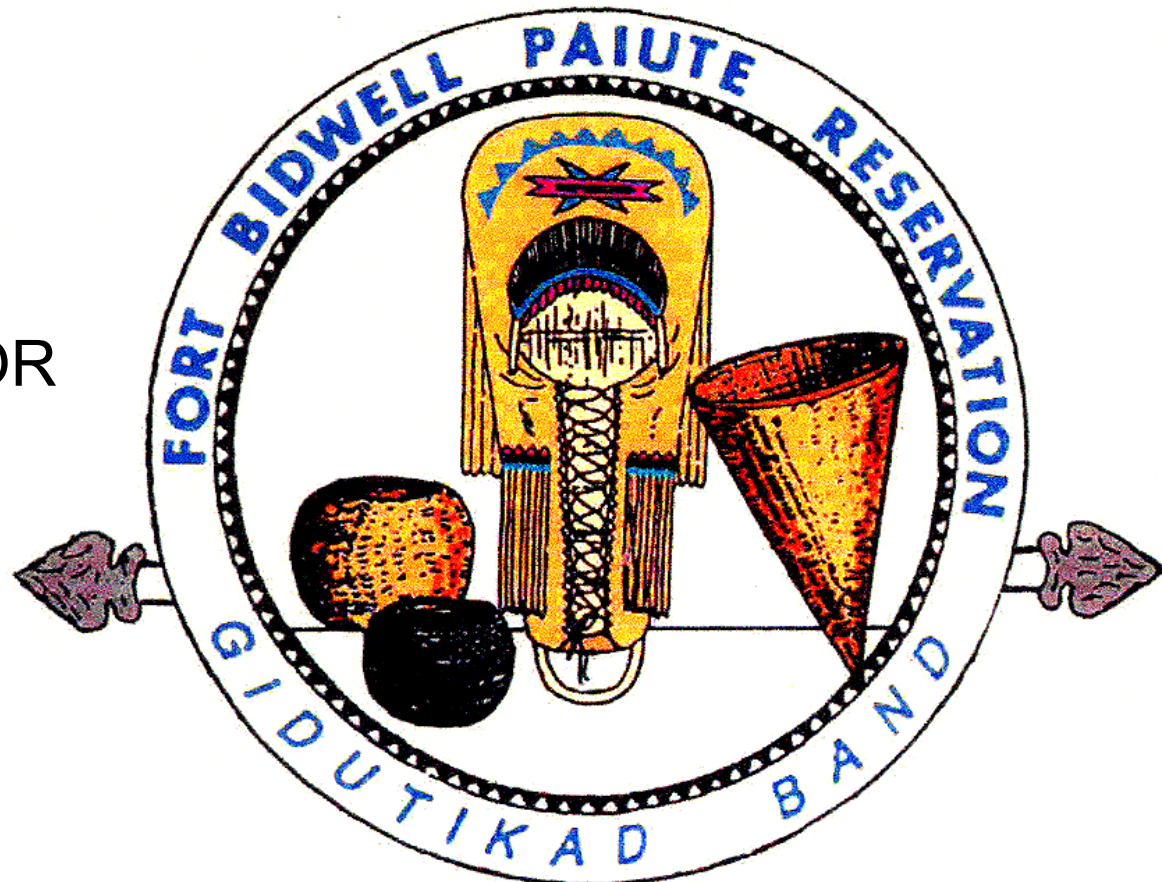


# GEOHERMAL DISTRICT HEATING STUDY

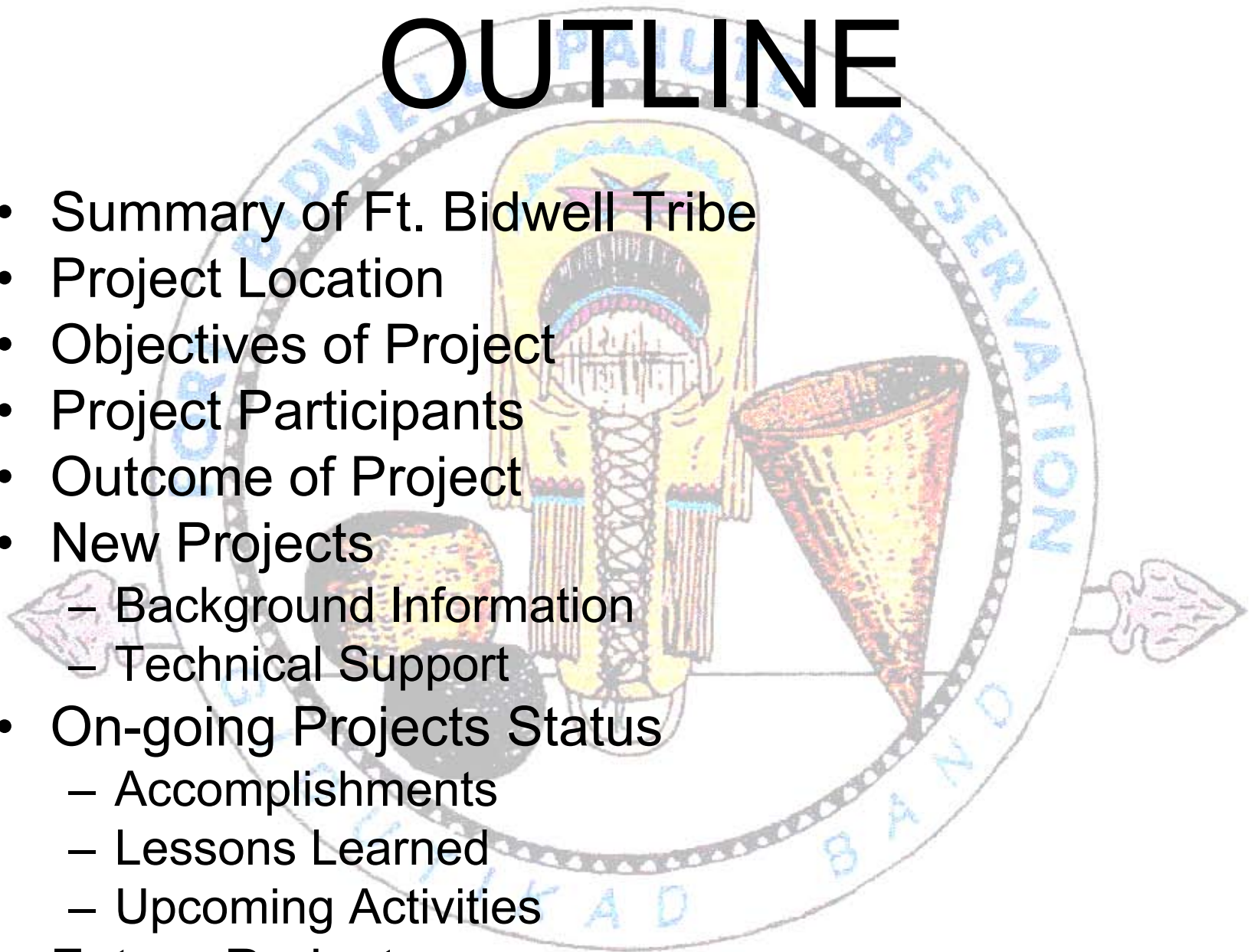
JOHN R. VASS  
TRIBAL ADMINISTRATOR  
FORT BIDWELL INDIAN  
COMMUNITY



NOVEMBER 2008

# OUTLINE

- Summary of Ft. Bidwell Tribe
- Project Location
- Objectives of Project
- Project Participants
- Outcome of Project
- New Projects
  - Background Information
  - Technical Support
- On-going Projects Status
  - Accomplishments
  - Lessons Learned
  - Upcoming Activities
- Future Projects



