

Kaw Nation Wind-Biomass Energy Project – Feasibility Phase

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Utility Commissioner
Kaw Nation of Oklahoma**

**Renewable Energy
Development on Tribal
Lands**

FY 2002 Projects

Marriott City Center Hotel

Denver, CO

October 1, 2002



Briefing Outline

- ***Project Overview***
- ***Objectives***
- ***Project Location***
- ***Project Participants***
- ***Requested Technical Support***

Project Overview

Gift to the Wind People

- ***In considering Energy Resources it is relevant that the Kaw, or Kanza, utilize the gift of wind power.***
- ***The Tribe's name derived from original "aca" meaning "People of the South Wind".***
- ***The Kanza (for which the state of Kansas takes its name) have revered the South Wind in all ceremonial activities.***

Project Overview

Project Goal:

Identify optimal low-cost, renewable energy to serve tribal members and enterprises.... while providing opportunity for sustainable economic expansion on tribal lands.

Objectives

Feasibility Assessment & Subsequent Wind Hybrid Development

- **Maximize Tribal Economic Benefits**
 - Explore ways to employ Wind power to lower electric rates &/or offset production costs
 - Determine tribal energy requirements for services, enterprises & proposed Chilocco enterprises
 - Determine cost/benefit potential: selling local power vs exporting to regional markets to create revenues
- **Create NA Employment opportunities**
 - Proposed wind hybrid development will address:
 - # jobs & skills to operate & maintain proposed facilities
 - Staff current & future needs of present tribal ops
 - Staff businesses & services for proposed Chilocco development

Objectives *(continued)*

Feasibility Assessment & Subsequent Wind Hybrid Development

- **Technology Transfer to tribal members, resource & enterprise management**
 - Disgen to provide Kaw Nation w/training materials to assess & develop wind facilities
 - Est. skill set within tribal membership
 - Proposed Tech Training Center at Chilocco to focus skills needed for both wind facility ops & those needed for potential business partners
 - Project success will enable enterprise expansion & realization of Tribal energy self-sufficiency

