are leaps and bounds ahead of the Silver State in terms of wind energy.

- (2010, February). *Renewable Energy Project Table.* Provided by Bureau of Land Management. Retrieved from http://www.blm.gov/pgdata/etc/medialib/blm/nv/energy.Par.56189.File.dat/Renewable_Energy_Project_Table_Feb_2010.pdf
- Belu, R., Koracin, D., Vellore, R. *Wind Energy Assessment for Nevada.* Desert Research Institute. Retrieved from http://www.dri.edu/images/stories/editors/receditor/WE_Poster_22may_2.pdf

Wind energy assessment study for Nevada and the U.S. Southwest.

- Kent Hoekman, S. (2007, September 18). *Assessing Nevada's Renewable Power Production Potential.* Desert Research Institute. Retrieved from http://www.dri.edu/images/stories/editors/receditor/2007_hoekmank_anrppp.pdf

Nevada has considerable renewable energy potential in the form of geothermal, solar, and wind resources. While at present these resources contribute only about 5% of Nevada's total power generation, their contributions are expected to increase substantially over the next few decades.

- Koracin, D, Liddle, M, McCord, T, Minor, T, Podnar, D, Reinhardt, R. (2007). *Assessment of wind energy for Nevada using towers and mesoscale modeling* (PowerPoint). Retrieved from http://www.dri.edu/images/publications/2007_koracind_awenutmm.pdf
- *MIDC/Nevada Power Clark Station.* Retrieved from <http://www.nrel.gov/midc/npcs/>

The Measurement and Instrumentation Data Center collects Irradiance and Meteorological data from Nevada Power Clark Station.

- Milligan, M. (2008, February 7). *Ten Frequently Asked Questions and Answers About Wind Energy Grid Integration* (Powerpoint). Retrieved from http://www.nrel.gov/wind/systemsintegration/pdfs/milligan_wind_integration_faqs.pdf

Presented to the Kansas State Legislature on February 7, 2008. A nice powerpoint for those wishing to learn more about wind energy.

- (2008, May 12). *Wind Based Energy Projects*. Bureau of Land Management. Retrieved from http://www.blm.gov/nv/st/en/fo/ely_field_office/blm_programs/energy/wind-based_energy.html

List of proposed wind energy projects in Nevada.

- (2009, October 20). *Past events in Nevada*. Retrieved from <http://www.windpoweringamerica.gov/detail.asp?stateab=nv&StateContent=past>

List of 24 events concerning wind that have taken place in Nevada,

- (2010, April 27). *Reid Statement On A-Power Energy's Plan To Build A Wind Turbine Plant In Nevada*. Retrieved from http://reid.senate.gov/newsroom/pr_042710_windturbineplant.cfm

"I commend A-power, their partners and supporters for moving forward with a project that will put more than 1,000 Nevadans back to work..."

- (2010, October 6). *Nevada Wind Map*. Retrieved from http://www.windpoweringamerica.gov/maps_template.asp?stateab=NV

Nevada 50-Meter Wind Resource Map. U.S. Department of Energy

- (2010, October 20). *Wind Systems Integration Publications*. National Renewable Energy Laboratory. Retrieved from <http://www.nrel.gov/wind/systemsintegration/publications.html>

List of NREL reports and presentations pertaining to wind systems integration.

III. Presentations

- Balas, M.J., Fingersh, L. J., Wright, A.D. (2006, January 9-12). *Testing State-Space Controls for the Controls Advanced Research Turbine* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/39123.pdf>

We show the design of control systems to regulate turbine speed in Region 3 using rotor collective pitch and reduce dynamic loads in Regions 2 and 3 using generator torque.

- Bir, G. (2008, January 7-10). *Multi-Blade Coordinate Transformation and Its Application to Wind Turbine Analysis* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/42553.pdf>

Multi-blade coordinate transformation (MBC) helps integrate the dynamics of individual blades and express them in a fixed (nonrotating) frame. MBC involves two steps: transformation of the rotating degrees of freedom, and transformation of the equations of motion.

- Bucaneg, Jr. D., and Wen, Yih-huei. (2002, January 14-17). *Short-Term Power Fluctuations of Large Wind Power Plants: Preprint* (PDF). Retrieved from <http://www.nrel.gov/docs/fy02osti/30747.pdf>

- This paper presents statistic properties of the data collected so far and discusses the results of data analysis.

