

## NAU Renewable Energy Capstone '08

### Problem Statement

Arizona Public Services (APS) and Coconino County Sustainable Economic Development Initiative (SEDI) in collaboration with EE senior students from NAU will, in the fields of renewable energy and sustainable economic development, research and conclude on a renewable resource best suited for Coconino County and determine if such a project would be feasible in terms of social, economic, and environmental factors.

The team is to do a cost benefit analysis of renewable energy resources already in use. The renewable resources that will be researched are wind, and solar. Research materials to evaluate the different types of energy amounts produced in Northern Arizona will be provided by SEDI. The cost benefit analysis will focus on wind and solar. The reason for narrowing down the possibilities to two resources is to increase the focus and in depth analysis.

The analysis will take into consideration tangible and intangible factors that could impact a renewable energy plant here in Coconino County. The intangible factors could include any environmental impacts the plant would have on the community e.g. reduced CO<sub>2</sub> emissions and water savings while, the tangible factors would include the premiums and actual costs of the construction and maintenance of a power plant in the Coconino County community. The team would learn and quantify the non-tangible factors and add them to the already provided data on the tangible factors to provide a more feasible and environmentally healthy renewable resource.

The renewable resource decided upon at the end of the research stage should be economically feasible and environmentally friendly. Our choice should also be financially beneficial for Coconino County. Since some of the power generated will be exported out of the county, the renewable power plant should be sized to be able to do so. The team will be using scaling (either linear or quadratic), the models provided and the quantified non-tangibles to come up with their final quantities.