

CEES - Center for Energy and Environmental Sustainability (CEES) Project Summary

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The Center focuses in three broad areas of energy research: 1) Biofuels, 2) Wind Energy, and 3) Energy and the Environment. The first overarching goal of the proposed Center is to build a nationally recognized energy research program at PVAMU in energy engineering. This will be accomplished by leveraging currently-funded research, education and outreach activities across the campus; improving research infrastructure at PVAMU; building external research collaborations; and enhancing energy engineering research in areas of strength at PVAMU.

The second overarching goal of CEES is to significantly increase the number of students from underrepresented groups who successfully complete BS, MS and PhD degrees in STEM fields. CEES will strive to encourage students to pursue careers in industry, academia or national labs, particularly in the cutting-edge engineering fields of renewable energy, bioengineering and nuclear engineering. CEES will build a multi-disciplinary education and research community centered on energy engineering to provide new curricula, research experiences, multi-level mentoring and a host of professional development experiences for undergraduate and graduate students.

The CEES team is composed a diverse group of 11 faculty members and research scientists from 2 colleges and 6 departments. The CEES team, with the involvement of students, will work collaboratively with academic, industry and national lab partners on transitional and transformative global energy systems research. Subproject research topics will include: optimization of biofuels production yields; development of optimization tools and their application to wind turbine research; cogeneration with nuclear plant and wind power as a stable and secure energy supply; life cycle assessment of conventional, nuclear and renewable energy; closing the loop of fossil and nuclear fuel cycles; and fuel cycle analysis of next generation reactors. All of these topics are interrelated, and CEES will provide a platform to foster synergistic and collaborative research across these projects, building on 6 currently funded projects with an approximate combined funding of \$800,000. Within each subproject of the proposed Center there is at least one member who already has active research collaboration with a member of another subproject.