- Butterfield, C.P., Muljadi, E., Romanowitz, H., Yinger, R. (2005, January 10-13). *Self Excitation and Harmonics in Wind Power Generation: Preprint* (PDF). Retrieved from http://www.nrel.gov/wind/systemsintegration/pdfs/2004/muljadi_harmonics.pdf

This paper shows the interactions among the induction generator, capacitor compensation, power system network, and magnetic saturations and examine the cause of harmonic currents and self-excitation.

- Buhl, M.L, Jr and Jonkman, J.M. (2007, January 8-11). *Development and Verification of a Fully Coupled Simulator for Offshore Wind Turbines* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/40979.pdf>

Continuing our work presented previously, we outline the development of such an analysis tool for floating offshore wind turbines, including a recently added, quasi-static mooring system module.

- Buhl, M.L, Jr, and Manjock A. (2006, January 9-12). *"A Comparison of Wind Turbine Aeroelastic Codes Used for Certification* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/39113.pdf>

After a variety of exercises, GL issued a statement that it is acceptable for manufacturers to use the NREL codes for on-shore wind turbine certification.

- Carr, T., Larson, D., Milligan, M., Parsons, B., Shimshak, R. (2006, June 4-7). *Wind Supply Curves and Location Scenarios in the West: Summary of the Clean and Diverse Energy Wind Task Force Report* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/40050.pdf>

Presented at Windpower 2006. The Wind Task Force developed a set of supply curves for each Western Governor's Association state under various assumptions of transmission availability. The findings indicate that the wind resource in the WGA footprint can economically more than achieve the WGA target for clean energy development.

- Corbus, D. A., Hansen, C., and Minnema, J. (2006, January 8-10). *Effect of Blade Torsion on Modeling Results for the Small Wind Research Turbine (SWRT)* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/39000.pdf>

This paper summarizes modeling results from both the FAST and ADAMS aeroelastic simulators.

- Fingersh, L.J., Stol, K.A., Wright, A., D. (2007, January 8-11). *Designing and Testing Controls to Mitigate Tower Dynamic Loads in the Controls Advanced Research Turbine* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/40932.pdf>

At the National Renewable Energy Laboratory we are designing, implementing, and testing advanced controls to maximize energy extraction and reduce structural dynamic loads.

- Hughes, S., Paquette, J., Van Dam, J. (2007, January 8-11). *Structural Testing of 9 m Carbon Fiber Wind Turbine Research Blades* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/40985.pdf>

This paper outlines the results of the structural tests that were conducted.

- Jonkman, J., M. (2008, January 7-10). *Influence of Control on the Pitch Damping of a Floating Wind Turbine* (PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/42589.pdf>

This paper presents the influence of conventional wind turbine blade-pitch control actions on the pitch damping of a wind turbine supported by an offshore floating barge with catenary moorings.

- Levene, J., Kroposki, B., and Sverdrup, G. (2006, March). *Wind Energy and Production of Hydrogen and Electricity — Opportunities for Renewable Hydrogen* (PDF document). Retrieved from <http://www.nrel.gov/docs/fy06osti/39534.pdf>

Research on wind hydrogen production. Presented at 2006 POWER-GEN Renewable Energy and Fuels Technical Conference in Las Vegas.

- Muljadi, E and Green, J. (2002, January 14-17). *Cogging Torque Reduction in a Permanent Magnet Wind Turbine Generator* (PDF). Retrieved from <http://www.nrel.gov/docs/fy02osti/30768.pdf>

In this paper, we investigate three design options to minimize cogging torque: uniformity of air gap, pole width, and skewing.

- Schreck, S.J. (2007, January 8-11). *Rotationally Augmented Flow Structures and Time Varying Loads on Turbine Blades*(PDF). Retrieved from <http://www.nrel.gov/wind/pdfs/40982.pdf>

Time dependent blade surface pressure data were acquired from the NREL Unsteady Aerodynamics Experiment, a full-scale HAWT tested in the NASA Ames 80 ft x 120 ft wind tunnel.

IV. Future Projects

A-Power Generation System

- (2010, March 11). Firms pick windy Nevada for turbine plant. UPI.com. Retrieved from http://www.upi.com/Business_News/2010/03/11/Firms-pick-windy-Nevada-for-turbine-plant/UPI-26771268334250/
- (2010, March 12). Group Announces Nevada Wind Turbine Plant,” UPI.com. Retrieved from http://www.upi.com/Science_News/Resource-Wars/2010/03/12/Group-announces-Nevada-wind-turbine-plant/UPI-25451268423660/

Article regarding A-Power’s wind turbine facility in Nevada.

