Economic Development and Green Collar Training/Employment

Renewable Energy and Housing Opportunities for Tribal Community and Economic Development

Greener Homes National Summit
ONAP-HUD, Denver, CO
September 28-29, 2011

Intertribal Council On Utility Policy
www.intertribalcoup.org
Bob Gough, Secretary

Indigenous Energy and Mining Conference

Niagara Falls, Ontario ~ June 2011

INTERTRIBAL
Council On Utility Policy
COUP

Tribes Building Sustainable Homeland Economies
P.O. Box 25, Rosebud, SD 57570
IntertribalCOUP.org

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Secretary, IntertribalCOUP.org
Director, NativeWind.org
Senior Advisor, *Native*Energy.com
Member, Western Governors' *Clean and Diversified Energy Advisory Committee*
Westgov.org
Consultant, Wind Powering America Program, Native American Initiative
WindPoweringAmerica.gov

Intertribal COUP Vision for

Building Indigenous Sustainability

Tribal Planning
Utility, Energy and Housing




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Tribes Building Sustainable Homeland Economies
P.O. Box 25, Rosebud, SD 57570
www.IntertribalCOUP.org
www.NativeWind.org
www.NativeEnergy.com

Economic Development
Utility and Community Scale Wind



Carbon Offsets

NativeEnergy
Bringing New Renewables To Market

Training
Hands On




Classroom

Efficient, Affordable Straw Bale Housing

Re-use and O&M

Policy Collaboration

Tribal Energy Development from the19th to 21st Century

For Centuries on the Great Plains
Native Peoples Transformed
The Gifts of the Buffalo
Into Homes and a
Way of Life …










Today, Tribes
Look to Affordable
And Efficient Homes of Local,
Natural Materials and to Renewable Energy
As a Sustainable Path for the Generations to Come

Sustainability in Housing
Straw Bale Building Initiative Program

Summer 2009

Train the Trainers Program
for Tribal College Instructors
Sinte Gleska University ~ Antelope Campus
Rosebud Sioux Indian Reservation

Developed by
Intertribal Council on Utility Policy
GreenWeaver ~ One World Design
Development Center for Appropriate Technology
Environmental Design Partners
Sinte Gleska University
Institute of Technologies
Buffalo Ranch Program
United Tribes Technical College
American Indian Higher Education Consortium

With Support from
Rosebud Sioux Tribe
Department of Energy ~ Tribal Energy Program
Department of Interior
Office of Indian Energy and Economic Development
South Dakota Community Foundation
Untours Foundation

Different Race, Different Recession:

American Indian Unemployment in 2010

Some of the key findings are:

From the first half of 2007 to the first half of 2010, the American Indian unemployment rate nationally increased 7.7 percentage points to 15.2%. This increase was 1.6 times the size of the white increase.

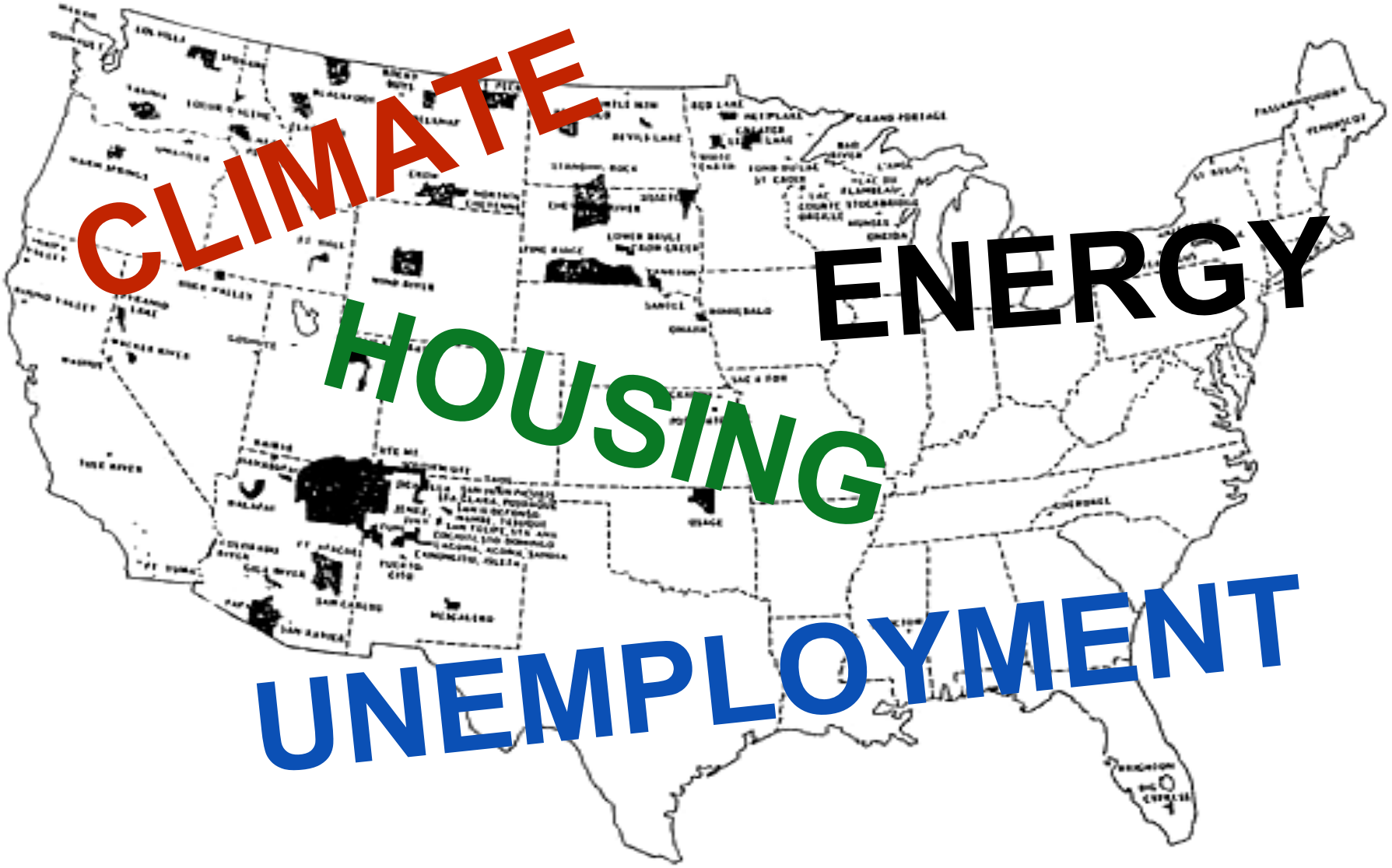
Since the start of the recession, **American Indians in the Midwest experienced the greatest increase in unemployment**, growing by 10.3 percentage points to 19.3%.

By the first half of this year, slightly more than half 51.5%- of American Indians nationally were working, down from 58.3% in the first half of 2007.

In the first half of this year, only 44% of American Indians in the Northern Plains were working, the worst employment rate for Native Americans regionally.

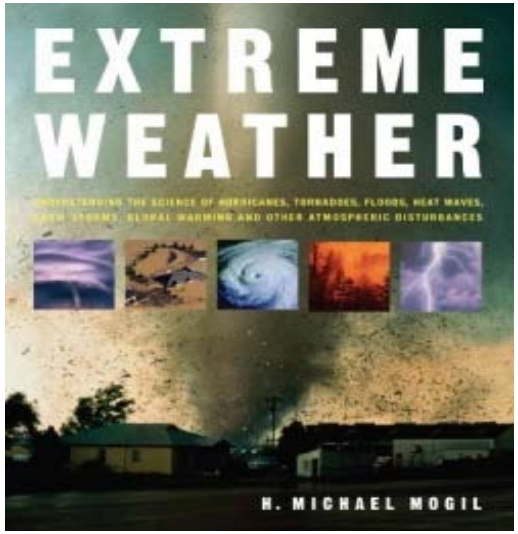
The employment situation is the worst for American Indians in some of the same regions where it is best for whites: Alaska and the Northern Plains.

Four Crises In Indian Country:

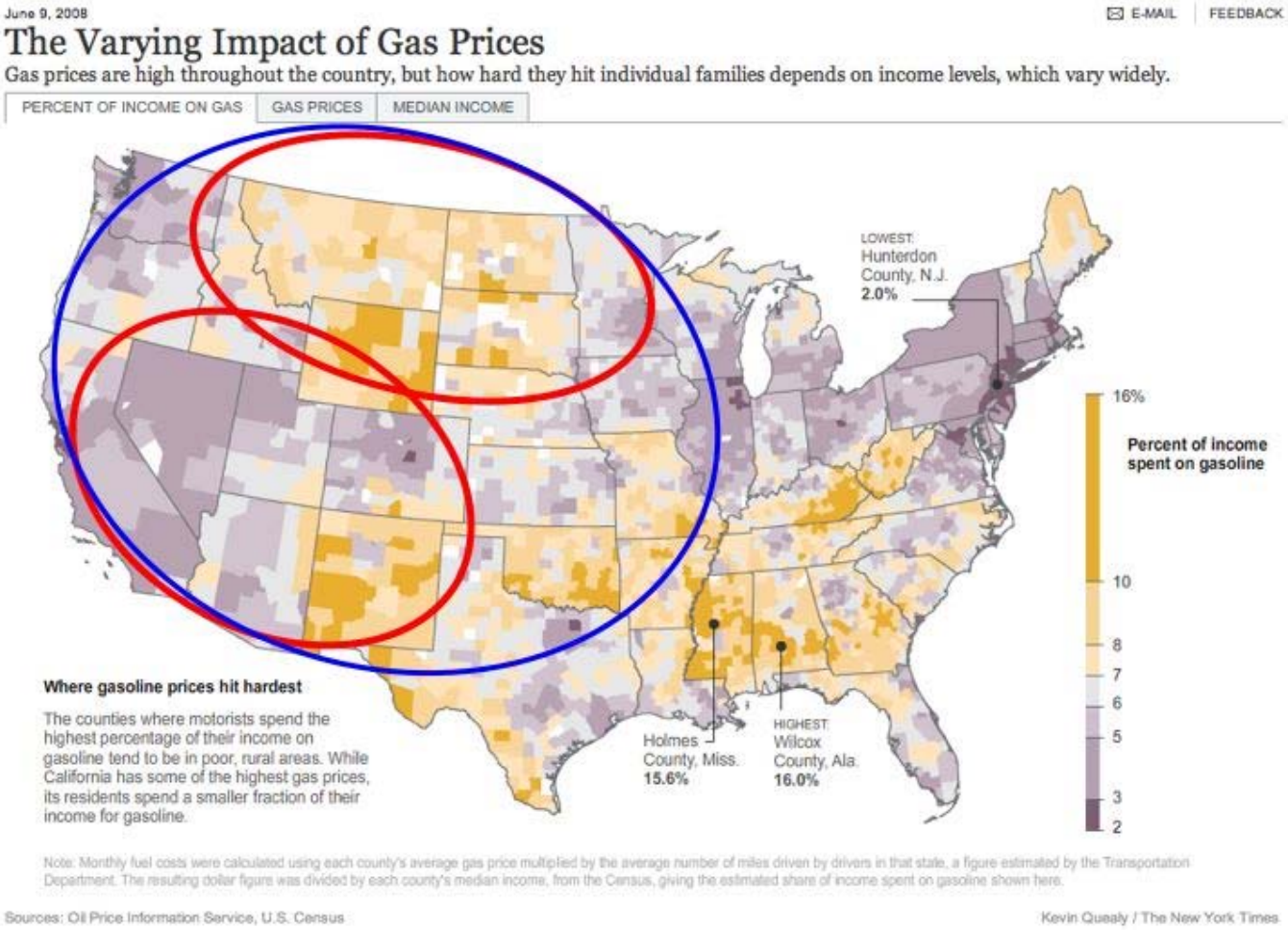


WEATHER EXTREMES 101

Climate Change is a statistical reality only appreciated over Time, while Weather Extremes are experienced in our daily lives!



IMPACT OF HIGHER ENERGY COSTS ARE GREATER IN INDIAN COUNTRY



INTERTRIBAL Council On Utility Policy COUP

THE ECONOMICS

GREEN COLLAR JOBS

FOR INDIAN COUNTRY

Renewable Energy Jobs

Manufacturing
Construction
Operation and maintenance

Renewable energy production is labor intensive
- 4 times more jobs/megawatt than natural gas
- 40% more jobs per dollar of investment than coal

Jobs in Wind Power

Jobs created for 1 MW wind power: about 9500 hours of labor (4 person-years).

240 MW Iowa wind farm = 200 6-month long construction jobs; 40 Permanent M&O at $16/hour

Energy Efficiency Jobs

More jobs for factory workers, builders, and operation and maintenance personnel

- Efficiency creates 21.5 jobs for every $1 million investment
- Natural gas produces 11.5 jobs for every $1 million investment

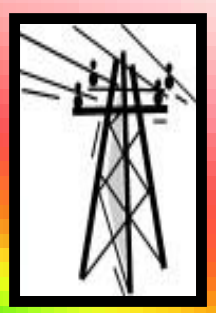
Traditional Electricity Industry Economy

Natural Resources

Construction & Extraction

Generation

Control, Operation & Maintenance



Transmission

Distribution

Consumption

Historic Indian Electricity Economy

Recipe for Poverty

Natural Resources

SELL LOW

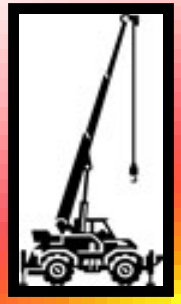
Consumption

BUY HIGH

Integrated Electric Economy

Optimizing Conventional and Renewable Resources

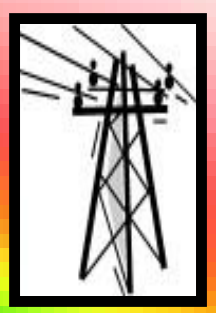
Natural Resources



Construction & Extraction

Generation

Control, Operation & Maintenance

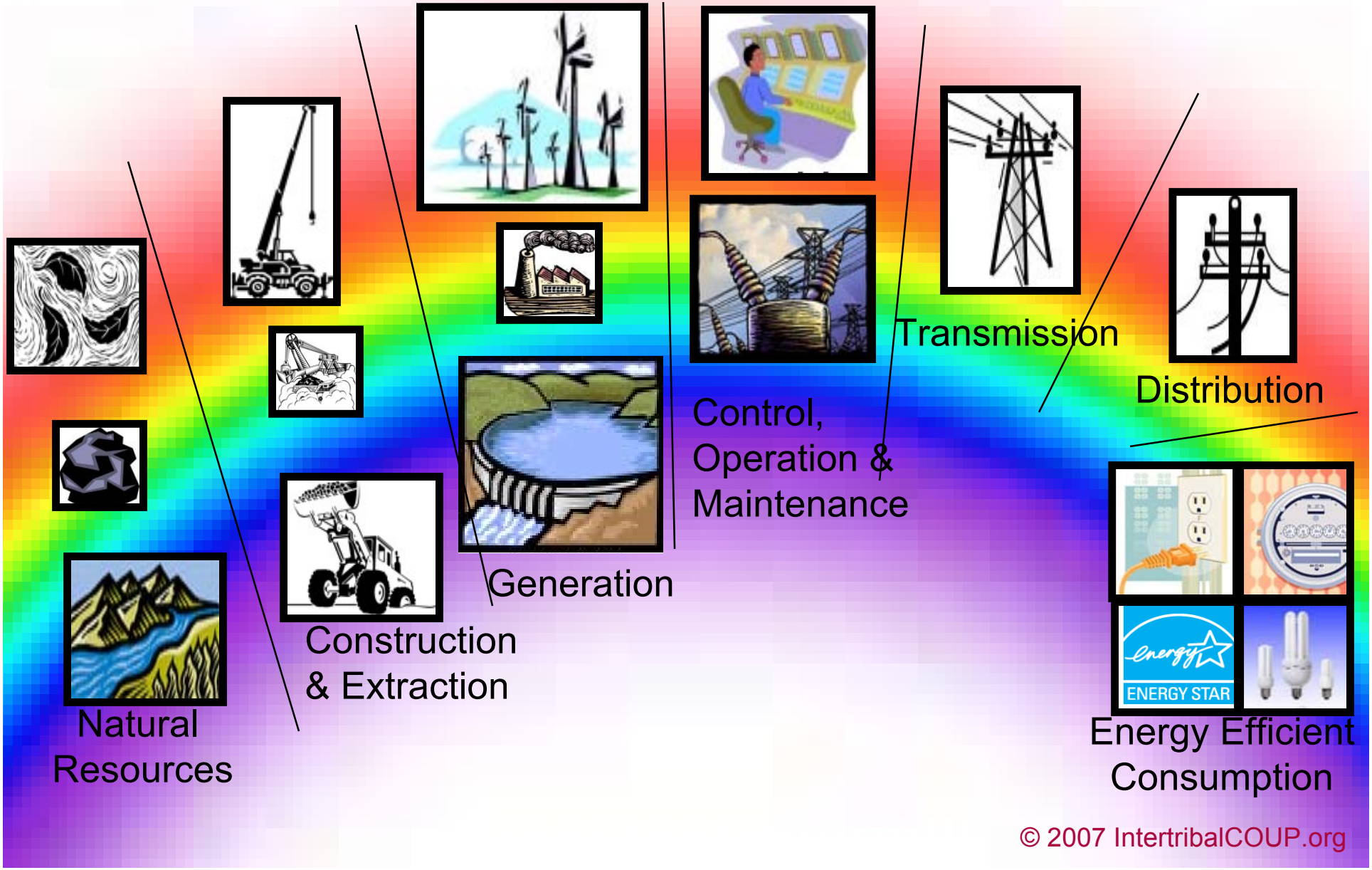


Transmission

Distribution

Consumption

Sustainable Electric Economy



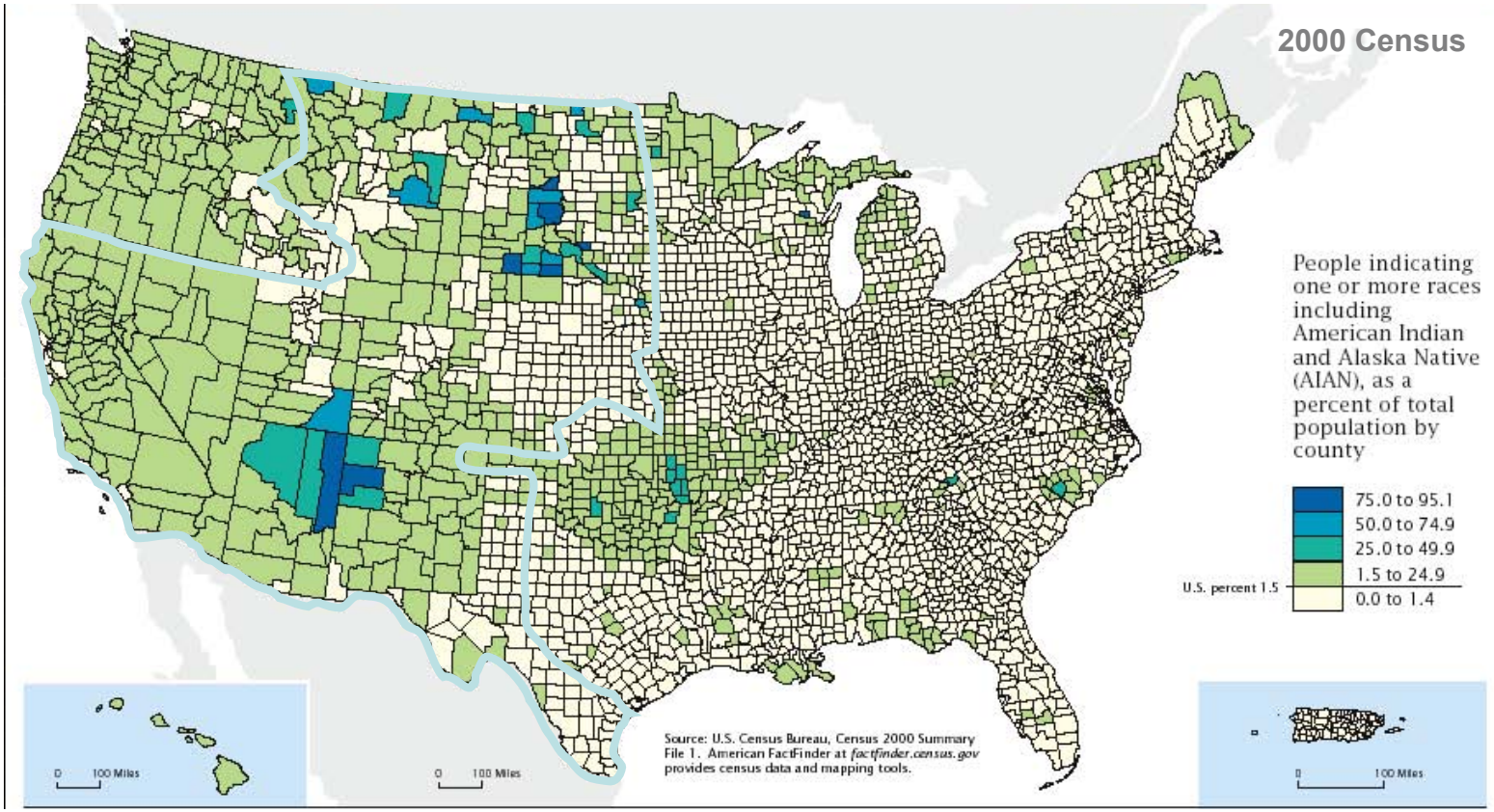
Two provisions of Section 503 of the Energy Policy Act of 2005, which amended the Energy Policy Act of 1992:

- The amendment to Section 2602 of the Energy Policy Act of 1992 **authorizes federal agencies to "give preference to" Indian owned companies "in purchasing electricity or any other energy product or byproduct".** Such agencies shall not "pay more than the prevailing market price for an energy product or byproduct" or "obtain less than prevailing market terms and conditions".

- The amendment to Section 2605 of the Energy Policy Act of 1992 states that the Administrators of the Power Marketing Administrations "shall encourage Indian tribal energy development by taking such actions as the Administrators determine to be appropriate, including administration of programs of the power marketing administration, in accordance with this section" and that "each Administrator shall not-- (A) pay more than the prevailing market price for an energy product; or (B) obtain less than prevailing market terms and conditions."

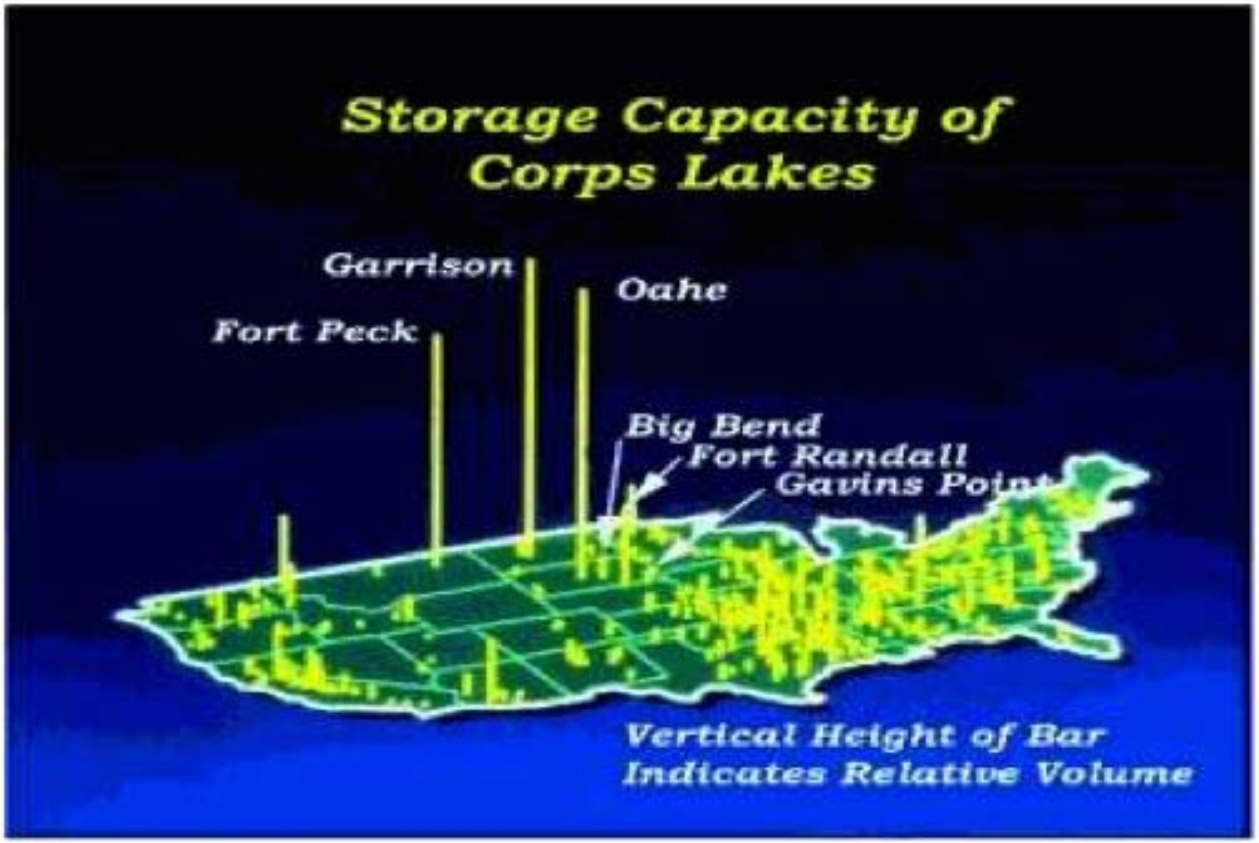
Tribes in BPA and WAPA Service Areas

There are 54 Tribes in Bonneville (BPA)s' service area and over 300 Tribes in Western (WAPA)'s service area with legal interests utility formation, rights-of-way renewals, cultural and environmental compliance, and transmission access.



Missouri River Mainstem Dams Provide One of the Largest Hydropower Storage Capacity Systems in the World

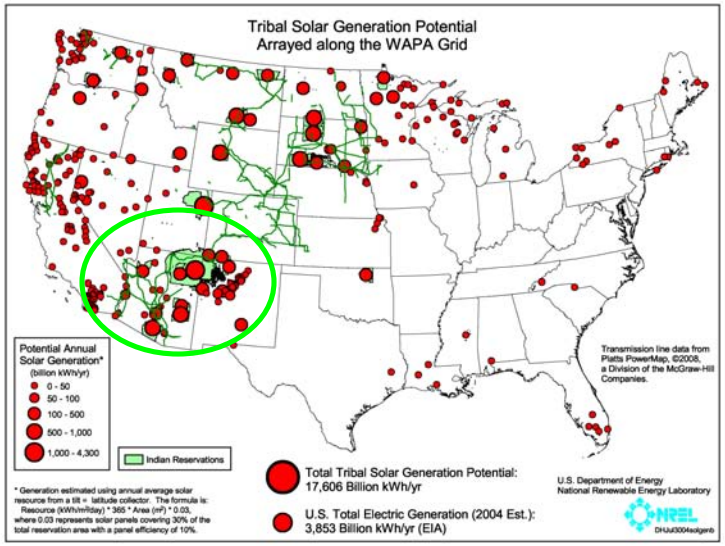
The downstream dams at Big Bend, Fort Randall and Gavins Point depend upon utilizing the upstream flow from Fort Peck, Garrison and Oahe. Current climate trends have shifted precipitation from west to east of the dams with far less water entering into the Missouri River behind the dams.



Potential Copenhagen Announcement:

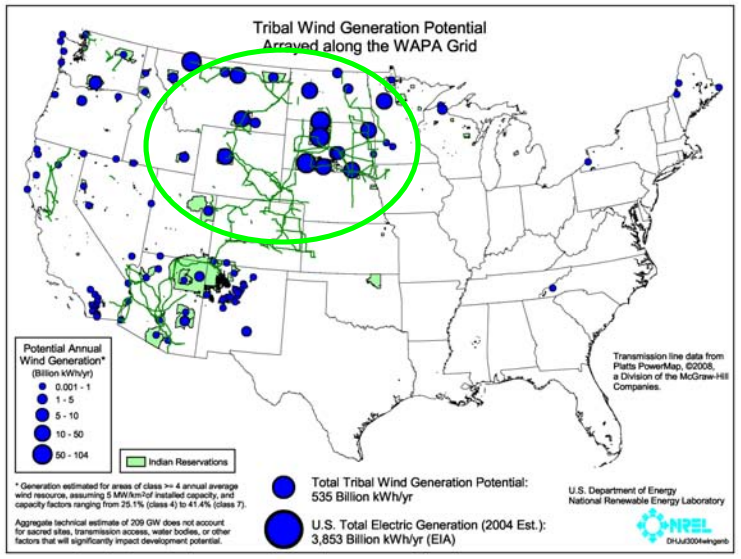
American Indian Tribes Could Support Plans to De-Carbonize the Federal Supplemental Power Purchases for the Western Area Power Administration Transmission Grid By Integrating Over 4,500 Megawatts of Tribal "Shovel Ready" Renewable Energy Projects on the Federal WAPA Transmission Grid

Tribal Solar



Tribal land solar potential equals 4.5 times the U.S. annual load. A Tribal plan for a "panel ready" solar covering of 335 miles of CAP to generate over **1,500 MWs of solar electricity** and could save about 50,000 acre feet of water annually.

