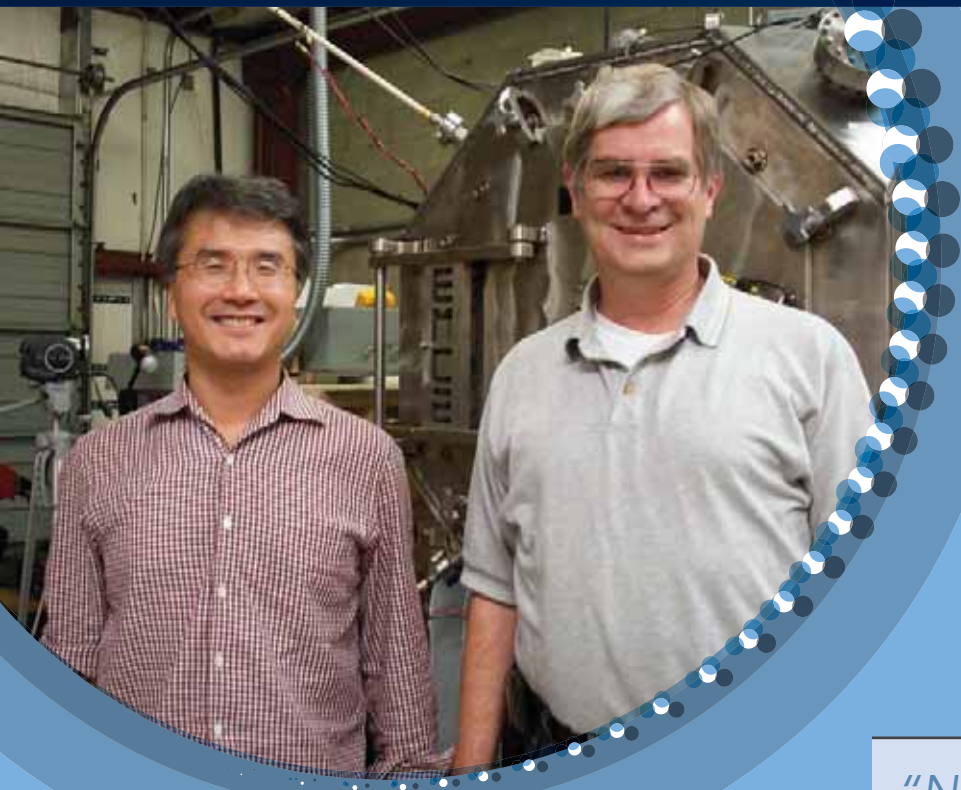




*Northern New Mexico*  
**CONNECT**

*PIONEERS OF INNOVATION*





At EMC<sup>2</sup>, Dr. Jaeyoung Park and Dr. Glen Wurden of LANL are proving that nuclear energy can be green.

*“NMSBA’s assistance not only allowed us to overcome our technical challenge, but to keep our technology development on schedule.”*

## Energy Matter Conversion Corporation (EMC<sup>2</sup>) Santa Fe, NM

EMC<sup>2</sup> is continuing decades-old research on fusion power which, if proven, would make fossil fuels a thing of the past. Fusion power is the opposite of fission, the method through which nuclear energy is generated today. Fusion is a clean form of nuclear energy found naturally in the sun. It creates energy by pushing (fusing) light nuclei together in a plasma state, rather than splitting heavy nuclei apart and leaving the products as radioactive waste. EMC<sup>2</sup>'s work focuses on the polywell reactor, one of several fusion power technologies currently in research and development.

When EMC<sup>2</sup> reached an impasse in the design process, the New Mexico Small Business Assistance (NMSBA) program provided the expertise of a LANL scientist, Dr. Glen Wurden, to study the issue. Wurden used light monitors, a spectrometer and fast cameras to investigate and mitigate the instabilities in plasma. “NMSBA’s assistance not only allowed us to overcome our technical challenge, but to keep our technology development on schedule,” says Dr. Jaeyoung Park.