- (2010, April 22). *A-Power Energy Generation Systems, Ltd. to Host a Las Vegas Press Conference for its Texas Wind Farm Development and Planned Nevada Assembly Facility on Tuesday, April 27, 2010.* Retrieved from http://files.shareholder.com/downloads/ABEA-22UX49/921315194x0x368395/eaccfed1-7d4c-43db-88cc-d8d0ebc5cc31/APWR_News_2010_4_22_General_Releases.pdf

China Mountain Wind Project

A proposed 185 turbine wind farm in Southern Idaho and Northern Nevada.

- (2007, November 16). Company plans wind energy project near Jackpot. *Times News.* Retrieved from http://www.magicvalley.com/news/local/article_256a8b8c-f74f-56ab-be45-8181fe0462a4.html

Sierra Pacific Resources and Renewable Energy Systems Americas Inc. said Thursday they're working on an agreement to jointly develop and operate a large wind-energy project in Elko County and southern Idaho.

- (2008, June). Proposed China Mountain Wind Power Project Environmental Impact Statement (PDF). Retrieved from http://www.blm.gov/pgdata/etc/medialib/blm/id/nepa/jarbidge_fo/china_mountain_wind.Par.17053.File.dat/news1.pdf

Regarding the China Mountain Wind Power Project.

- (2008, June 19). A day in the Field. *Times News.* Retrieved from http://www.magicvalley.com/news/local/image_f014d944-8af0-595e-9b71-4ceff21e3a75.html
- (2008, July 1). China Mountain wind project good for TF County. *Times News.* Retrieved from http://www.magicvalley.com/news/opinion/editorial/article_5d542b2d-dd35-524f-a347-2fe1cbfd113a.html

The China Mountain project, being developed by British-owned Renewable Energy Systems America Developments proposes 185 turbines on 30,700 acres southwest of Rogerson.

- (2008, December 18). NV Energy and RES Americas Moving Forward with Wind Energy Project. Retrieved from http://www.nvenergy.com/company/news/ShowPR.cfm?pr_id=4962

NV Energy and Renewable Energy Systems Americas Inc. (RES Americas) are moving forward with development of the China Mountain 200-megawatt (MW) wind-energy project in northeastern Nevada and southern Idaho.

- (2010, July 27). Proposed China Mountain Wind Project http://www.blm.gov/id/st/en/prog/planning/china_mountain_wind.html
- Christensen, M. (2008, February 4). Mega-Wind Project South of T.F. Progresses. *Times News*. Retrieved from http://www.magicvalley.com/news/local/article_d3d3c968-f5b6-555c-a76e-ca3a2433eb12.html

In the next two years, the first of nearly 200 planned wind turbines could begin to gently spin on seldom seen federal, state and private lands. The farm could be one of the largest of its kind in the entire Northwest.

- Ehrlich, D. (2007, November 16). Sierra Pacific, Renewable Energy to develop wind project. Retrieved from <http://cleantech.com/news/2097/sierra-pacific-resources-renewable-energy-systems-to-develop-wind-project>

Las Vegas, Nevada's Sierra Pacific Resources and Austin, Texas-based Renewable Energy Systems Americas said they are in talks to jointly develop and operate a large wind energy project on the Nevada-Idaho border.

- Poppino, N. (2009, March 28). BLM, Developers Look at Effects of China Mountain Wind Project. *Times News*. Retrieved from http://www.magicvalley.com/news/local/article_ed69c63d-6e9d-5307-a1df-a7c7fdcd8fa1.html

Developers of a proposed 185-turbine wind farm and the Bureau of Land Management are continuing to gather information on the effects the farm would have on the sagebrush-filled desert southwest of Rogerson.

- Poppino, N. (2009, October 18). BLM asks for more public comment on China Mountain. *Times News*. Retrieved from http://www.magicvalley.com/news/local/article_d7cda27a-a655-5df3-918c-d14c40caf9a4.html

The U.S. Bureau of Land Management is now asking for more public comment on the proposal, this time on a modification to the resource management plan that governs whether the agency can even consider allowing a wind farm in its Jarbidge Field Office.