Objectives *(continued)*

Feasibility Assessment & Subsequent Wind Hybrid Development

- **Energy Sources**

- **Primary: Wind Power**

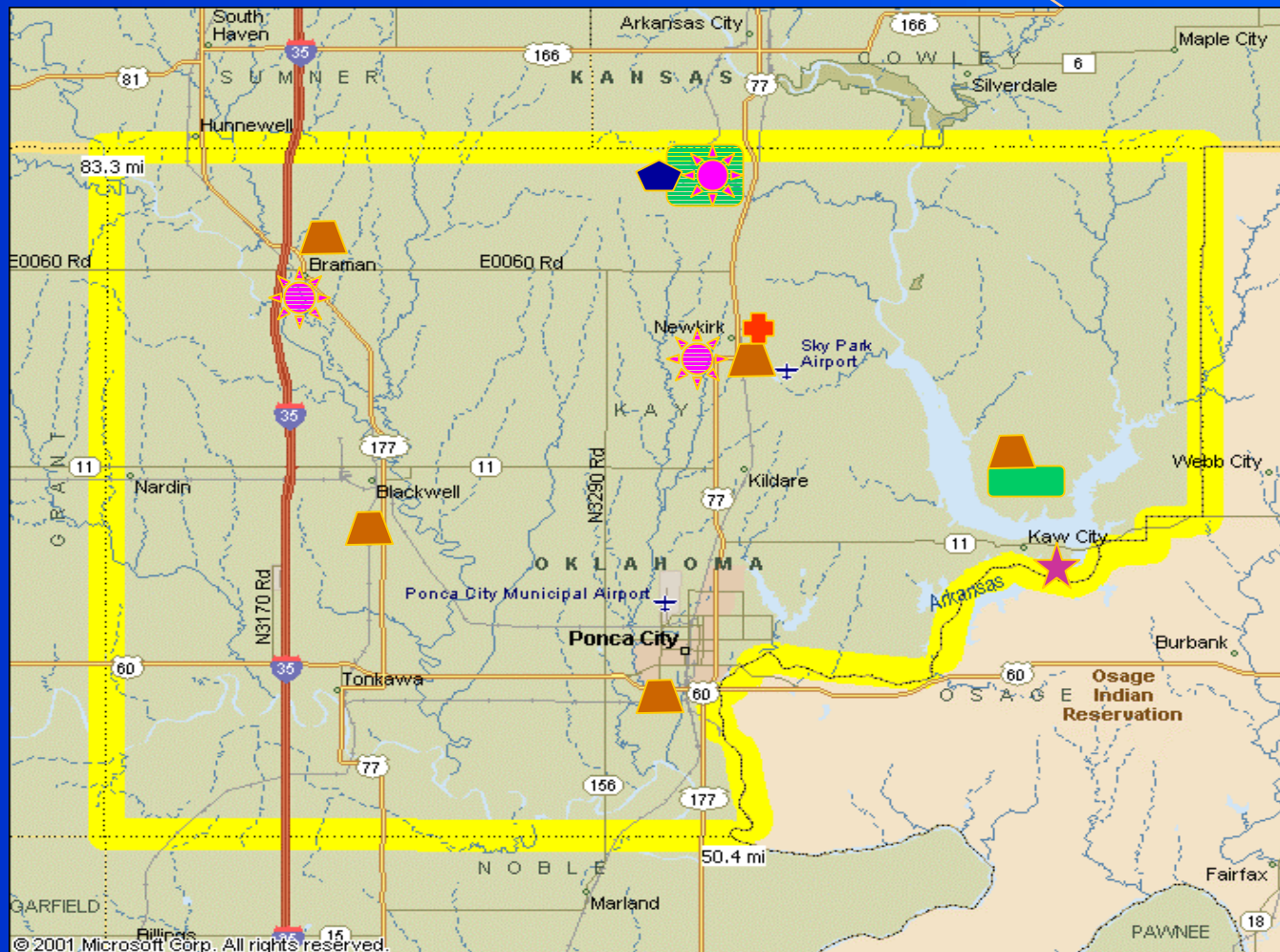
- **Secondary (backup): Form of Biomass**

- **Diesel with protein enhancement (soybean)**
- **Biomass fuel source using Spectrum Separation Process (SSP) (physiochemical/biochemical-thermal separation process) forming a biofuel used to fuel a generator to produce electric power.**
- **Ethanol**



Project Location

-  Wind sites
-  Nation HQ
-  Housing or Enterprise
-  Med Clinic & Social Services
-  Trust Lands



