



2007/2008 Senior Capstone Design Project Proposal: Qualitative and quantitative cost benefit analysis of siting renewable generation within Coconino County

OPPORTUNITY

This project will provide a research and modeling experience for students in the field of renewable energy and sustainable economic development. Students will also have an opportunity to provide conclusions that will be used to enhance the development and expansion of renewable energy projects within Coconino County, and to help inform concept development and planning for a leading-edge green power pricing program

OVERVIEW

Arizona Public Service Company (APS) and the Coconino County Sustainable Economic Development Initiative (SEDI) propose this project for Northern Arizona University's 2007/2008 Senior Capstone Design Project. The project goal is to develop a cost benefit analysis of the impacts of siting a central station, utility-scale renewable energy generation project within Coconino County. This would include determining, from an overall sustainability perspective, the best-suited type of renewable energy to harness (i.e. solar, wind, bio-mass/gas, geothermal, or hydro) considering the region's existing complimentary opportunities (e.g. existing steam systems) and as a compliment to the region's natural resources. The study should capture the full range of costs and benefits, including both tangible and intangible impacts.

PROBLEM DESCRIPTION

SEDI has established a goal for Coconino County to become a net exporter of renewable energy. APS is committed to providing 15% of the energy supplied to its customers from renewable resources by 2025. APS, through SEDI, is currently working with the Northern Arizona Renewable Energy Purchasing group (NAREG) to coordinate the placement of a renewable generation source in the county. This consortium recognizes that there may be a cost premium associated with placement of local renewable generation to serve APS customers. The goal of this project is develop a cost benefit model that takes into account not only the base dollar economics of this type of development, but also the net dollar impact ie; the total value of every dollar spent within the local community from direct, indirect and imputed project development and construction expenditures; new tax revenues; new land/property owner revenues (land leases, royalty payments); potential community enhancements such as ecotourism; and new university and community college research and curriculum program. Additionally, the study should provide both quantitative and qualitative values related to the social, environmental and economic impacts this type of project could have. Environmental impacts may include the offset impacts of relative to water consumption and carbon emissions for equivalent thermal generation.

SPONSOR COMMITMENT

APS and members of SEDI will communicate with the team on a bi-weekly basis. The financial obligation on the part of the sponsor will be to reimburse costs associated with research materials with a cap of \$2,000.00 (unless separately approved).

REPORTS

The team will submit progress reports and a final report to the sponsors detailing findings.

POINT OF CONTACT

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