- Poppino, N. (2010, March 17). Study: Wind Project Would Bring New Jobs, \$2 million in Tax Revenue. Retrieved from http://www.magicvalley.com/news/local/article_64a5e926-5aba-522c-8e49-5a4bd0775df3.html

The proposed 170-turbine China Mountain wind project south of Twin Falls could bring the Magic Valley an average of 239 jobs over its two-year construction period and contribute \$2 million yearly to local tax coffers once built, according to a draft economic analysis.

- Poppino, N. (2010, March 18). Energy Developers Say Sage Grouse Decision Manageable. *Times News*. Retrieved from http://www.magicvalley.com/news/local/article_8d55ca7f-f79f-52b6-b6fe-c598772b02bd.html

Western energy developers were a bit nervous earlier this month as the government weighed Endangered Species Act protections for a small desert bird.

- Poppino, N. (2010, April 12). Group to Look at Wind Farms' Effects on Grouse. *Times News*. Retrieved from http://www.magicvalley.com/news/local/state-and-regional/article_318c1516-89fa-5ecc-ae4-7dd230821e16.html

A group of biologists, energy developers and electric utilities is pursuing several long-term projects to study how wind farms affect the bird, which is a candidate for listing under the Endangered Species Act.

- Tavares, S. (2009, February 22). Vegas Company's Planned Wind Farm Clears a Hurdle. *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2009/feb/22/vegas-companys-planned-wind-farm-clears-hurdle/>

The Washoe County Planning Commission has approved plans for what could become Nevada's first commercial-scale wind-powered electrical generating facility.

New Comstock Wind Project

Proposed by Great Basin Wind LLC. According to Great Basin, this project will create 15 long-term jobs. Company located in Reno, NV. Greatbasinwind.com

- (2010, September 28). New Comstock Wind Energy Project. Retrieved from http://www.blm.gov/nv/st/en/fo/carson_city_field/blm_programs/planning/new_comstock_wind.html

BLM description of project.

- Caraway, K. (2008, December 15). Wind Project Opens for Public Comments. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20081215/NEWS/812129956&parentprofile=search>

The project calls for installing up to 69 wind turbines on the western ridge of the Virginia Range, from south Reno to the northeast edge of Carson City. The towers would be between 210 and 330 feet high, with turbine blades ranging from 115 to 170 feet.

- Frank, D. (2009, January 19). Public Comments on Wind Farm Welcomed. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20090119/NEWS/901199991&parentprofile=search>

- Frank, D. (2009, January 21). Wind Farm Project Draws Criticism in Storey County. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20090121/NEWS/901209876&parentprofile=search>

A planned windmill project would hurt the local economy and has no place in the county, Storey County officials said Tuesday.

- Frank, D. (2009, February 2). Windmill Ordinance Could Ban Storey Project. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20090202/NEWS/902029992&parentprofile=search>

Storey County could block a 69-windmill project planned for mountains north of Carson City and west of Virginia City under a new ordinance.

- Frank, D. (2009, February 6). Storey County Windmill Project's Chances are Blowing in the Wind. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20090206/NEWS/902069976&parentprofile=search>

Storey County could ban a 69-windmill project not only near tourist towns but almost anywhere in the county.

- Frank, D. (2009, February 18). Storey County to Hear BLM Report on Windmill Project. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20090218/NEWS/902179934&parentprofile=search>

The federal agency will host a presentation Thursday for the Storey County Planning Commission on the studies it has done and will do for the project planned for the mountains west of Virginia City and north of Carson City.

- Frank, D. (2009, February 20). Storey County Residents Denounce Windmill Project. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20090220/NEWS/902199903&parentprofile=search>

Storey County residents told the Bureau of Land Management on Thursday that a proposed windmill project would ruin the tourist-based economy in Virginia City and surrounding areas.

- Frank, D. (2009, February 23). BLM Seeks Comments on Windmill Project at Carson City Planning Commission Meeting. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20090223/NEWS/902239958&parentprofile=search>

The BLM will talk to the city planning commission Wednesday about Reno-based Great Basin Wind's proposal to build about 70 windmills on federal land in Storey and Washoe counties.

- Frank, D. (2009, February 24). Windmill Project Talks Go to Carson City. *Nevada Appeal*. Retrieved from <http://www.nevadaappeal.com/article/20090224/NEWS/902239933&parentprofile=search>

The bureau will talk to the city planning commission Wednesday about Reno-based Great Basin Wind's proposal to build about 70 windmills on federal land in Storey and Washoe counties.