# FORT BIDWELL PAIUTE TRIBE

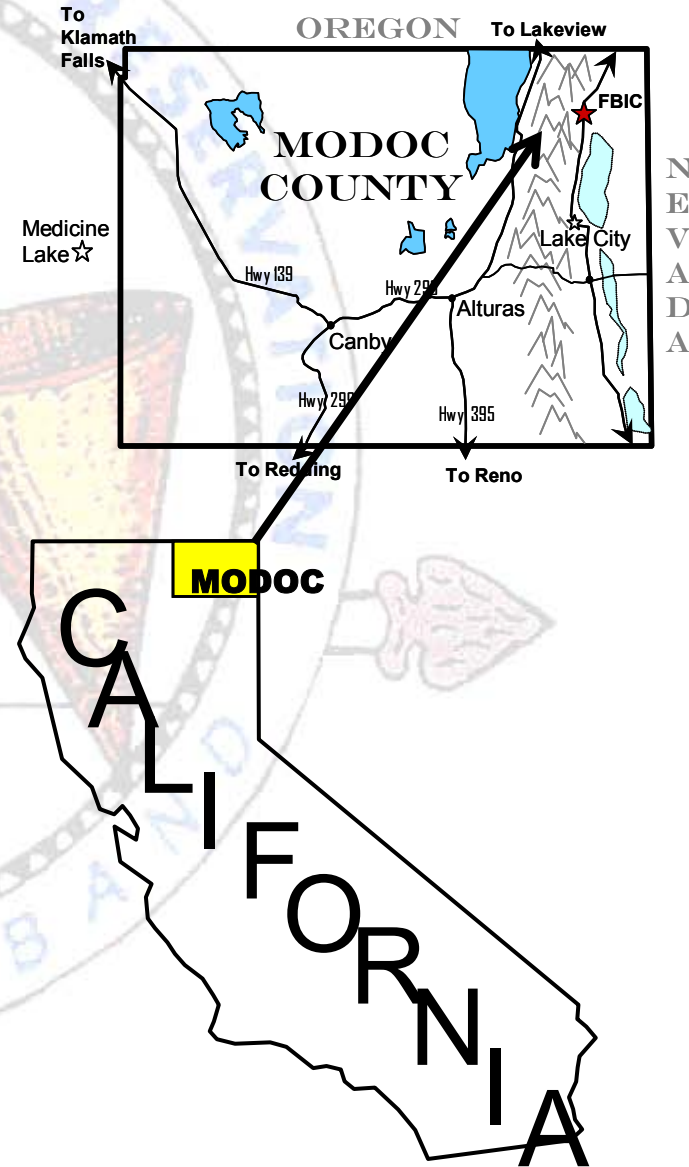
- 1865 established as a military outpost then in 1934 dedicated as a Native American reservation
- Located near Northeastern corner of California
- 284 enrolled members
  - With a residing population of 118
- Rural and rugged environment
- Reservation encompasses 3700 acres
- Timber and geothermal are the greatest natural resources





# PROJECT LOCATION

- Northeastern California
- High dessert (4600-6900 ft. elevation)
- Temperature extremes - 20 degrees winter 90-100 in summer (winter lasts six months.)
- Remote and rural, nearest town of 3000 persons is 50 miles one-way, towns/cities of 100,000 or more are three hours away.