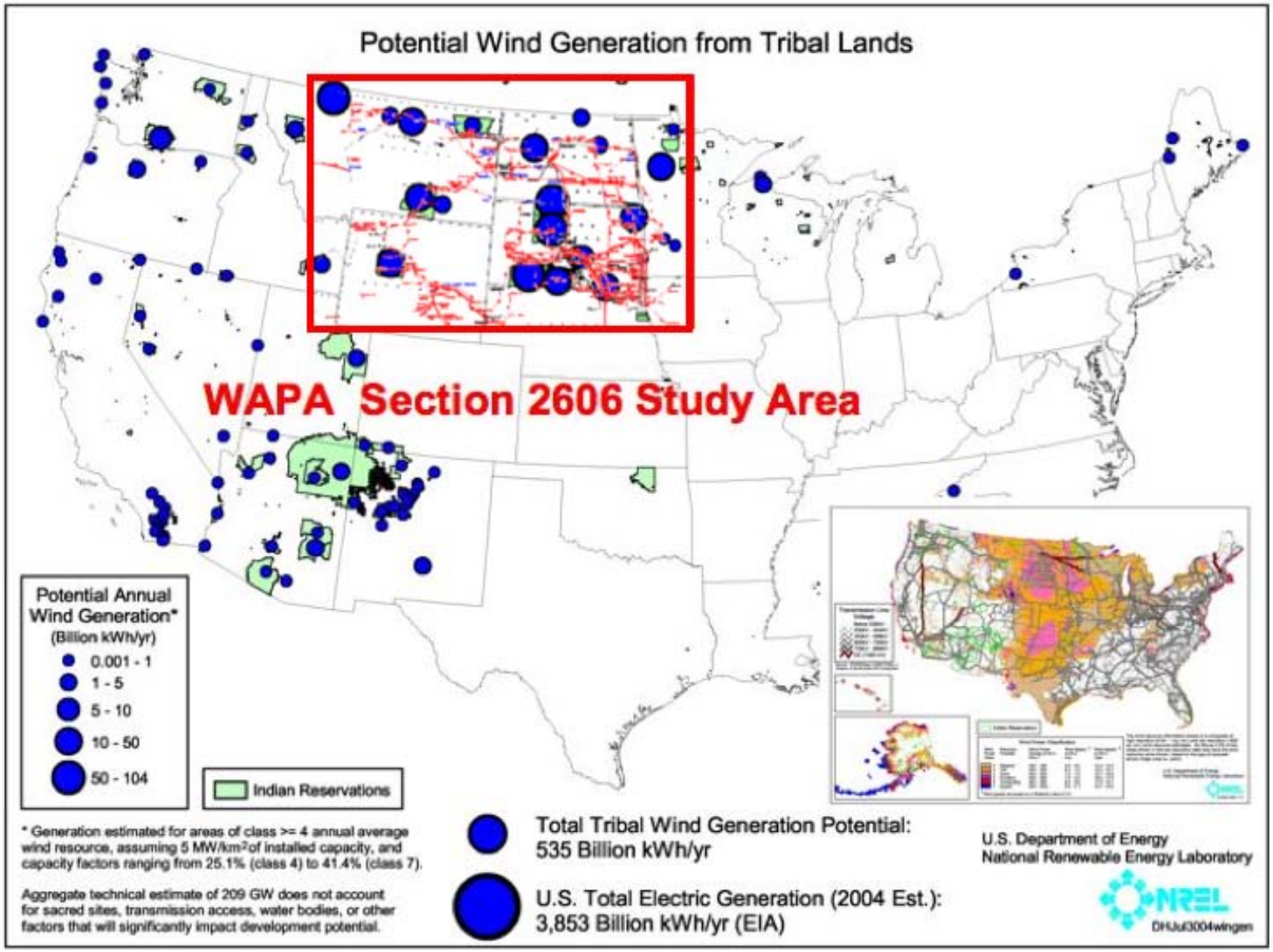
Tribal Wind



Conservative estimate (over 200 GW Potential) based on wind resource at 50 meters, while today's turbines stand over 200 meters. Some **3,000 MWs of Tribal wind** are "shovel ready" in the Northern Great Plains.

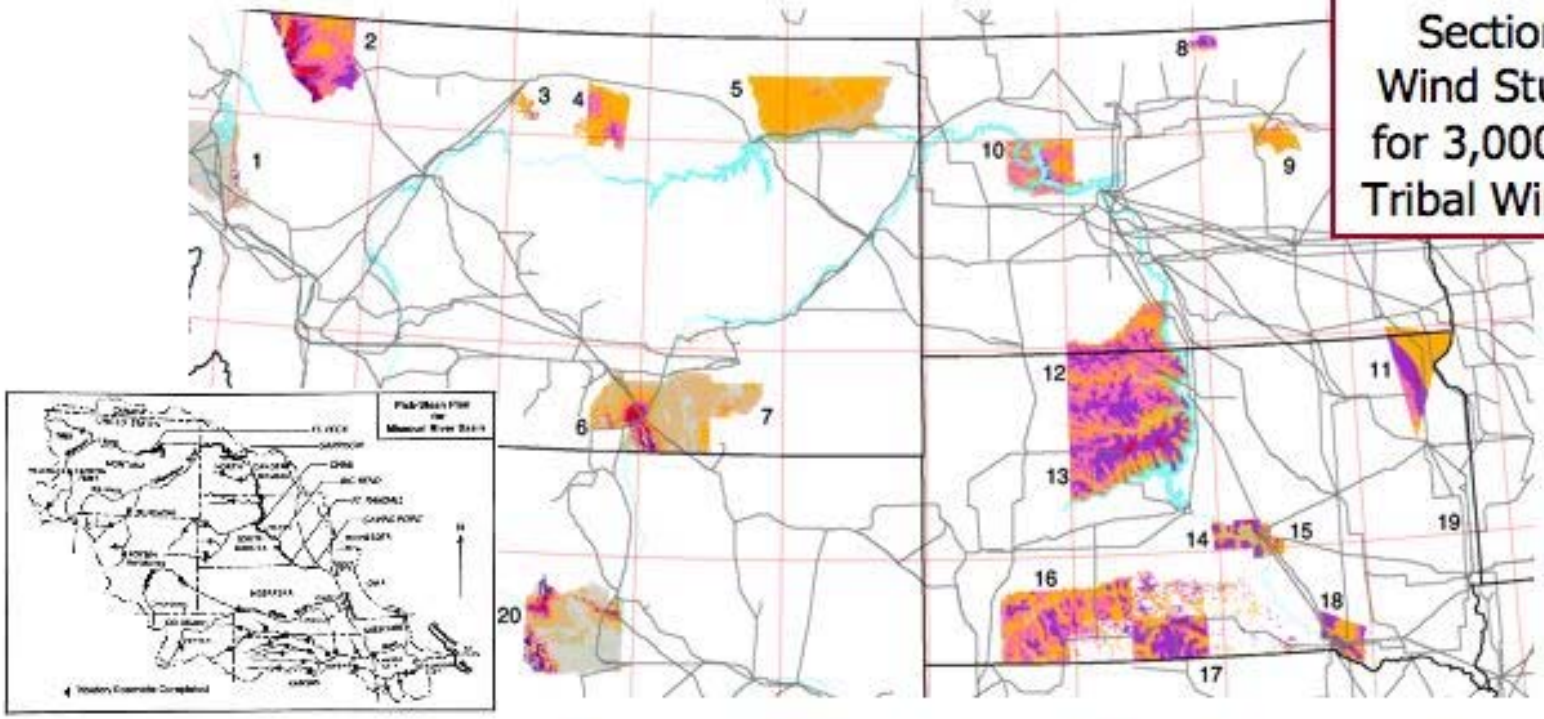
This is America's Opportunity to Recapture the "National Renewable (Hydropower) Energy Grid" with Clean Energy and Build Sustainable Renewable Energy Economies in America's Poorest Communities!

TRIBAL WIND AND FEDERAL HYDROPOWER



Wind/Hydro Feasibility Study Area (Section 2606)
Includes Reservation Distributed Generation Sites

COUP Proposed
WAPA
Section 2606
Wind Study Sites
for 3,000 MWs of
Tribal Wind Power



Section 2606 authorizes the expenditure of up to $1 million to conduct a wind/hydro feasibility study to evaluate the opportunities for wind/hydro integration throughout the Missouri River Basin to supply power to WAPA. 3,000 MWs on 20 Reservations averaging 150 MWs per Reservation.

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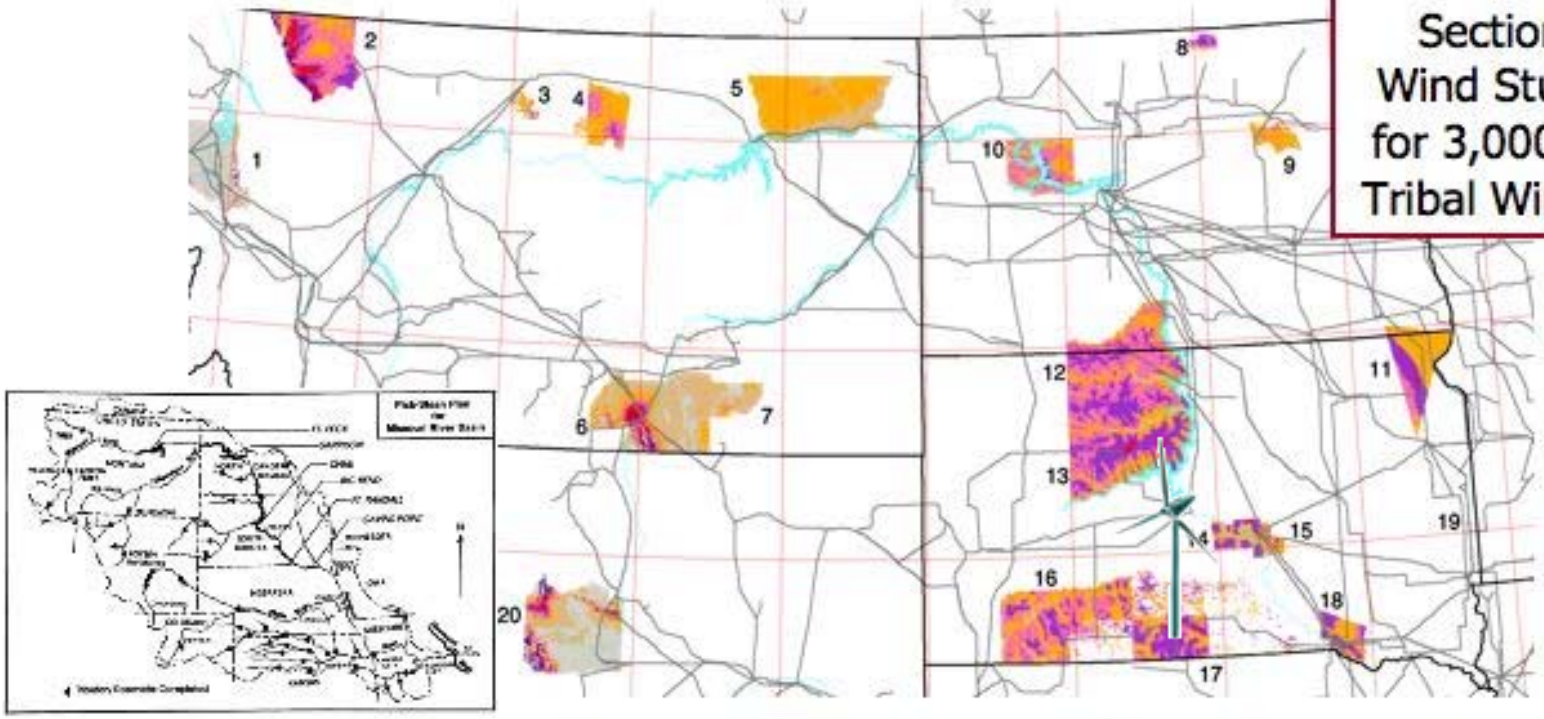