- Margolin, J. (2009, June 22). Public comments for the New Comstock Wind Energy Project. Retrieved from <http://www.storeycountywindfarms.org/comments/windmail.htm>

Storey County officials want the public to tell the federal government what it thinks about a plan to build windmills on mountains north of Carson City and west of Virginia City.

Pah Pah Range

Nevada Wind plans to install wind turbines in the Pah Pah Range of Northern Nevada.

- Farley, C. (2009, January 15). It's an ill wind. Retrieved from <http://www.newsreview.com/reno/content?oid=896317>

Op-ed on the proposed wind project in Northern Nevada.

- Van Dyke, B. (2009, January 15). Down on the (wind) farm. Retrieved from <http://www.newsreview.com/reno/content?oid=896322>

Op-ed on the proposed wind project in Northern Nevada.

- Van Dyke, B. (2009, January 22). Pah Rah wind farm thoughts. Retrieved from <http://www.newsreview.com/reno/content?oid=898057>

Op-ed on proposed wind farm in Northern Nevada.

- White, S. (2008, September 15). Wind Power from the Pah Rah Range. Retrieved from <http://renotahoe.about.com/b/2008/09/15/wind-power-from-the-pah-rah-range.htm>

Nevada Wind, a power development company based in Las Vegas, recently submitted an application to Washoe County planners seeking a use permit to plant up to 50 wind turbines atop the Pah Rah Range.

Spring Valley Wind Project

A wind farm that will be located near Ely, Nevada. A website dedicated to blocking the construction of the wind farm.

<http://www.basinandrangewatch.org/SpringVal-Wind.html>

- (2010, February 9). NV Energy Signs Power Contract with Pattern Energy for First Utility-Scale Wind Project in Nevada.

NV Energy (NYSE: NVE) and Pattern Energy Group LP announced that the two companies have entered into a 20-year power purchase agreement for the sale of energy produced from a proposed wind energy project to be located in eastern Nevada.

<http://investors.nvenergy.com/phoenix.zhtml?c=117698&p=irol-newsArticle&ID=1385630&highlight=>

- (2010, February 10). NV Energy, Pattern Energy Sign PPA For Wind Project In Nevada. Retrieved from http://transportationandstorage.energy-businessreview.com/news/nv_energy_pattern_energy_sign_ppa_for_wind_project_in_nevada_100210

NV Energy and Pattern Energy have entered into a 20-year power purchase agreement (PPA) for the sale of energy produced from a proposed wind energy project to be located in eastern Nevada.

- (2010, July 19). BLM Seeks Public Comment on Spring Valley Wind Project Revised Preliminary EA. Retrieved from http://www.blm.gov/nv/st/en/fo/ely_field_office/blm_information/newsroom/2010/july/blm_seeks_public_comment0.html

News release addressing the Spring Valley Wind Project.

- Cartledge, J. (2010, February 11). Power Deal Agreed for Nevada's First Major Wind Project. Brighterenergy.org. Retrieved from <http://www.brighterenergy.org/4761/news/wind/power-deal-agreed-for-nevadas-first-major-wind-project/>

Las Vegas-based NV Energy has agreed a 20-year deal to buy energy from what could become Nevada's first major wind project.

- Herndon, R. (2009, November 4). After Four Years, Spring Valley Wind Project Nears EA Review. *Ely Times*. Retrieved from <http://www.elynews.com/articles/2009/11/04/news/news01.txt>

A private contractor is currently putting the finishing touches on the draft Environmental Assessment for the 66-turbine project, which would be located on BLM-administered lands between State Route 893 and U.S. Highway 50 as it veers north toward Sacramento Pass.

- Plestina, J. (2008, February 20). Wind farm planned for Spring Valley. *Ely Times*. Retrieved from <http://www.elynews.com/articles/2008/02/20/news/news02.txt/>

Spring Valley might become a valley of the windmills in two years. A developer presented a proposal to the White Pine County Commission Feb. 13 to develop a wind farm in Spring Valley, about 30 miles east of Ely.