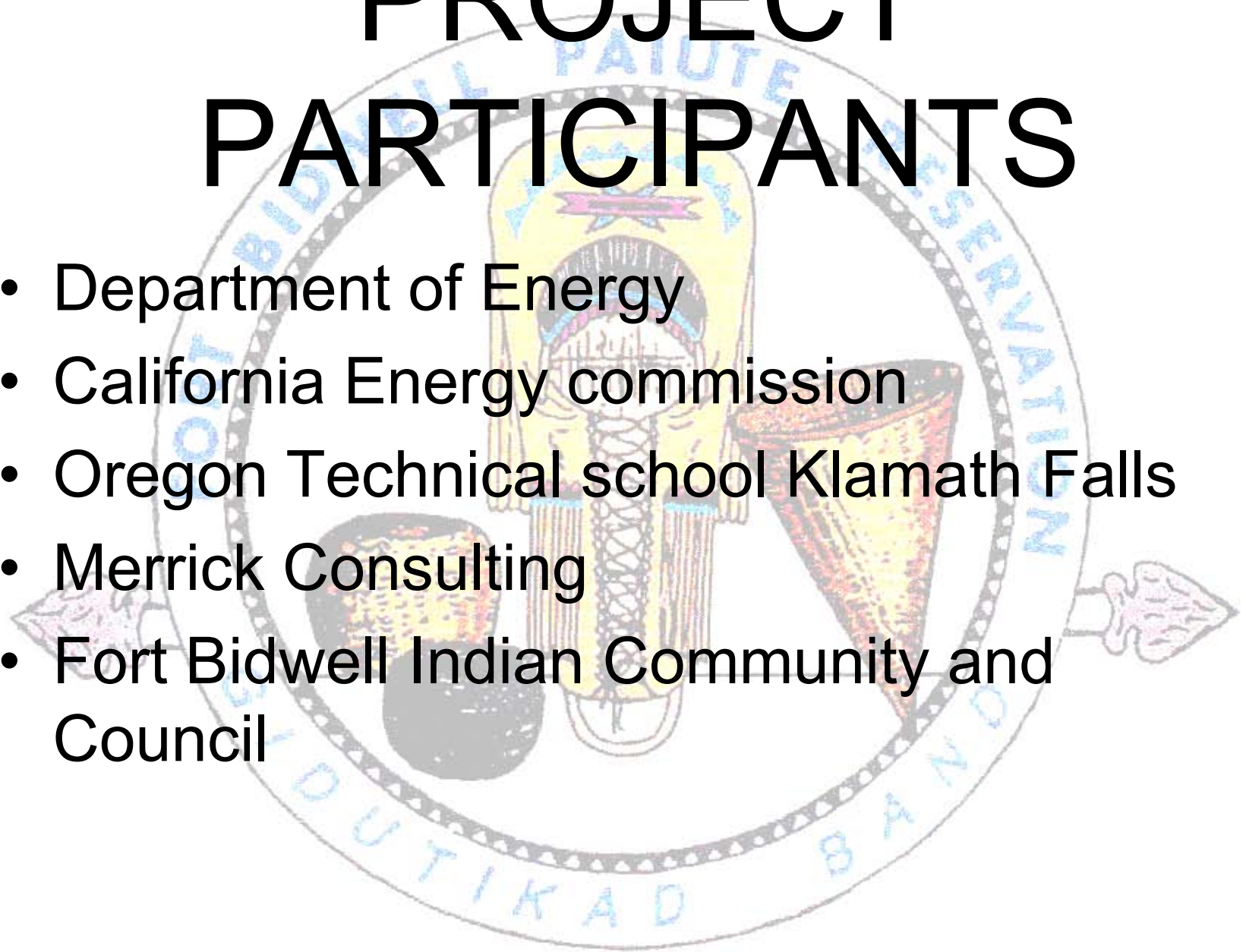


# OBJECTIVES OF PROJECT

- Geothermal heating to serve all residential and community buildings
- Develop full community support for project and future geothermal projects
- Develop a GIS system for location of all buildings and attached infrastructure
- One stop geothermal site for records and studies
- Work with communities/colleges/agencies with geothermal projects

# PROJECT PARTICIPANTS

- Department of Energy
- California Energy commission
- Oregon Technical school Klamath Falls
- Merrick Consulting
- Fort Bidwell Indian Community and Council





# ACCOMPLISHMENTS OF PROJECT

- Studies completed, all findings presented to community
- Uncovered earlier work in the 1980's that included limited space heating for apartments. Clinic and gym
- Study shows the feasibility of using existing well(s) to develop FB#4 (injection wells)
- Further advanced the concepts of greenhouse development and fish farming for true economic development

# LESSONS LEARNED FROM PROJECT

- “Champion” the project; Tribe lacked engaged Tribal member representation (paid position)
- Communication between community members and consultants could have been streamlined through the use of a tribal representative as a positive interface
- Utilize previous work and be able to document and secure relevant information in one place for future studies/implementation