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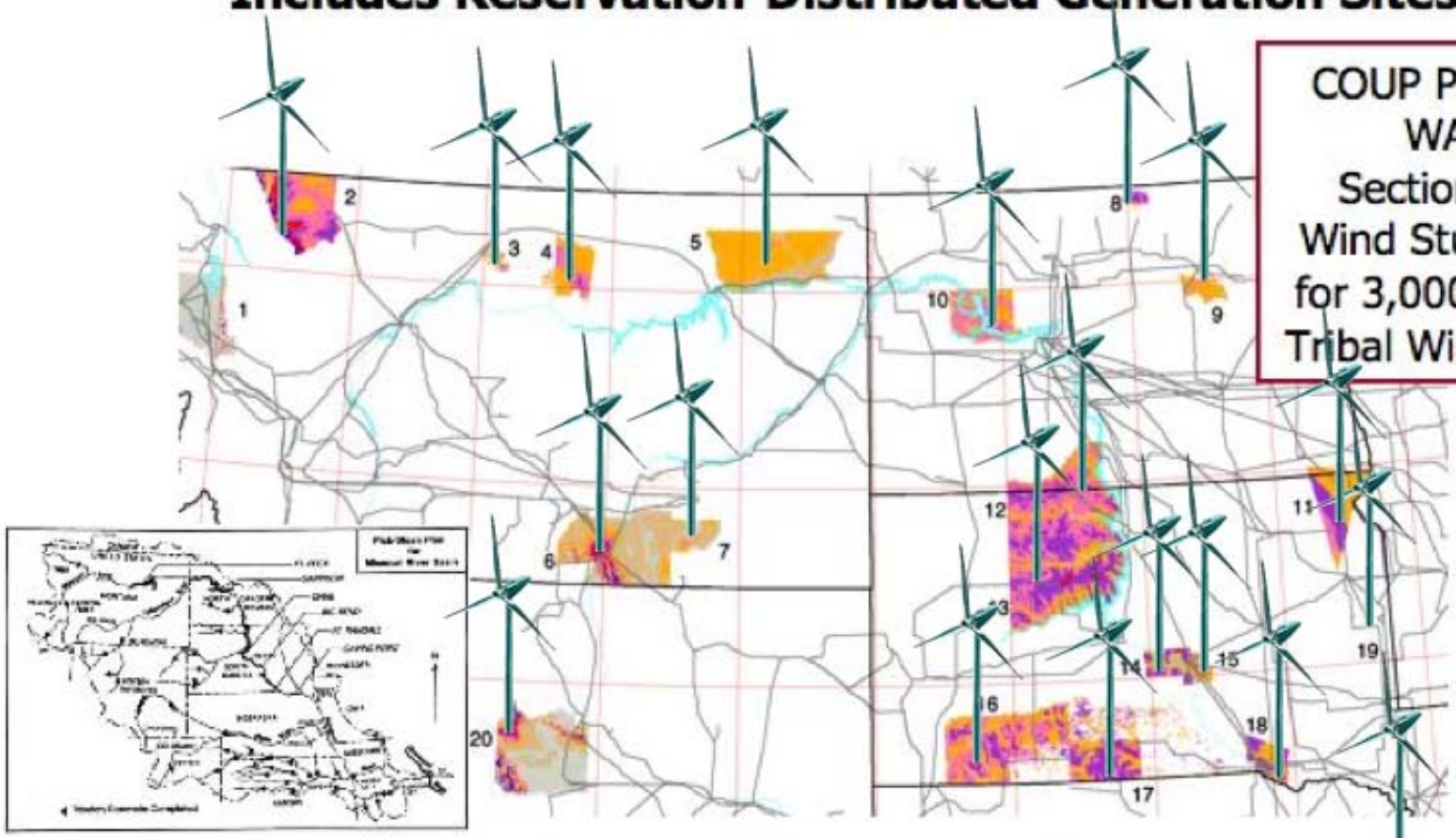

COUP Proposed
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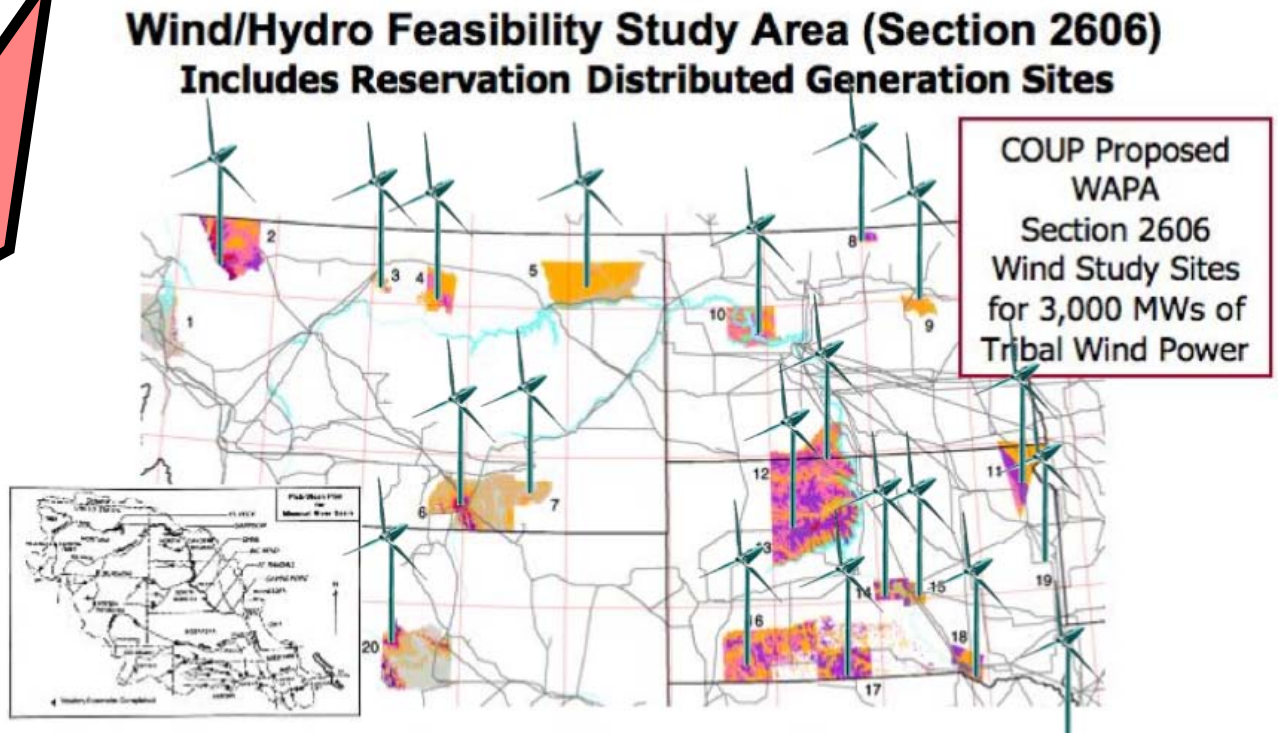
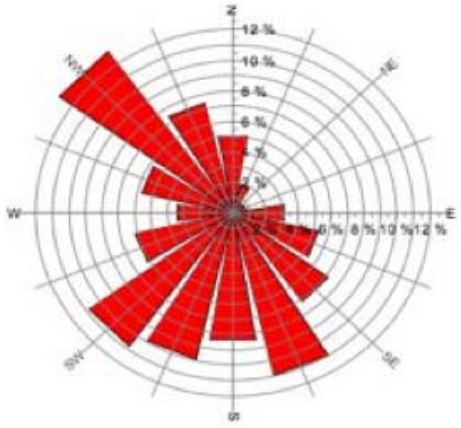
PREVAILING WIND DIRECTIONS