## Valverde Energy Inc. and ThermaSun Inc. Taos, NM

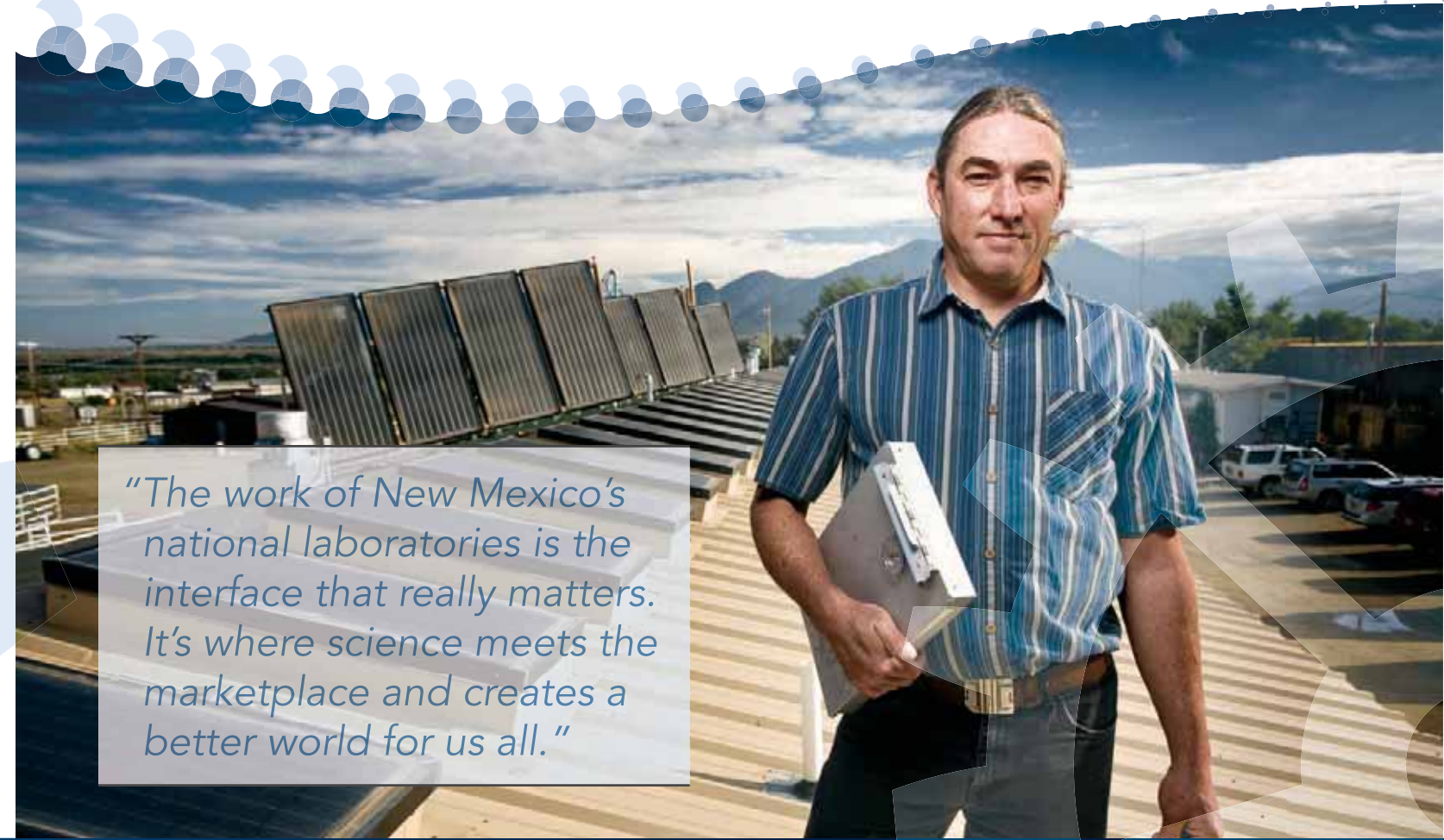
Larry Mapes, owner and founder of Valverde Energy, has been installing solar thermal systems for nearly 30 years. “The opportunity for solar thermal is colossal,” says Mapes, who cites its 60% conversion factor as compared to 15% for photovoltaic (PV) systems.

In 2004, Mapes began working with NMSBA on a metering device, the first step in making solar thermal compatible with the grid. Sandia National Laboratories Principal Investigator John Brown developed a type of smart card to measure usage on solar thermal systems. Today, Mapes is working with NMSBA to address chemical compatibility and architectural issues that shorten the life cycle of solar thermal systems. The findings of Los Alamos National Laboratory Principal Investigator E. Bruce Orler have been surprising and hold potential for revolutionizing the solar thermal industry.

*The sun is a powerful force in Larry Mapes’ world.*

Mapes’ newest company, ThermaSun, was awarded a Northern New Mexico Connect 2009 LANS Venture Acceleration Fund (LANS VAF) grant to develop a new solar thermal prototype based on NMSBA findings. Ultimately, ThermaSun plans to manufacture and sell the units, creating jobs and economic impact in northern New Mexico. “The ultimate goal is to put solar thermal on equal footing with PV solar,” explains Mapes. “Just like the PV inverter of the 1980s, our work will simplify installations, meet utility standards and allow an interface with the grid.”

Mapes says the talent and expertise of New Mexico’s national laboratories is his primary advantage. “The work of New Mexico’s national laboratories is the interface that really matters. It’s where science meets the marketplace and creates a better world for us all,” says Mapes. “It’s where science meets the marketplace and creates a better world for us all.”



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