National Aeronautics and Space Administration

# NASA's Impact in Nevada: A Tech Transfer Perspective

You know that NASA studies our planet, our sun, the solar system, and the Universe.
But did you know about the space program's economic impact here on Earth?

In 2011, NASA invested over **$21 million** in the state of Nevada.

Since 2001, NASA's SBIR/STTR Program has invested over
**$3 million** in **5 Nevada companies**
and more than **$1.2 billion** nationwide.

## How NASA's SBIR/STTR Program Benefits Nevada

NASA is committed to moving technologies and innovations into the mainstream of the U.S. economy, and the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) program helps fulfill this goal.

SBIR/STTR stimulates technological innovation by encouraging small, high-tech companies—particularly minority and disadvantaged businesses—to partner with NASA to help meet its research and development needs in key technology areas. At the same time, this program strengthens small companies by enabling them to bring cutting-edge new products into the U.S. economy.

The list to the right highlights Nevada businesses that received SBIR/STTR contracts from NASA since 2001. **(Visit http://sbir.nasa.gov for more information on the SBIR/STTR program.)**

### NASA SBIR/STTR Companies in Nevada

| | |
|---|---|
| ESI US R&D | Carson City |
| GSE, Inc. | Incline Village |
| Seca, Inc. | Carson City |
| Sierra Engineering, Inc. | Carson City |
| Software and Engineering Associates, Inc. | Carson City |

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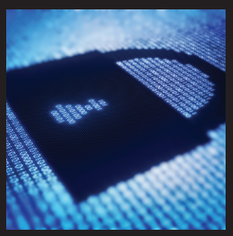
# How NASA Spinoffs Benefit Nevada

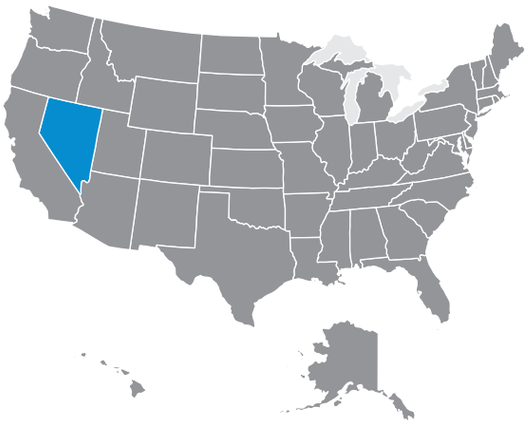
***Battery-Free Solar-Powered Refrigerator Stores Vaccines, Food in Off-Grid Locations*** *(Sparks)*
A solar-powered refrigeration system originally developed by NASA engineers to cool lunar bases is particularly ideal for off-grid applications on Earth: refrigeration for food and drinks, air conditioning systems in remote field hospitals, and refrigeration for milk tankers and other transportation vehicles. The innovation uses a variable speed, direct current vapor compression cooling system, connected to a solar photovoltaic panel via novel electronic controls. SunDanzer, Inc. licensed the technology and is marketing one of the first battery-free solar-powered refrigerators for safely storing vaccines in remote locations. SunDanzer has also signed an agreement with the U.S. Army to develop a prototype of a refrigerated container for shipping food to Army troops.

***Voltage Controller Technology Saves Energy, Prolongs Motor Life*** *(Las Vegas)*
Power Efficiency Corporation licensed a NASA-developed method to reduce energy waste for induction motors by electronically allocating power in direct proportion to the motor's required workload. The company enhanced the technology by adding an energy-saving "soft start" feature that gradually introduces power to the motor, eliminating the mechanical stresses of moving quickly from dormant to fully active. This energy-saving feature prevents motors from running too hot, increasing motor life. Controllers are available for large industrial motors as well as residential and appliance motors. Common applications include escalators, elevators, conveyors, mixers, grinders, crushers, stamping presses, and injection molders. The device has been retrofitted onto equipment at department stores, hotels, airports, universities, and manufacturing facilities.

***Space-Age Water Purifier Extends Mobile Disaster Relief to Remote Locations*** *(Sparks)*
Technology used to purify water on the International Space Station is working on Earth to provide affordable, clean water to people in remote locations. Water Security Corporation, Inc. licensed the NASA technology and uses it in several water filtration systems. The technology, which holds a place in the Space Technology Hall of Fame, combines the benefits of chemical adsorption, ion exchange, and ultra-filtration to produce safe water from challenging water sources. The company's signature model has a 4-gallon-per-minute output with a 30,000-gallon capacity and is ideal for filtering and disinfecting fresh water that may be microbiologically contaminated. A smaller mobile model is designed for remote locations, as well as disaster relief.



***Intrusion Management Software Provides Protection, Detection Solutions*** *(Las Vegas)*
NASA teamed with Vanguard Integrity Professionals, Inc. to design intrusion management solutions after hackers breached the agency's Space Physics Analysis Network in 1987. Vanguard developed a system for NASA that provides real-time intrusion protection and detection to prevent security breaches made by human error or deliberate attacks. The software monitors the constant stream of data in and out of the server system. As the software detects unauthorized attempts to access data, it shuts down entry to files before information can be copied, removed, or corrupted. NASA granted Vanguard exclusive rights to commercialize the software, and the solution is now one of several surveillance technologies that make up the company's security product line.



NASA actively seeks partnerships with U.S. companies that can license NASA innovations and create "spinoffs" in areas such as health and medicine, consumer goods, transportation, renewable energy, and manufacturing. When businesses leverage NASA technologies to develop new products, it not only benefits the regional economy, but significantly strengthens the nation's competitiveness in the global marketplace.

NASA's centers across the country have helped 39 Nevada companies develop revolutionary spinoff technologies.

Learn more about how NASA innovations benefit the public in *Spinoff*, an annual publication that highlights NASA's most significant technology transfer successes.
**(Available at: http://www.sti.nasa.gov/tto)**

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*Publication herein does not constitute NASA endorsement of the product or process, nor confirmation of manufacturer's performance claims related to any particular spinoff development.*

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