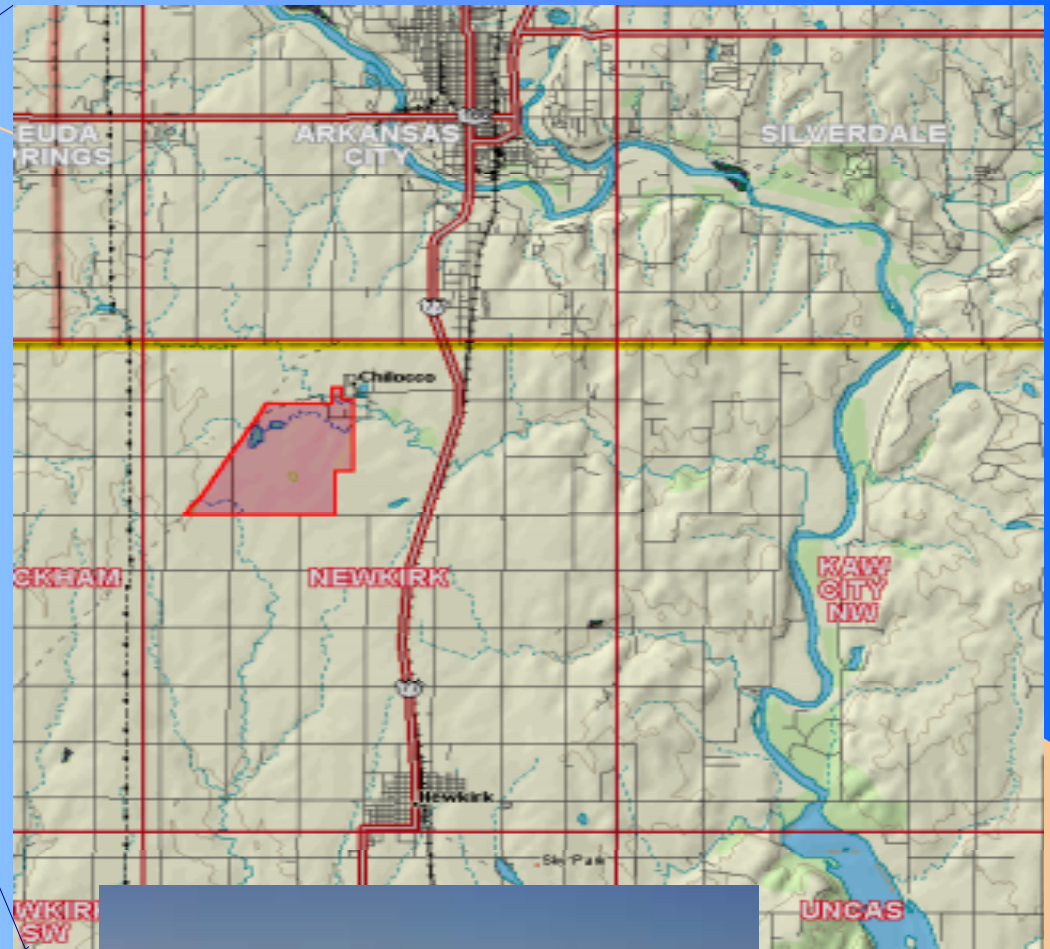
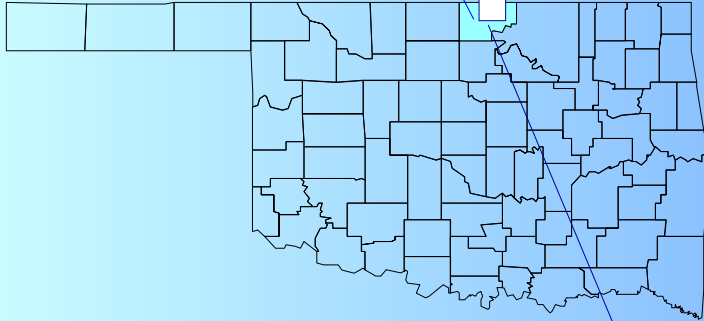
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Project Location (continued)

- **Kay County, Oklahoma**
 - Chilocco Area development of trust lands
 - Integrated development
- **Major Developments**
 - **NA Tech. Training Center**
 - Wind Center of Excellence
 - Associated tribal enterprises
 - Other jobs in region
 - **Aircraft Machine Shop to support regional aircraft manufacture in Wichita, KS**
 - **Operate hybrid Wind-Enhance biomass DEG system to power Chilocco enterprises**
 - **American Indian Diabetes Center (5+ yrs)**
 - **Native American Community College at Chilocco renewed campus (5+ yrs)**



