

NSF EPSCoR Pre-proposal selected move forward into full proposal development

Materials Platforms for Next-Generation Sustainable Clean-Energy Technologies in Nevada

Lead Principal Investigator: David Hatchett, UNLV

CoPI: S. Kent Hoekman, DRI

CoPI: Dev Chidambaram, UNR

The proposed research is in the areas of novel materials research for sustainable energy, device fabrication, energy efficient manufacturing, energy conservation and storage. The approach will expand our energy research capabilities and expertise beyond current strengths to include computational design and characterization of materials and the synthesis of materials for fuel cell catalysts, thermoelectric energy conversion, and grid level energy storage. In addition, light harvesting materials for solar energy, thermo-chromic materials for energy conservation coatings, and development of models to predict long term operation and behavior are proposed. Finally, new initiatives in the area of materials for manufacturing will include materials design and development for advanced high efficiency power reactors, turbines for energy generation, laser processing for surface modification and use of green methods to reduce friction and enhance energy efficiency. Environmental and economic impacts of materials for sustainable energy technologies will also be studied with a particular focus on the state of Nevada.