- Robison, J. (2010, February 9). NV Energy Agrees to Deal With Wind Farm. *Las Vegas Review Journal*. Retrieved from http://www.lvrj.com/news/breaking_news/nv-energy-agrees-to-deal-with-wind-farm-83940317.html

Local power utility NV Energy has agreed to a 20-year deal to buy electricity from a wind farm planned near Ely. Pattern Energy Group of San Francisco will build the 150-megawatt Spring Valley Wind Project, which would be Nevada's first major, utility-scale wind plant.

- Robison, J. (2010, July 1). Regulators Tell Utility to Reveal Deal Details. *Las Vegas Review Journal*. Retrieved from <http://www.allbusiness.com/energy-utilities/utilities-industry-electric-power-power/14747206-1.html>

Consumers should soon see how much local power utility NV Energy has agreed to pay for green electricity in several new power-purchase agreements.

- Rogers, K. (2010, August 8). Renewable Energy: Wind power project's impact on bats studied. *Las Vegas Review Journal*. Retrieved from <http://www.lvrj.com/news/wind-power-project-s-impact-on-bats-studied-00747919.html>

Research is aimed at finding ways to keep the bats from tangling with wind turbines planned in Spring Valley, about five miles away as the bat flies.

- Spring Valley. Retrieved from http://www.wildnevada.org/index.php?option=com_content&view=article&id=546:fast-track-spring-valley&catid=89

Web page against Spring Valley Wind Project.

- Tavares, S. (2010, March 6). It's Man vs. Bird in Quest for Power. *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2010/mar/06/its-man-vs-bird-quest-power/>

The future of Nevada is tied to the future of the sage grouse because the bird lives in a lot of the same areas that are expected to be used for wind, solar and geothermal energy.

- Voyles, S. (2009, January 4). Wind Farm Showdown this Week. *Reno Gazette Journal*. Retrieved from <http://pqasb.pqarchiver.com/rgj/access/1690835311.html?FMT=ABS&date=Jan+04%2C+2009>

Alternative energy advocates and residents opposed to giant wind turbines overlooking their homes in Warm Springs Valley are expected to square off when Nevada Wind's proposed wind farm comes before the Washoe County Planning Commission on Tuesday. The project is expected to produce \$1 million a year for local governments after tax abatements are considered, according to an economic analysis by Rubald & Associates, of Carson City.

- (2010, February 9). Wind Project Proposed in Nevada. Retrieved from <http://www.businessinsider.com/wind-project-proposed-in-nevada-2010-2>

Two energy companies have signed a 20-year deal for harvesting electricity from a proposed wind farm in eastern Nevada. NV Energy said its power-purchase agreement with Pattern Energy Group includes the 150- megawatt Spring Valley Wind Project

Virginia Peak

- Tavares, S. (2009, February 20). Las Vegas company plans Northern Nevada wind farm. *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2009/feb/20/las-vegas-company-plans-northern-nevada-wind-farm/>

The Washoe County Planning Commission this month unanimously approved plans for a 60 to 150 megawatt wind farm near Sparks. The 3,500-acre wind farm — the Virginia Peak Wind Project — is planned about 20 miles northeast of Sparks.

- Tavares, S. (2009, February 22). Vegas Company's Planned Wind Farm Clears a Hurdle. *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2009/feb/22/vegas-companys-planned-wind-farm-clears-hurdle/>

Article on Virginia Peak Wind Project from February 2009. The Washoe County Planning Commission has approved plans for what could become Nevada's first commercial-scale wind-powered electrical generating facility.

- Virginia Peak's Facebook page: <http://www.facebook.com/group.php?gid=108098660203>

Zephyr and Chinook

TransCanada: an independent power producer. The proposed Zephyr and Chinook projects would transport significant amounts of wind-generated electricity from the high-quality wind resources in Wyoming and Montana to markets in the U.S. Southwest, including California, Nevada and Arizona. Zephyr and Chinook are important new transmission infrastructure projects that would directly benefit the states they cross and consumers in the southwestern U.S. and make a substantial contribution to achieving state RPS and federal climate change objectives.

- (2009, September 30). Recovery Act Helps to Fund Transmission Line for Montana Wind Power. Retrieved from <http://www.nrel.gov/wind/systemsintegration/news/2009/730.html>

National Renewable Energy Laboratory. 30 September 2009.

TransCanada is proposing to build two 500-kilovolt direct-current transmission lines to carry power from south-central Montana and southeast Wyoming to a point south of Las Vegas, Nevada.