Kay County, Oklahoma



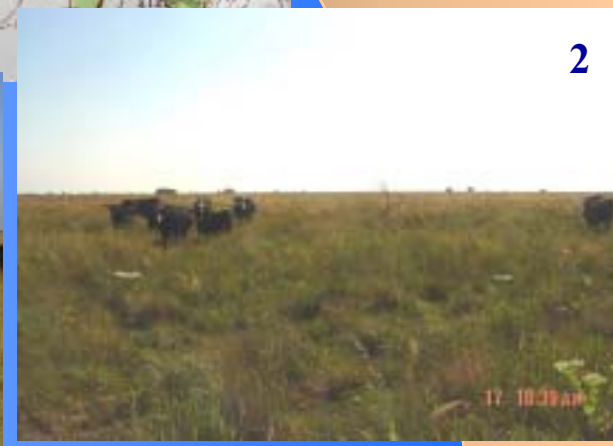
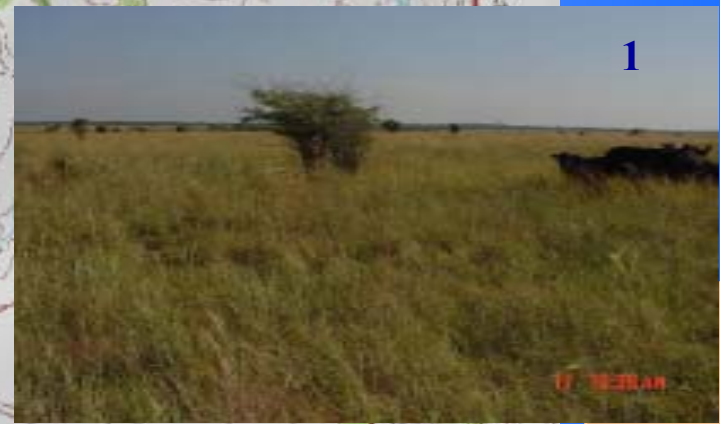
Chilocco, OK