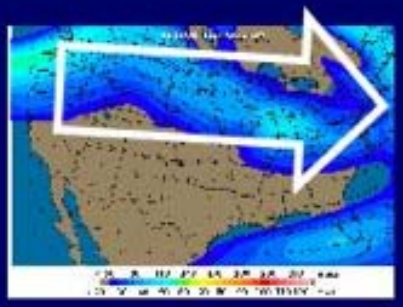


WIND DIRECTION
AND FREQUENCY

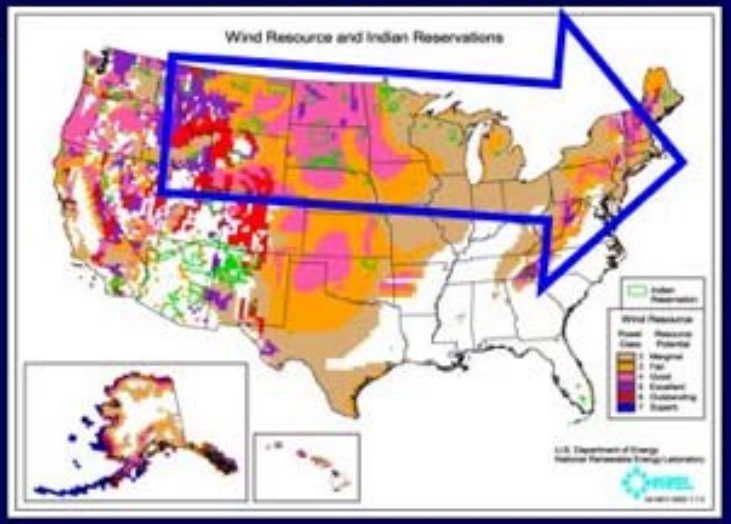


TRIBAL COLLEGE WORKFORCE TRAINING

Tribal Colleges and Wind Resources



Prevailing Windshed

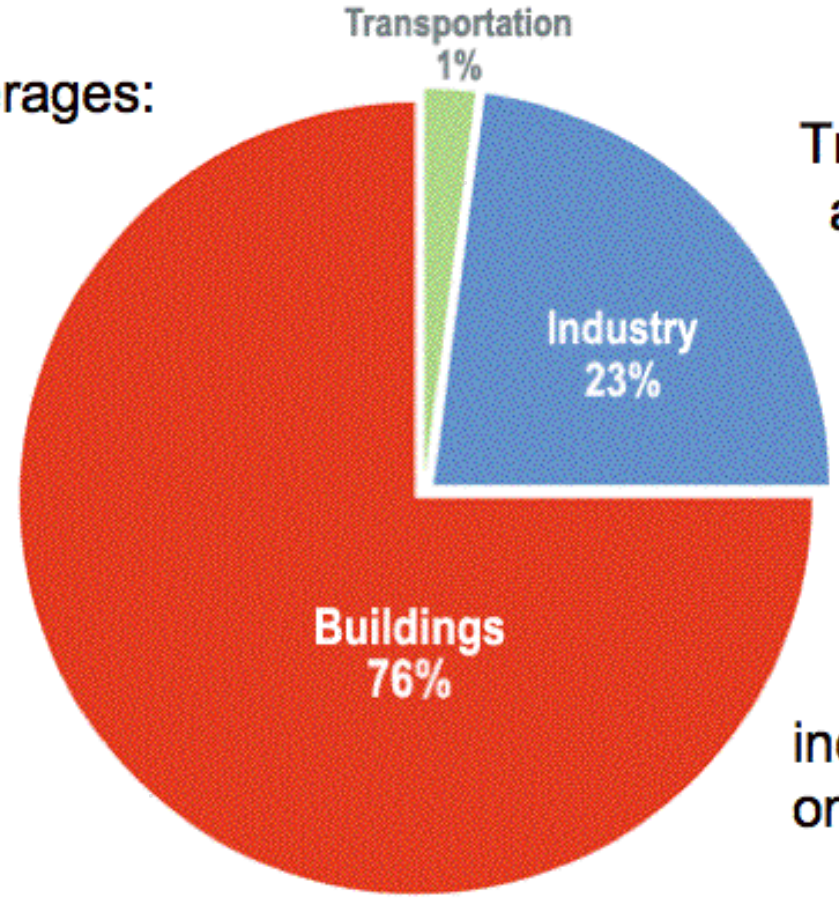


- Climate/Natural Resource monitoring training/projects
- Meteorological Data Centers
- Wind Development Training courses for Reservation job creation and employment
- Wind Forecasting along the Windshed for value-add firm power sales into the market

Intertribal COUP Wind Training Program

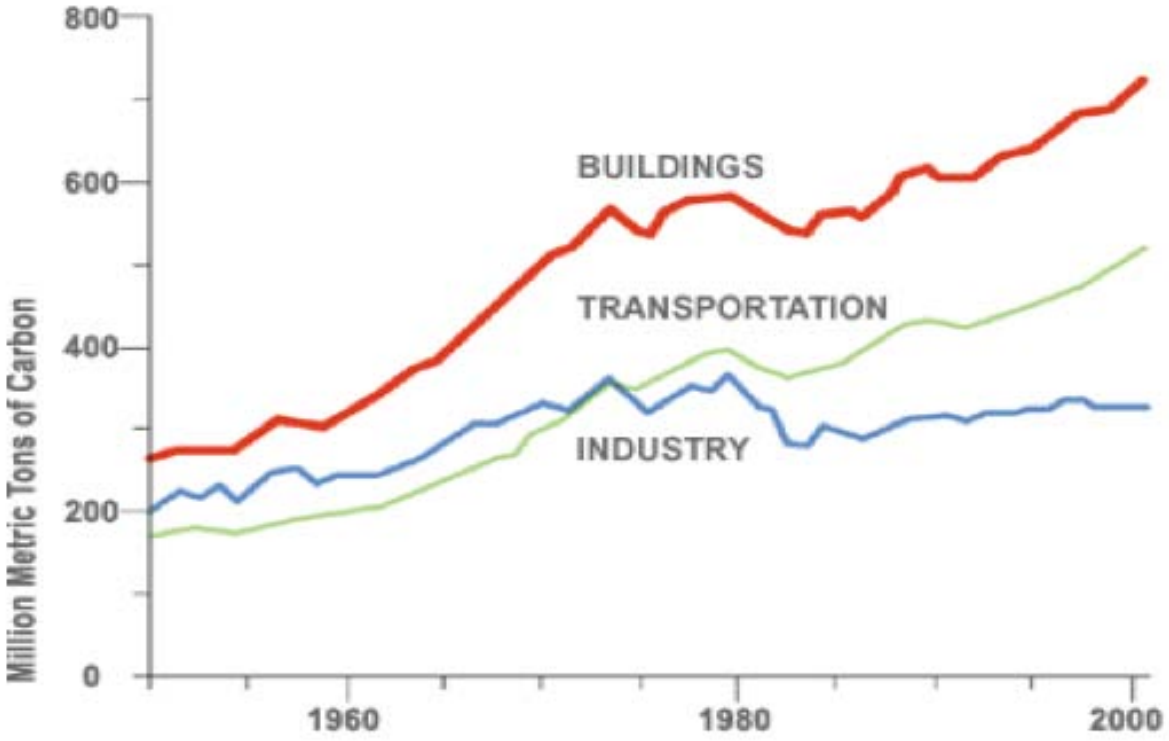
Where does our electricity go?

National Averages:



Tribal Averages are likely to be more greatly weighted towards residential buildings, given the overall lack of industry present on reservations.

CARBON EMISSIONS BY SECTOR



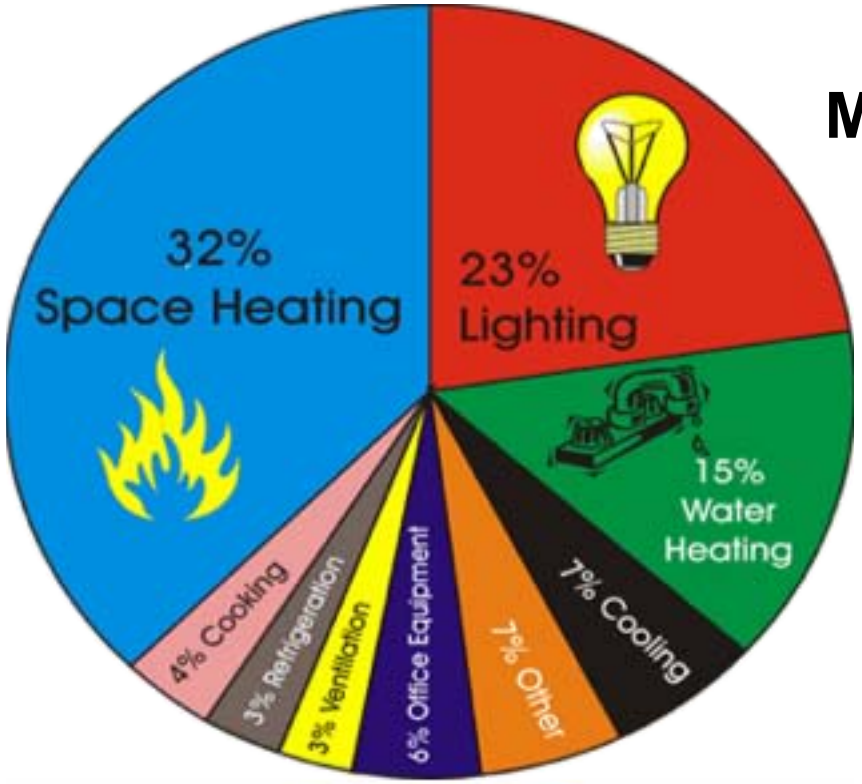
Source:http://www.architecture2030.org/building_sector/index.html

The building sector is responsible for the majority of carbon emissions -- emitting significantly more metric tons of carbon than the transportation and industrial sectors.

INTERTRIBAL Council On Utility Policy
COUP

ENERGY CONSUMPTION BY BUILDINGS

Buildings are responsible for **40% of total annual U.S. energy consumption**



Most building energy demand is supplied by off-site energy inputs that are neither Clean nor Energy Efficient

Source: “How Energy is Used In Commercial Buildings,” 2004, Energy Information Administration

