

## SENER USA CEO Mercedes Sierra: Engineering the Ingenious



*Mercedes Sierra (CEO of SENER, USA), Photos by John Livzey, 2018*

Few people truly excel at the nexus between innovation and practicality. It's a most difficult space. For Mercedes Sierra, newly appointed CEO of SENER, USA, that nexus is where she finds the greatest comfort, opportunity, and inspiration.

"I'm an engineer. I studied civil engineering and earned a master's degree in structural engineering. While I was earning my master's degree, one of my teachers was working at SENER. In 1985, he suggested that I join the company. I've been working there ever since (except for a brief period working for the Spanish government). What I enjoy most about SENER is that it's like working in a different place with every project. We are a technology-driven company. We have people with different specialties and those specialties are applied to different projects. We believe strongly in cross-fertilization.

"For example, we have a great deal of expertise in aerodynamics, but we turn and apply that to high-speed rail. We have expertise in systems engineering and systems integration that was developed primarily for the aerospace industry, but we apply that expertise to urban transportation, where we have a large number of projects internationally. A multi-disciplinary approach is key for us as it really helps us avoid the siloing that happens in many companies. It makes us nimble and more flexible than many other companies, particularly larger firms. We can call on expertise from any discipline to help us create solutions that are efficient, effective, innovative, and unique."

Ms. Sierra rejoined SENER in 2009, after a four-year term as the Director of Aeronautics and Space for Spain's Agency for Technology and Innovation, where she worked on a wide range of structures assignments including everything from satellite technology to human spaceflight. And while she is most certainly grounded in engineering and science, she also possesses a relentless passion for forward thinking, for bringing the future into the present. Given the current state of our infrastructure and the rapid pace of technology, she sees that mix as key.

"We're at a crossroads. Things are going to change considerably over the next 10 years, particularly in transportation. From driverless cars to smart technology,



transportation is going to change a lot as society changes. Cities will continue to increase in popularity; 80 percent of people will be living in cities by 2050 or so. So, cities are going to look very different than they do now, and as a result, transportation systems will look very different as well. This is a very exciting time to be in a place where that change is happening rapidly and to be with a company that looks to lead that change.”

On February 1<sup>st</sup>, SENER named Ms. Sierra CEO, a position where she can help effect that kind of change. Ever prepared and energized, Ms. Sierra looks to continue helping SENER push the edge of the technological envelope through her support of innovation, cross-discipline application, and dynamic leadership.

“My objective in the US market is to become a local engineering company in California. California is the home base for some of the greatest engineering companies in the world. So, our objective is to harness our international experience and develop California as a home base for us to contribute to the development of public transportation here with a modern, 21<sup>st</sup> Century approach. There are great programs here, like the ones developed by LA Metro and the high-speed rail program. Public transportation in California is expanding very quickly. So, there is great opportunity with large programs being planned to develop modern public transportation systems. We want to bring our international expertise to help create these systems.”

According to Ms. Sierra, SENER is uniquely positioned to do exactly that. A relatively small firm—SENER employs a little more than 2,500 professionals—SENER has significant reach. She credits that to two main elements.

“Typically, we work with companies that are much larger. They come to us because we develop state-of-the-art technologies and methodologies. So, when there are difficult projects, people reach out to us. In certain cases, projects might not get done without the technology and expertise we bring. For example, from 2009 to 2012, we worked on a very large solar project for Florida Power & Light. They chose to work with us because we have a patent for a very good design for a solar collector. Another example where we hold a patent has to do with ballast on high-speed trains. We developed and patented systems to reduce and eliminate this ballast problem. The combination of our innovation, our cross-discipline approach, and our size makes us very attractive to owners and other firms, as partners.”

Ms. Sierra also cites another quality that she believes helps empower SENER.

“One of the reasons I like working for SENER is that it’s very diverse. We have several women in leading roles. So, naturally, one of my first decisions as CEO was to become a corporate partner of WTS-LA. I’ve heard many great things about WTS. Everyone I talked to told me that it’s a great organization, very powerful, efficient, and doing great things. Of course, being a woman in transportation and an engineer, I’m very interested in WTS and its mission. This is something that has always been of interest to me. So, even though we’re new to the chapter, I’m very much looking forward to getting involved. It’s an organization that is absolutely needed. When I started working in the industry years ago, many times I was the only woman in a meeting or group. This has evolved, but we need organizations like WTS because we’re not fully there yet. I like what this organization is doing and am ready to support it fully.”

For some, the nexus between innovation and practicality can be very difficult, even dangerous ground. Filled with uncertainty and conundra, that nexus can prove unnavigable. But for others, like Mercedes Sierra, it is the place where virtual alchemy combines with hard science to bring the future into the present.