

Ft. Mojave Renewable Energy Feasibility Study

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Overview

- ❑ Document possible renewable energy sources
- ❑ Evaluate their feasibility
- ❑ Develop a business plan for implementation of selected alternatives

Location

- along Colorado river where Arizona, California and Nevada meet



Participants

- Aha Machav Power Service
- Avi Kwa 'Ame Farm
- ERCC Analytics

Objectives

- Business plan that will result in economically viable, environmentally sound, acceptable, renewable energy

Accomplishments - Feasible

Preliminary

- Biodigester design integrated into plans for 3000 head dairy heifer feedlot

Accomplishments - Not Feasible

- ❑ Biodiesel from cotton seed oil eliminated as not economically feasible

Accomplishments - Potentially Feasible

- ❑ concentrated solar - financing, power marketing and technical problems need to be solved
- ❑ crop residue from cotton - storage problems need to be solved
- ❑ fuel pellets from cotton stalks - marketing problems need to be solved

Accomplishments -

Feasible with cost share

- Wind monitoring towers installed 6 months of data collected and analyzed preliminary analysis suggest a viable wind resource - 11 to 21% of turbine capacity - 8.5 to 11.3 mph avg wind speed
- photo voltaics - cost of solar panels needs to come down or cost share needs to go up

Accomplishments - analysis techniques

- value of renewable power (current cost difference, expected price increase of oil, risk of price increases)
- multiple objectives (economics, environment, sustainability, independence) related to renewable power development

□ Difference in Present Values (\$.10 kwh renewable \$.05 non-renewable)

Value of Renewable Energy

price increase

□ opportunity cost	2%	4%	6%	8%	10%
□ 2% rate	(\$0.73)	(\$0.39)	\$0.07	\$0.69	\$1.55
□ 10%rate	(\$0.38)	(\$0.28)	(\$0.15)	\$0.01	\$0.23
□ 5% rate	(\$0.55)	(\$0.35)	(\$0.07)	\$0.29	\$0.79
□ probabilities	0.1	0.2	0.3	0.2	0.1

□ Expected Value

□ 2% rate	\$0.16
□ 5% rate	(\$0.01)

To be completed

- wind monitoring at 50m for 20m tower site - investigating alternative techniques
- web site will be updated to reflect current analysis - www.energy-renewable.com

Future Plans

- ❑ continued analysis of wind data
- ❑ continued design and analysis of cotton crop residue system
- ❑ integration of environmental, engineering and economic analysis into multiple objective planning report
- ❑ completion of business plan

Possible technologies for research

- ❑ oil seed crops (mustard rape safflower)
need field tests
- ❑ algae - possible fuel for biodigester