# ON-GOING PROJECTS



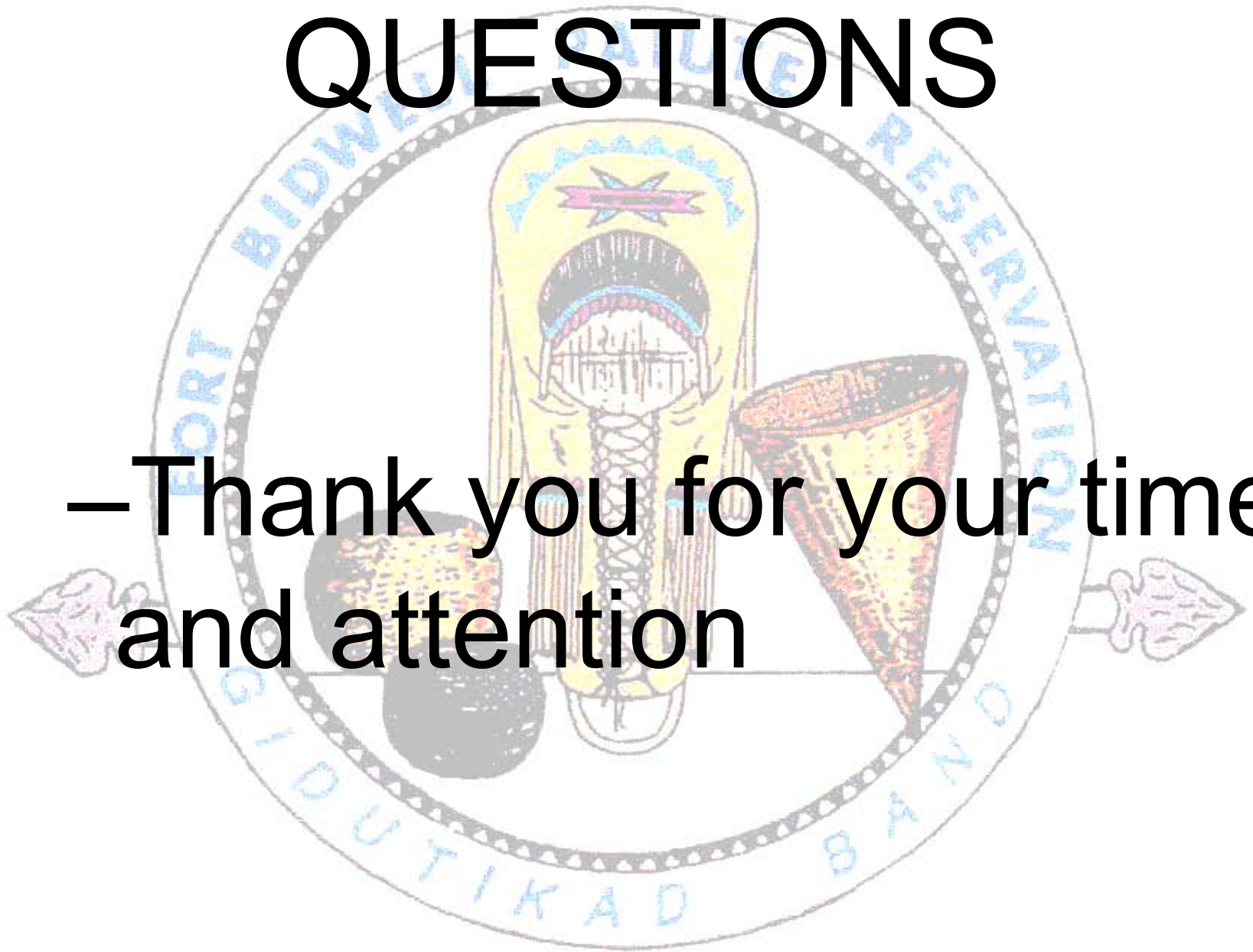
- Tribe completed drilling of FB#4 in late 2007, applied for and received grant funding for well testing.
- Researching design criteria/markets for development of greenhouse/fish operations, with an eye on the future for an higher- end spa/therapy lodge.

# FUTURE PROJECTS

- New Projects
    - Planned geothermal exploration well
    - Drilled to a depth of 5500 feet
    - Partnership with California Energy Commission (CEC) and the Department of Energy (DOE)
    - Called Fort Bidwell #4 (FB#4)
    - Used on Reservation to meet residential and commercial demands
    - Excess power generated could be sold off-reservation
- CEC funded well testing of FB#4  
Testing started October 30,2008  
Results expected by April/May 2009

# QUESTIONS

- Thank you for your time  
and attention





DELETE THIS AND  
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# Ft. Bidwell Indian Reservation