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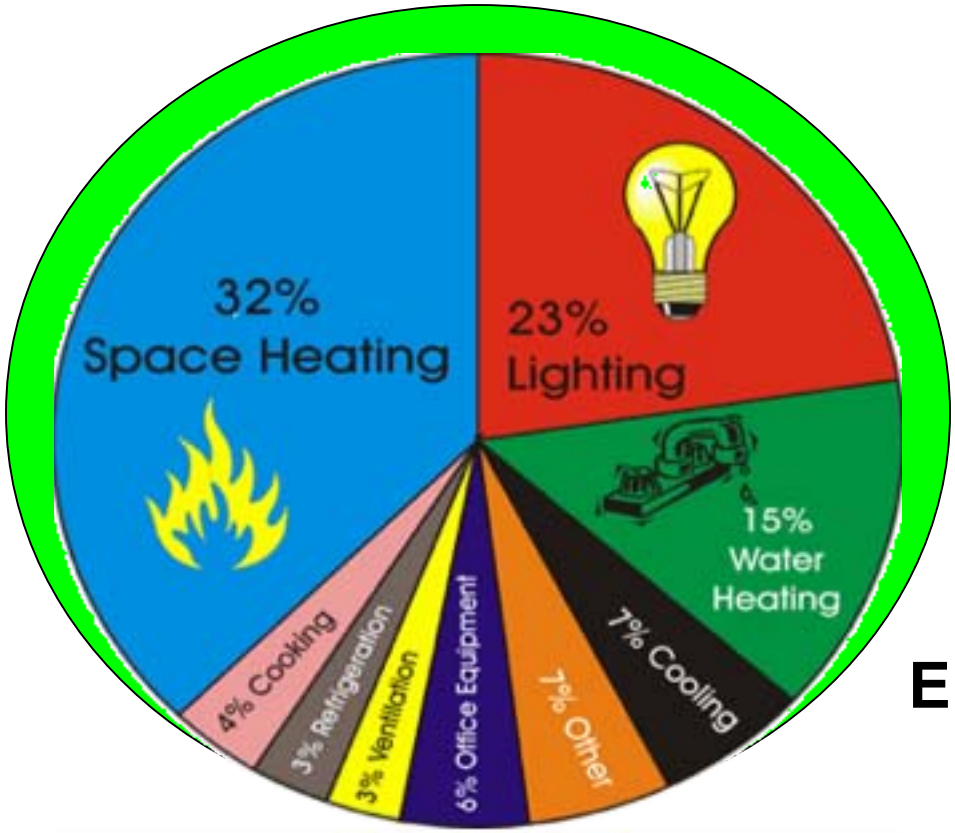
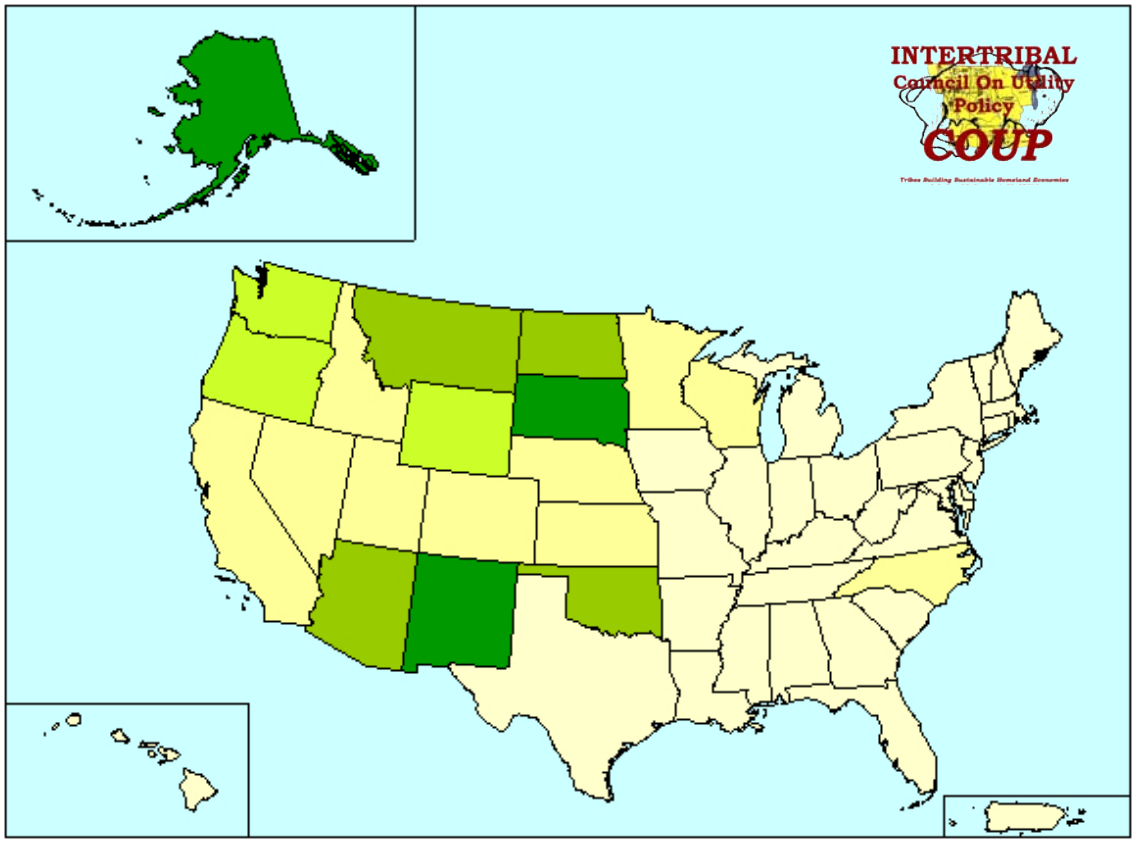


Up to 70% of residential energy demand could be 'Greened' by Energy Efficient Design and by Local Renewable Energy Applications

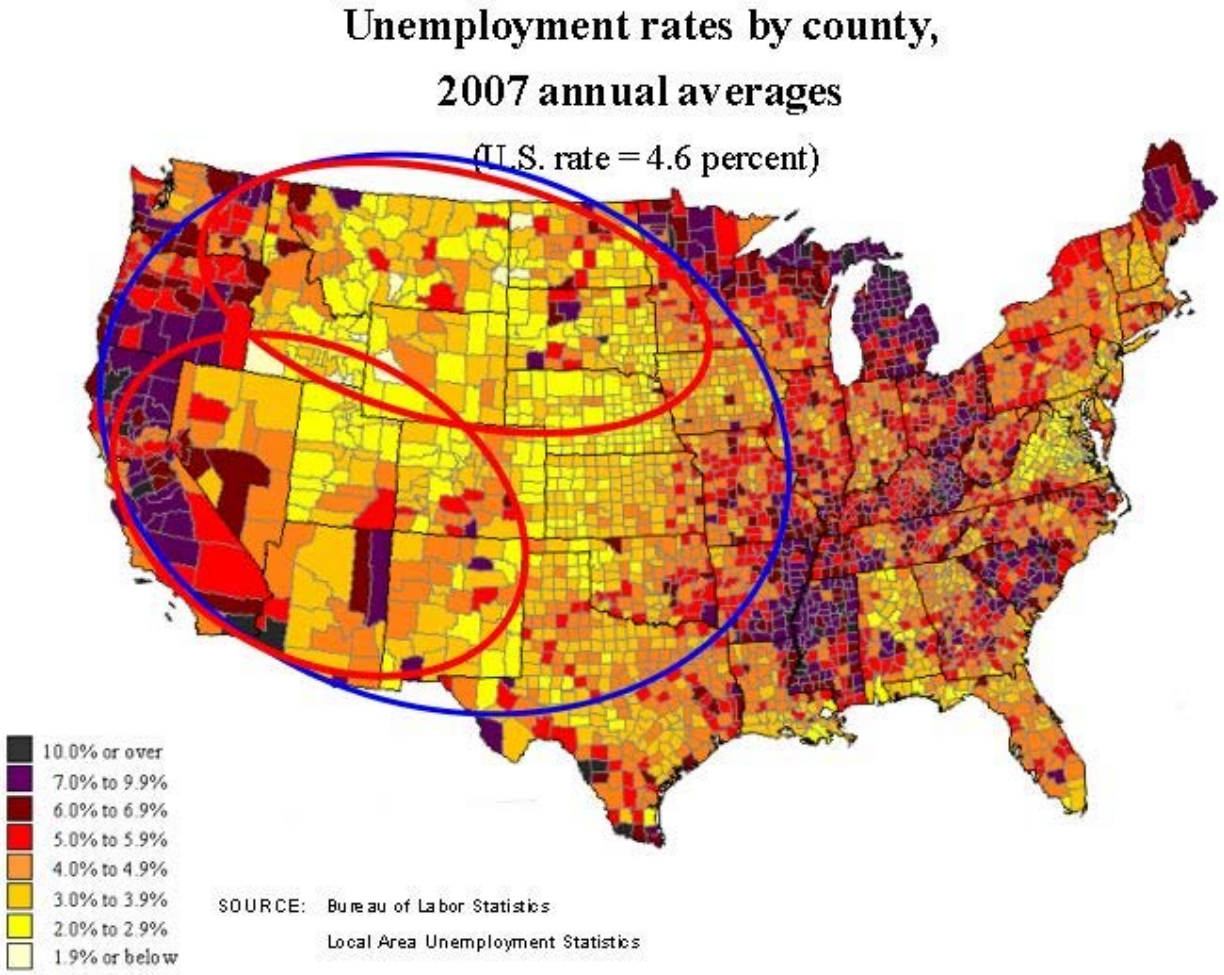
Source: "How Energy is Used In Commercial Buildings," 2004, Energy Information Administration

AMERICAN INDIAN POPULATION CONCENTRATIONS



This is an image showing the population concentration of Native Americans and Alaskan Natives in 2008 by state, with darker shades of green indicating greater concentration.

UNEMPLOYMENT RATE SIGNIFICANTLY HIGHER THROUGHOUT INDIAN COUNTRY



INTERTRIBAL Council On Utility Policy

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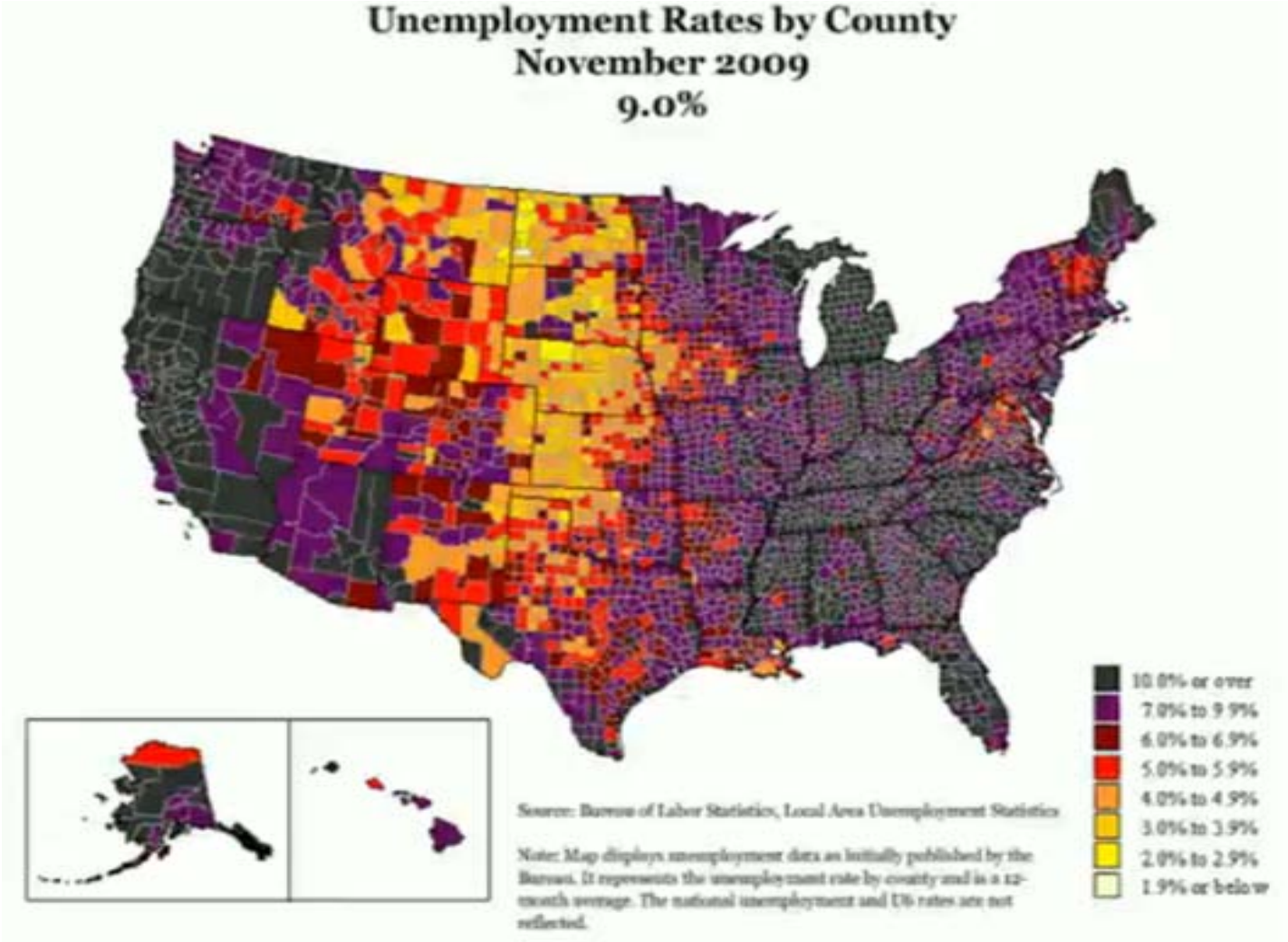