Joint Tribal Ownership

**Kaw Ponca Pawnee
Otoe-Missouria Tonkawa**



Chillico, OK



Project Location (cont.) Braman & Newkirk, OK

Braman Kanza Plaza & Deli



Newkirk Complex

Braman 5m Anemometer

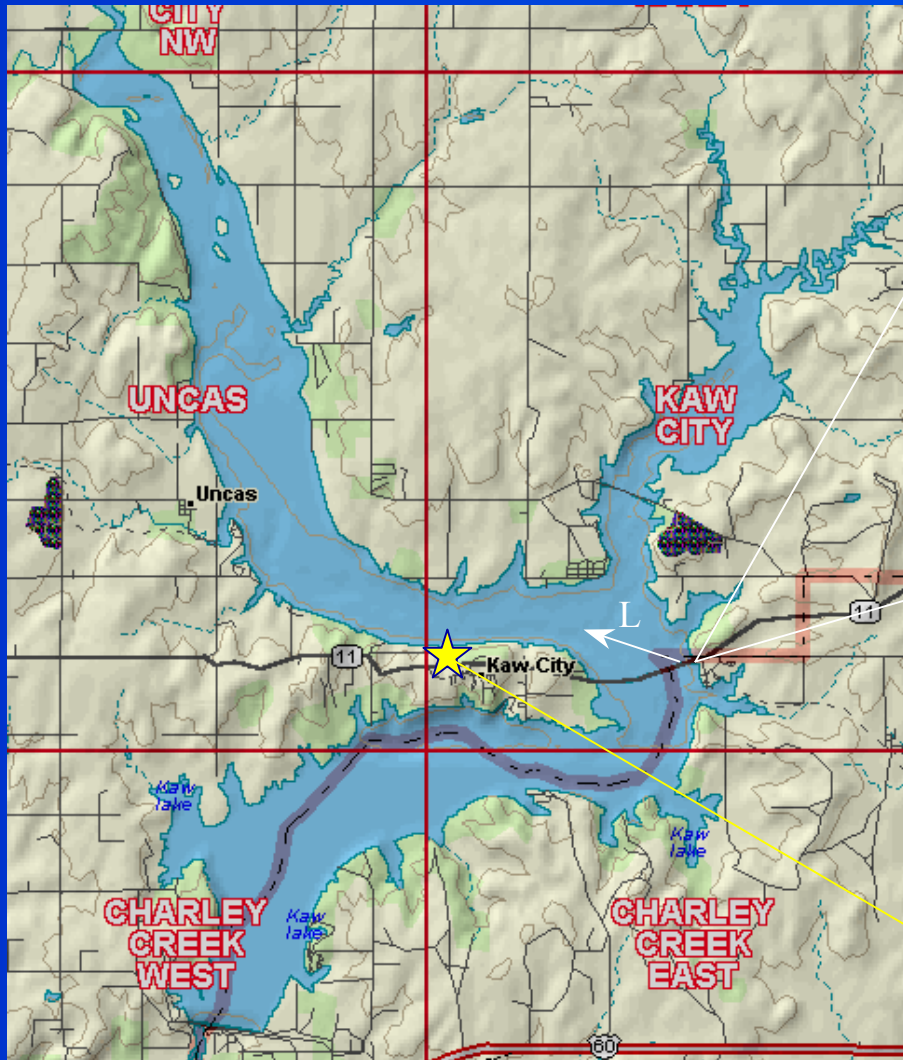


Health Clinic



Newkirk Casino

Project Location (cont.) Kaw City, OK



Project Participants

- **Kaw Nation**
 - **Utility Commission**
 - Clyde McCauley (Dir)
 - Mike Pappan (V. Dir.)
 - Tom Cooper
 - Bob Gaddis, P.E., P.G.
 - Ken Stamper-to-Water
 - **Dr. Dejene Alemayehu (KED)**
 - **Nation Elders (Cultural Studies)**
 - **Executive Council**
 - Guy Monroe (Chair/CEO)
 - Council members (6)
- **Oklahoma Wind Power Initiative (OWPI)**
 - **Tim Hughes (OU)**
 - **Steve Stadler (OSU)**
- **Contractors**
 - **Dale Osborn, Distributed Generation Systems (Disgen)**
 - Ed McCarthy (Met Studies)
 - Curry & Kerlinger (Avian Assessment)
- **Intertribal Council on Utility Policy**
 - **Bob Gough (Sec)**
- **CERT**
- **DOE Labs**
 - **NREL**
 - **Sandia, Berkley & Argonne**
- **Local Communities**
- **Oklahoma Municipal Power Authority (OMPA)**

Requested DOE Technical Support

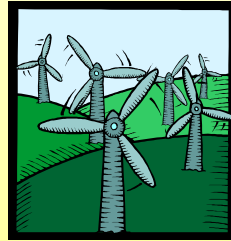
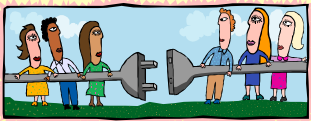
- **NREL: Sponsor Liaison**
 - DOE Support coordinator
 - Disgen 50-M Tower Installation Workshop (Nov 02)
 - European Wind Machine Evaluation Results
 - Regional Power Transmission Assessment
 - State studies and Midwest ISO Panel (see www.spp.org)
- **Sandia: Utility Vulnerability Analysis**
 - Training support for tribal utilities
- **Berkley: Market Conditions / Competitive Claims**
 - Wind vs NG Hedge Value Proposal (LBNL-50484) by Mark Bolinger & Ryan Wise at http://eetd.lbl.gov/ea/EMS/EMS_pubs.html#RE
- **Argonne: Fuel/Materials Recycling issues**



? Questions ?



Your Turn



Wiblahan

(Good-Bye)