## GEOHERMAL

### Direct-Use

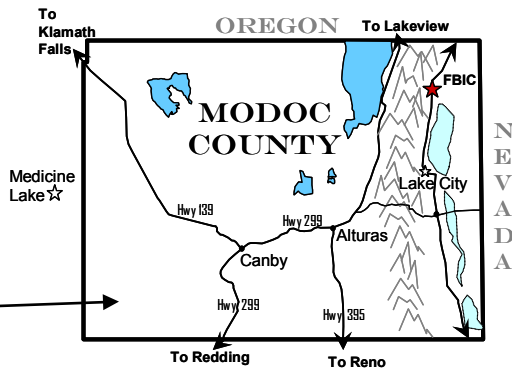
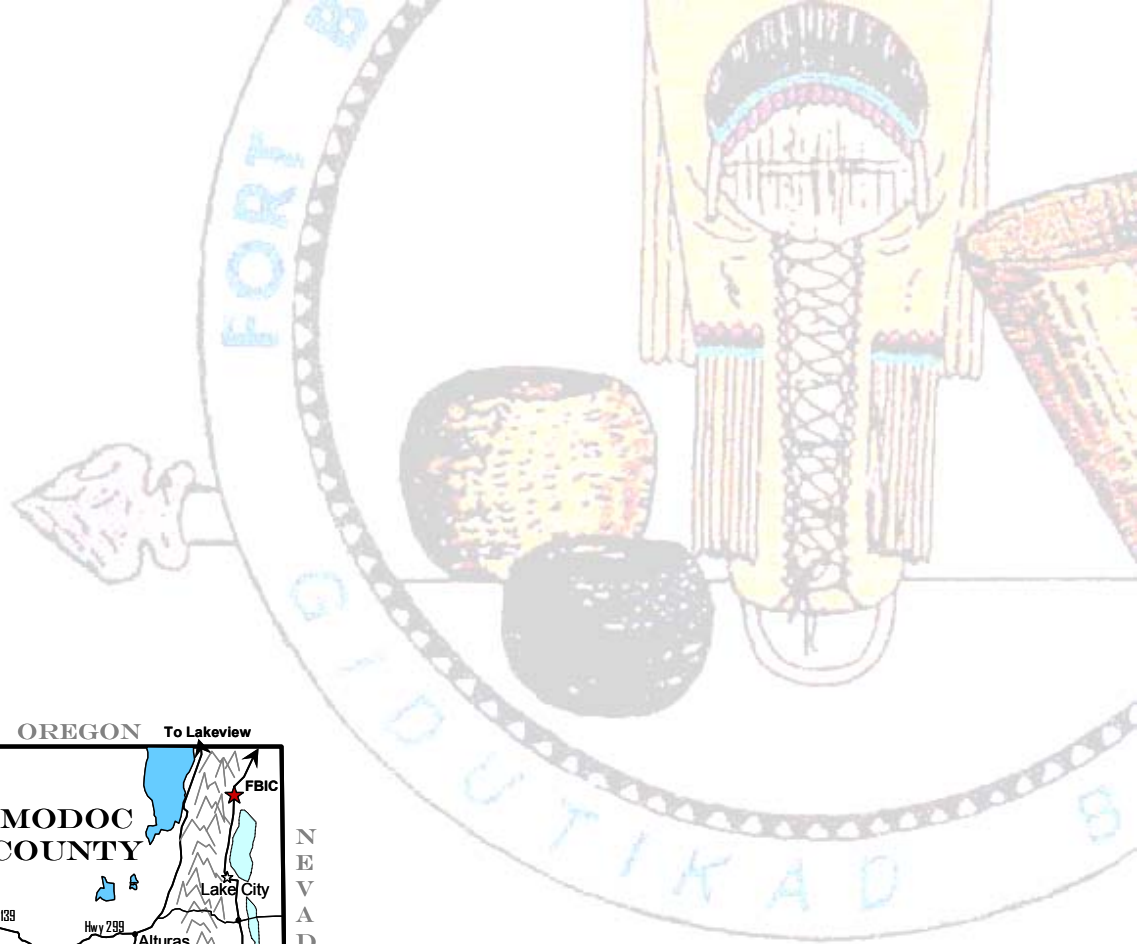
## Feasibility Study

# OVERVIEW

- **LOCATION**
- **TOUR**
- **FINDINGS**
- **RECOMMENDATIONS**
- **QUESTIONS**



# LOCATION



# TOUR

FT BIDWELL INDIAN RESERVATION

TOWN OF FORT BIDWELL

FB-3

FB-2

FB-1

Soldier's Well



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GRC Annual Meeting, September 13, 2006



# FINDINGS

- **Building Identification and Heating Load Assessment**
- **Geothermal Resource Evaluation**
- **Technology Analysis and Preliminary System Design**
- **Environmental Evaluation**
- **Economic/Benefits Analysis**
- **Training, Professional Development, and Community Awareness**
- **Final Feasibility Report**







**FORT BIDWELL INDIAN  
COMMUNITY CENTER**

- SENIOR CENTER
- LEARNING CENTER
- MUSEUM
- ADMINISTRATION