- (2009, September 25). TransCanada Has a Plan to Tap Wyoming and Montana's Wind Power Potential By Building Transmission Lines. Retrieved from <http://www.energyboom.com/wind/transcanada-has-plan-tap-wyoming-and-montanas>

Canadian company TransCanada (TSE:TRP) is seeking develop a plan to move wind power from the Rockies to the southwest United States via two, \$3 billion USD transmission lines.

V. Unsuccessful Projects

Duke Power Searchlight Project

Application of Duke Energy Corporation d/b/a Searchlight Wind Energy LLC for authority under the provisions of the Utility Environmental Protection Act for a permit to construct the Searchlight Wind Project consisting of up to 97 turbines, two substations, an overhead transmission line, and four permanent meteorological masts to be located in Clark County, Nevada.

<http://pucweb1.state.nv.us/PUCN/DktInfo.aspx?Util=Renewable&AspxAutoDetectCookieSupport=1>

- (2010, January 15). BLM Fast-Tracks Nevada Renewable Projects. *Reno Gazette Journal*. Link unavailable.

Projects listed include NextLight's 267 megawatt solar project in Clark County, Duke Energy's 200 megawatt wind project in Clark County, Spring Valley Wind's 150 megawatt wind project in White Pine, Ormat's geothermal projects in Pershing and Lander, and NV Energy's One Nevada Line project in White Pine.

- Robison, J. (2009, June 26). ENERGY: Searchlight residents grill Duke Energy representatives about wind farm. *Las Vegas Review Journal*. Retrieved from <http://www.lvrj.com/business/49170432.html>

The ongoing tempest over a planned wind farm swept about 10 percent of Searchlight's 600 citizens into the town's community center Thursday afternoon. Searchlighters peppered executives of project developer Duke Energy with questions.

- Sweet, P. (2009, January 31). Winds of Change Low Back. *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2009/jan/31/winds-change-blow-back/>

Residents of Searchlight, unlike Boulder City counterparts, staunchly oppose wind farm in community.

- Tomlin, C. (2009, January, 28). Proposed wind farm near Searchlight worries some residents. *Las Vegas Sun*. Retrieved from <http://www.lasvegassun.com/news/2009/jan/28/proposed-wind-farm-near-searchlight-worries-some-r/>

Some Searchlight residents worry that the wind-powered energy plant would be ugly, noisy and deadly to wildlife.

Nevada Test Site Wind Farm

Proposal of Nevada Test Site Wind Farm. July 2001. Federal Register. Page 38648

http://nepa.energy.gov/nepa_documents/rods/2001/38646.pdf

- (2002, July 18). Air Force Kills Wind Farm On Nevada Test Site. Retrieved from [http://www.wind-power.net/airforcekills\\$130windfarm.htm](http://www.wind-power.net/airforcekills$130windfarm.htm)

A \$130 million wind farm planned for land that is part of the Nevada Test Site about 85 miles northwest of Las Vegas has been abruptly canceled by a federal agency due to military concerns.

- (2003, January). Annual National Environmental Policy Act Planning Summary. Retrieved from http://nepa.energy.gov/nepa_documents/2003_Annual_Planning_Summaries/B_NEPANEVADASITEFeb05.pdf

Cancellation of wind facility in 2002. Due to “potentially significant adverse impacts to national security missions of the U.S. Air Force at the Nevada Test and Training Range.” Page 4; 4.2. Jan 2003. Prepared by the National Nuclear Security Administration.

- (2001, January 25). New Wind Plants In Northwest, Nevada to be World's Largest Retrieved from <http://www.awea.org/news/news010125nwn.html>

The unveiling of plans within the past two weeks for what will be the world's two largest wind power plants underline both wind energy's growing maturity and competitiveness.

VI. Regulations in Nevada

- Roberts, J (2010, June 18).. AWEA Says Small Wind Market Grew 15 Percent in 2009. Retrieved from <http://www.energyboom.com/wind/awea-says-small-wind-market-grew-15-percent-2009>

Second, state regulators are finally beginning to appreciate the value of streamlining the small wind permitting process. As of the spring of 2010, nine states (New Jersey, Delaware, California, Nevada, Wisconsin, Vermont, Missouri, Oregon and New Hampshire) had simplified their regulations. Unfortunately, this still leaves a considerable cohort of states who have difficult rules that essentially prevent small wind towers from being installed.

