

# Launching into a new frontier

Story and photos by Nicole Carlson

Suborbital space flights to commence in New Mexico by 2011



A 47,000 square-foot hangar will house Spaceport America tenants, including Virgin Galactic. The hangar was designed to achieve LEED Gold standards, including the installation of Earth Tubes, solar thermal panels and under-floor radiant cooling and heating.

In a land typically known for its green chile, vast culture and scenic terrain, New Mexico will soon be adding another boast to the list: home to the world's first commercial space travel port.

Construction on Spaceport America, a "purpose-built" spaceport, began in August 2009 on a 27-square-mile site in southern New Mexico, just west of the White Sands Missile Range near Truth or Consequences. Electrically-served by Tri-State member system Sierra Electric Cooperative (SEC), the spaceport has a goal to facilitate commercial suborbital flights as early as next year.

To serve the site, SEC (Elephant Butte, N.M.) plans to begin construction on a 10-MVA substation, aptly named Frontier Substation, and a 7-mile, dedicated, combination overhead and underground distribution line by year-end.

Once energized, the Spaceport America line has the potential to be the largest single load for the small co-op. Sierra Electric has a completion goal of spring 2011 for the project.

"If it's fully utilized, the spaceport load could equal the rest of our system," said Jimmy Capps, Sierra Electric general manager. "The capacity is definitely there."

The good news to Sierra Electric's members is that the substation and distribution line will not add any extra cost to their electric rates, as the \$7 million project is being funded by the New Mexico Spaceport Authority.

Capps, who took the helm at the co-op in March, said he "inherited" the project, which has been in the works for many years.

"The project is a big deal, especially for a small co-op like Sierra Electric," he said. "The impact on the local community remains to be seen, obviously, but there is big potential."

Upon completion, Spaceport America will be home to the world headquarters of Virgin

Galactic, which has a goal to begin offering suborbital space flights in 2011. For \$200,000, individuals can board SpaceShip Two, which can accommodate eight passengers and travel 21,000 miles above Earth. The two-stage craft will take off horizontally from the spaceport and offer travelers the experience of a short period of weightlessness and a once-in-a-lifetime view. Roundtrip, the experience will last 2.5 hours.

Virgin Galactic, owned by British billionaire Sir Richard Branson, has entered into a 20-year lease agreement with Spaceport America. New Mexico Spaceport Authority officials estimate the lease, including fees for use of the terminal and grounds and for every flight that takes off, will generate \$250 million over the next two decades.

Rick Homans, secretary for the New Mexico Department of Taxation & Revenue and current chairman of the Spaceport Authority, played an integral part in the initial development of the project. He is responsible for proposing the project to Governor Bill Richardson, as well as the securing of initial funding and acting as the point person in attracting Virgin Galactic as Spaceport's anchor tenant.

The technology that spearheaded the reality of the spaceport was born through the X-Prize Foundation, a non-profit organization that engages competitive and entrepreneurial spirit in an effort to benefit humanity. According to its Web site, X-Prize "frames a challenge and incentivizes a solution in a way that our efforts are multiplied exponentially by the teams who strive to compete and win the prize."

In the case of Spaceport America, it was the 2003 development of renewable launch vehicles by Scales Composite that sparked the project.

"That was our signal – our checkered flag," said Homans, in regard to the breakthrough

development. "We grabbed the opportunity and ran with it."

Shortly after the X-Prize Foundation awarded the \$10 million prize to Scales Composite, Homans traveled to London to meet with Sir Richard Branson, who was a partner in the project. Homans proposed that Branson locate the world headquarters and main operations of the company in New Mexico, to which Branson replied: "If you build the spaceport, we will come."

Although Spaceport America may be a unique venture, the space program itself is not foreign to New Mexico. What began in the 1930s with Roswell and Richard Goddard, whose experiments are recognized as the forerunners of the Apollo Spacecraft crew setting foot on the moon in 1969, continues with Spaceport America, expanding the long history of space-flight pioneering and innovation in New Mexico.

Space travel has returned to New Mexico for the same reasons it began there – location, location, location.

"The location of Spaceport America is ideal due to the high elevation, 4,500 feet above sea level, sparse population, good climate and, most importantly, proximity to the restricted air space of the White Sands Missile Range," said Homans. "These are variables that cannot be replicated anywhere else in the U.S."

In its simplest form, the goal of Spaceport America is economic development for the state of New Mexico, including Dona Ana and Sierra counties. This will be brought to fruition through the development of jobs in a brand new industry. The \$255 million project is being financed by state appropriations and bonds issued by Sierra and Dona Ana counties, which are expected to benefit from the project.

During its construction phase, Spaceport America is employing 600 individuals, with 13 of

14 contractors hailing from New Mexico. Once fully operational, 400 will work at the spaceport. Virgin Galactic will have up to 100 employees onsite.

"The spaceport is part of a broader strategy for New Mexico to plant the long-term seeds of economic growth," said Homans. "A lot of New Mexicans are being put to work and that's good for business."

As operations grow, the project is expected to impact the economy of the Land of Enchantment through continued research, development, testing and manufacturing related to the space industry.

In the future, the spaceport may also house rocket builders Starchaser Industries, launch specialist UP Aerospace, the annual X-Prize Cup and the Rocket Racing League. Furthermore, developers are banking on the spaceport to attract tourists from all around the globe.

The town of Truth or Consequences is preparing for the visitors with plans to transform a currently vacant building into a world-class visitor center.

"Our goal is to create a memorable experience for those who visit the site," said Homans. "We're putting them up close and personal with a brand new industry."

Homans added that working with Sierra Electric on the spaceport project has been an enjoyable experience.

"We have been treated very professionally and welcomed to the community in a big way and the reception from SEC exemplifies that," he said. "We consider the co-op to be a key partner in the development of Spaceport America."

Above images provided by Spaceport America Conceptual Images URS/Foster + Partners.



Construction on the two-mile runway was completed in August. A 45-ton paving machine formed the runway in concrete strips, each 30 feet wide and 14 inches thick.