

2009

## Envisioning the future of solar energy in Southern Nevada

University of Nevada Las Vegas

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University of Nevada Las Vegas (2009). Envisioning the future of solar energy in Southern Nevada. 1-9.  
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Envisioning the  
Future of Solar  
Energy in Southern  
Nevada



## Envisioning the Future of Solar Energy in Southern Nevada

Southern Nevada is a natural location for the development of the solar energy industry. With close to 300 days of sunshine per year, the area is capable of becoming one of our nation's greatest sources of solar power. UNLV is committed to helping the community and state capitalize on this abundant natural resource through both research and education programs, and it is poised to lead an initiative that will help put Southern Nevada on the map as a center for solar energy development and innovation.

*"Our country must rapidly reduce the cost and improve the efficiency of solar technologies in order to develop the new clean energy economy."*

**U.S. Senate Majority Leader Harry Reid**



## A Plan for Partnership

UNLV is partnering with a variety of businesses, trades, nonprofits, research institutions, and government agencies to accelerate advances in solar energy. The university has formed an advisory group with representatives of these entities with the goal of gathering input from key stakeholders to identify the most productive strategies to encourage growth and development of this field.

One strategy that the university is advancing is the concept of an integrated supply chain approach that will enhance solar energy supply, reliability, and affordability. This approach will create a central location—a “one-stop shop”—for elements that are critical in a new solar economy:

- Basic research on energy storage, materials science, optics, thermal modeling, and other areas
- Applied research aimed at optimizing technology and accelerating cost breakthroughs
- Technology transfer and commercialization aimed at innovation and development
- Market and economic analysis and financing models
- Education and workforce development
- Policy analysis
- Manufacturing and economic development opportunities

UNLV will contribute intellectual resources to create an interdisciplinary environment where today’s solar energy challenges are addressed through basic and applied research in science and engineering as well through analysis of issues of public policy, law, and economic development.





## Proposing An Initiative

UNLV is exploring plans to establish a number of programs to support this approach. A visiting fellows program for post-doctoral scholars would enable top industry and public-sector researchers from across the globe to join the university for extended periods (12-24 months). Incentives and seed grants available through a competitive process would allow researchers to analyze and develop ideas that support more efficient solar technologies. UNLV researchers will also have the opportunity to partner with the private sector to transfer research findings to real-world applications. Such an initiative would be guided by a board of directors representing universities, industry, businesses, labor, and the public sector.



## UNLV's Research and Education


UNLV already brings a wealth of research and education programs to the solar energy field. Faculty, staff, and students conduct research in a wide range of areas, including:

- Smart grid technologies
- Thin-film photovoltaics, including nanotechnology, and traditional PVs
- Solar energy concentrating technologies
- Energy storage
- Optics
- Thermal modeling
- Solar-powered production of hydrogen fuel
- Materials science
- Economic impact of renewable energies
- Solar stills and passive solar heating

Additionally, UNLV offers an undergraduate minor program in solar and renewable energy through an industry-education partnership with NV Energy, which has provided a \$500,000 donation to help establish this program. The goal of the program is to position Nevada and UNLV as leaders in the field of alternative energy through the support of excellent educational programs that advance understanding of the field, build the state's workforce, and stimulate the state and local economy. The minor degree program is available to all undergraduate students at UNLV through two tracks—one in engineering and science, and another in policy. In addition, various co-curricular activities are provided to further prepare students for careers in the solar and renewable energy fields.







*"UNLV's solar energy research and education programs will help accelerate the discovery of new and more effective solar energy production technologies. This will advance our efforts to transform Las Vegas into a worldwide solar energy research capital."*

**UNLV President Neal Smatresk**

*"A successful solar energy initiative will require true partnerships among businesses, government agencies, and the university. These partnerships will help generate the economic growth and jobs that our community and state need."*

**Ron Smith, Vice President for Research and  
Dean of the Graduate College**

## Building on Successful Partnerships

The university hopes to continue building its partnerships with both the public and private sectors. Past projects have included the following:

- The UNLV Center for Energy Research, in partnership with Pulte Homes and NV Energy, recently unveiled the LEED Platinum-certified development of a new community of homes (Villa Trieste) in Northwest Las Vegas. These homes combine energy-efficient features and advanced smart-grid metering technology to dramatically reduce energy usage.
- UNLV researchers were involved in the design phase of the concentrated solar trough project with private partner Acciona on the advanced development of a solar power plant in the Eldorado Valley.
- UNLV researchers have designed, installed, and now help operate a hydrogen generation and fueling system located at the Las Vegas Valley Water District. They have also converted vehicles to use the generated hydrogen as fuel.
- UNLV researchers are partnering with SAIC on the study of a new concept for solar power generation and building of an SAIC dish PV system, including analysis, testing, and redesign.
- UNLV is partnering with other Nevada System of Higher Education institutions on projects exploring renewable energy sources and utilization. NSHE has received a \$5.7 million Department of Energy grant to pursue this effort, and UNLV is already using its portion of the funding to pursue several solar energy projects.



UNLV President Neal Smatresk, left, addresses the recent National Clean Energy Summit 2.0, including panelists (from left) John Podesta, president and CEO of the Center for American Progress, former Vice President Al Gore, U.S. Senate Majority Leader Harry Reid, and financier T. Boone Pickens.

Below, workers install solar panels at Greenspun Hall on the UNLV campus.







## For More Information

To learn more about UNLV's commitment to building solar energy research, education, and economic development, please contact the following individuals:

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