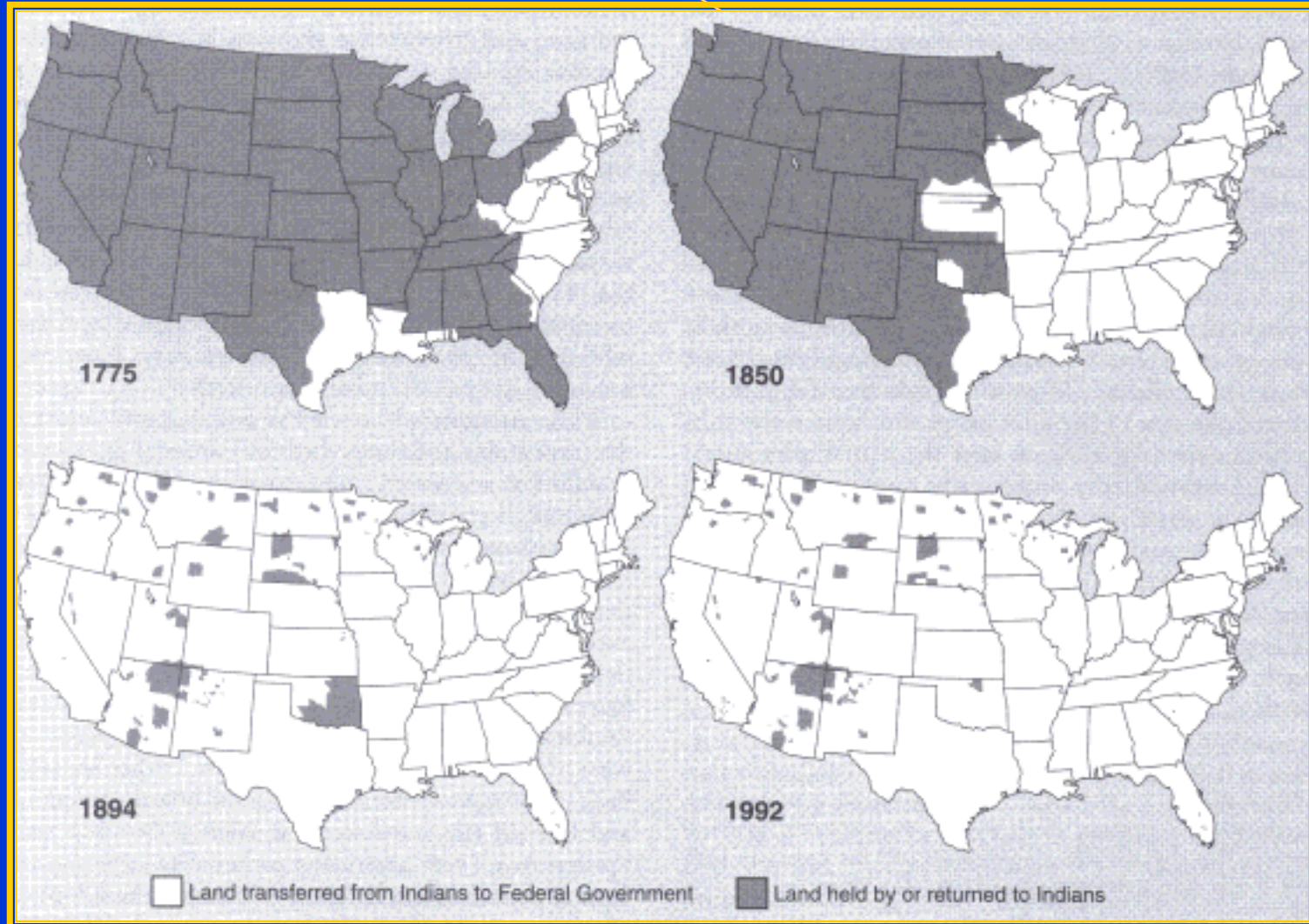
Chilocco Indian School, OK

● School History

- Est. 1884 by US Gov't ed. W. OK tribes through 8th grade
- Original school built on 8,320 acres purchased from Cherokees
- School based on Industrial Plan
 - Half-day academic subjects
 - Half-day vocational subjects
 - Boys studied Ag pursuits
 - Girls learned domestic arts
 - School produced own food & other items needed
- 1907: Expanded to include all Indian children except Five Civ. Tribes (1-bldg to 35-bldgs)
- After 1910 admits children from Five Civ Tribes
- 1916: Education thru 10th grade
- Late 1030's: lower Elem. Grades elim.; Jr-Sr high cont.
- After WWII: only high school
 - Between 1930-1959 annual enrolled between 800-1200 students
- Closed June 1980 amid opposition from Indian parents
- Rather than transform nomadic Indians into "civilized" American farmers & citizens, actually reinforced Indian & tribal identity among students
- Trained leaders of western OK tribes for half century, creating bonds of friendship of different tribes
- Chilocco help create pan-Indian identity among Indian people in OK
- After 1980, property in transition without defined use
- 1993 to early-2002: Church of Scientology used portion of school for substance abuse & rehab center

Native American Land Losses 1775 – 1992

Source: R. David Edmunds (Cherokee), 1996, Indiana University (in Encyl. of North American Indians)



Oklahoma Indian Lands & Counties

Source: Muriel H. Wright, 1986, A Guide to the Indian Tribes of Oklahoma, Univ. of Oklahoma Press, p. 24