- Neuffer, S. (2010, July 16). Wind Energy Ordinance Powers Forward. *The Record Courier*. Retrieved from <http://www.recordcourier.com/article/20100716/NEWS/100719927/1062&ParentProfile=1049>

On Tuesday, Douglas County Planning Commissioners voted 5-1 to approve a zoning text amendment that eases restrictions on erecting wind turbines in residential areas.

- Markets for Green Power. Retrieved from http://www.awea.org/SMALLWIND/TOOLBOX2/markets_for_green_power.html#RenewableEnergyStandards

Nevada's legislature revised the state's minimum RPS amounts to increase by 2% every 2 years, starting with a 5% renewable energy requirement in 2003 and achieving a 15% requirement by 2013 and each year thereafter.

- (2010, June 3). Nevada's Energy Portfolio Standard. Retrieved from http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=Nv01R&state=Nv&CurrentPageID=1

Nevada established a renewable portfolio standard (RPS) as part of its 1997 restructuring legislation. Under the standard, NV Energy must use eligible renewable energy resources to supply a minimum percentage of the total electricity it sells.

VII. Videos

- (2010, March 31). Harry Reid: Nevada's Clean Energy Pioneer. Retrieved from <http://www.youtube.com/watch?v=cjSawJt1eJl>

A short documentary on Nevada's clean energy champion, Senator Harry Reid.

- (2010, August 20). N. Nevada man realizes wind power goal. Retrieved from <http://www.mynews4.com/story.php?id=26090&n=122>

On Friday morning a 100-foot, 10 kilowatt turbine was installed in Thomas Danzinger's Washoe Valley backyard.

- (2010, March 11). Reid Discusses Plans for a New Wind Turbine Plant. Retrieved from <http://www.youtube.com/watch?v=23BH-p1Mbfo>

Nevada Senator Harry Reid today discussed the news that A-Power Energy Generation Systems plans to build a new wind turbine production and assembly plant in Nevada.

VIII. Websites

- *American Wind Energy Association.* awea.org

AWEA is a national trade association representing wind power project developers, equipment suppliers, services providers, parts manufacturers, utilities, researchers, and others involved in the wind industry

- *Clean Technologies and Renewable Energy Center.* dri.edu/ctrec

The DRI Clean Technologies and Renewable Energy Center (CTREC) is a credible, independent authority regarding the benefits and limitations of renewable energy systems and their impacts upon the environment. The current focus of DRI's renewable energy research is on wind energy, hydrogen applications, and biomass-to-energy systems.lean Technologies and Renewable Energy Center page located on the Desert Research Institute website.

- *EnergyBoom.* energyboom.com

It is the premier facility featuring news, research information, education materials, answers to technical and policy questions, and access to wind energy publications. New online information is posted regularly.

- *Wind Energy Industry Today.* <http://windenergy.einnews.com/>

News site that compiles articles on wind power. Paid membership required to gain access to articles.

- *Industrial Wind Action Group.* windaction.org

This website claims to "counteract the misleading information promulgated by the wind energy industry and various environmental groups." It publishes news and opinion articles regarding wind power. It posts personal stories from people who live near wind farms and can attest to the turbines' impact on their quality of life: all are negative.

- *Wind Today.* windtoday.net

A website that provides links of news articles about wind power. Also provides information about wind energy events.

- *National Wind Watch.* wind-watch.org

This website publishes information about the negative impact of wind power. It provides interviews with people who claim to be victims of wind power and gives advice to people who wish to protest wind facilities being built in their communities.

- *Renewable Energy World.* renewableenergyworld.com

A website comprised of information on various renewable energies, including wind. It provides links to renewable energy companies. It includes a blog, podcasts and videos. The website provides listings for jobs in the industry. It is a pro-renewable energy website.

- NREL: Publications. <http://www.nrel.gov/wind/publications.html>

The NREL wind research program develops publications about its R&D activities in wind energy technologies. Consists of selected recent publications, a link to the NREL Avian Literature and Publications Databases, and information about the Technical Library at the National Wind Technology Center.

- *Nevada Southwest Energy Partnership.* nswep.org/wind.html

Nevada Southwest Energy Partnership has a page linking to wind projects.

- *Wind Farms in Storey County.* Storeycountywindfarms.org

This web site is owned and operated by Jed Margolin to post documents and discuss the issue of wind farms in Storey County, Nevada