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Tribes Building Sustainable Homeland Economies

POVERTY HIGHER IN NORTHERN GREAT PLAINS

Want to see America's new ghetto? Follow the Rockies northwards towards the Great Plains

No place so demonstrates the shaky economic state of rural America as the northern Rockies and western Great Plains. Virtually all of the 20 poorest counties in America, in terms of wages, are on the eastern flank of the Rockies or on the western Great Plains (see map and table below). Not one of the ten poorest counties in this region issued a housing permit in 2002. A couple of years ago, Lester Thurow, a Montana-born economist at M.I.T., observed that when he got his doctorate in the mid-1960s, he associated regional poverty with the South. But he was now certain that, before he retired, "regional poverty will be a phenomenon of the northern Great Plains."

There are two unusual things about the deprivation in this region. First, it is largely white. The area does include several pockets of wretched Native American poverty, but in most areas the poor are as white as a prairie snowstorm. Second, most people do not think of themselves as poor.

The poorest part of America ~ Not here, surely?
| JUDITH BASIN, MONTANA
From "The Economist"
print edition Dec 8th 2005

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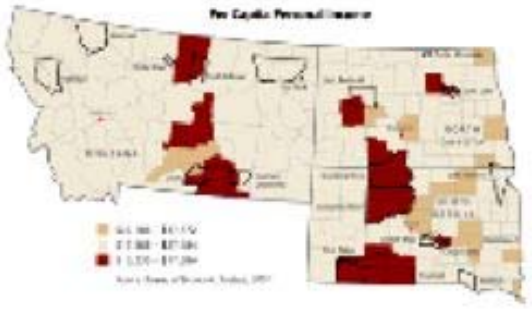
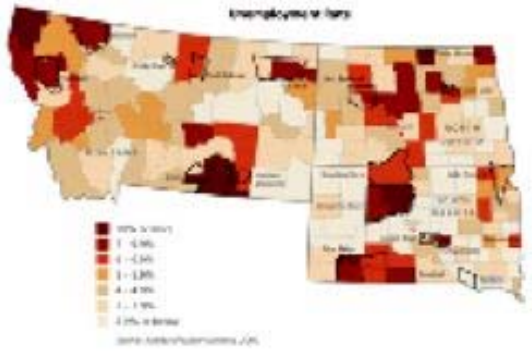
COUP
Tribes Building Sustainable Homeland Economies

PERSONAL INCOME, UNEMPLOYMENT AND INDIAN COUNTRY

Per Capita
PERSONAL
INCOME
By County



UNEMPLOYMENT
RATE
By County



Most of these poorest counties include an Indian Reservation.)

The darker the coloration, the worse the situation.
Most of these “poorest” counties include Indian Reservations

INTERTRIBAL
Council On Utility
Policy
COUP

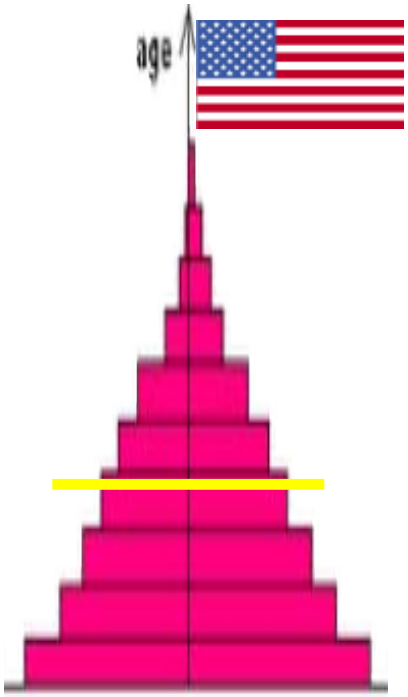
Population Statistics

AVERAGE LIFE EXPECTANCY

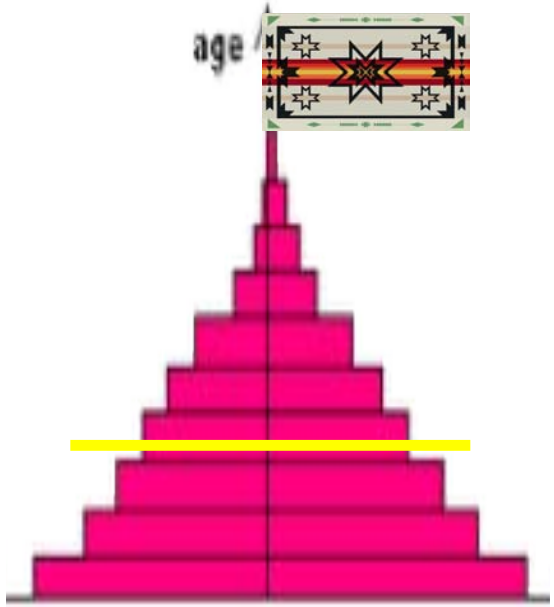
75.6 Yrs Males
80.8 Yrs Females

48 Yrs Males
52 Yrs Females

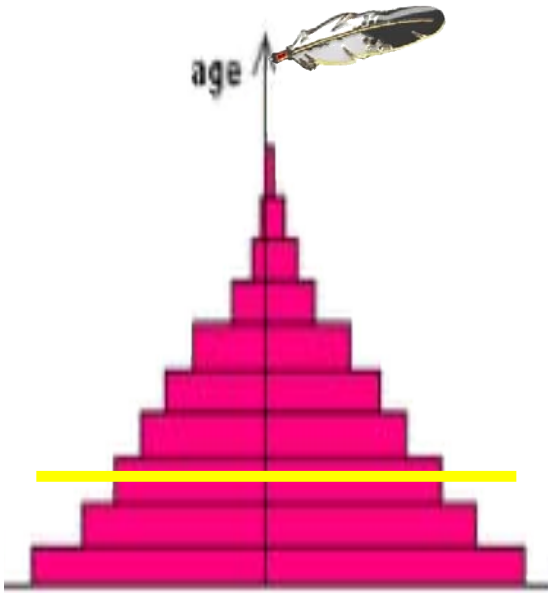
MEDIAN AGE



36.9 Yrs
2010 Census
General U.S. Population



31.2 Yrs
2008 Census
On+Off-Reservation



Under 25 Yrs
2000 Census
On Reservation

American Indian Populations

Life Expectancy on Pine Ridge: http://www.indianyouth.org/pr-reservation-sd.html

UNEMPLOYMENT RATE SIGNIFICANTLY HIGHER ON INDIAN RESERVATIONS

Unemployment Estimates Differ from the Bureau of Indian Affairs Labor Force Report

The BIA Labor Force Report is based on the American Indian and Alaska Native population that lives on or near a reservation and is eligible for BIA-funded services. This population is only about one-third of the total American Indian and Alaska Native population.

Most other federal statistics use the total American Indian and Alaska Native population (including self-identified bi-racial individuals) to generate the statistics for this analysis.

Additionally, the Current Population Survey only counts as unemployed those individuals who are actively looking for work. The BIA Labor Force Report does not state this restriction.

http://www.epi.org/page/-/pdf/ib289.pdf

CONVENTIONAL HOUSING

Our Housing Stock is on Life Support

Inspired by Randy Udall, CORE; Realization by Bob Gough

INTERTRIBAL Council On Utility Policy

COUP

AMERICAN INDIAN RELIEF COUNCIL
Building Strong, Self-Sufficient American Indian Communities

Housing

Harsh weather, remoteness, chronic lack of economic opportunities and resources combine to create deplorable living conditions.

There is a housing crisis in Indian country. Despite the Indian Housing Authority's (IHA's) recent efforts, the need for adequate housing on reservations remains acute. The legislature deplored the fact that there are 90,000 homeless or under-housed Indian families, that 30% of Indian housing is overcrowded, and less than 50% of it is connected to a public sewer" (March 10, 2004, Indian Country Today)

In addition, many American Indians are living in substandard housing. About 40% of on-reservation housing is considered inadequate (2003, Native American Indian Housing Council). The waiting list for tribal housing is long and overcrowding is inevitable. Most families will not turn away family members or anyone who needs a place to stay. It is not uncommon for 3 to 4 generations to live in a two-bedroom home.

Further diminishing the quality of reservation housing is the noticeable absence of utilities. While most Americans take running water, telephones, and electricity for granted, many reservation families live without these luxuries. This increases the potential for health risk, especially in the more isolated areas.

http://www.nrcprograms.org/site/PageServer?pagename=airc_livingconditions


Native Wind
Powering America
www.EnergyIndependenceDay.org
FEMA Trailer Park, Oglala, Pine Ridge
© Intertribal COUP.org

Home on the Range

(or in the Solar Oven)

on Great Plains

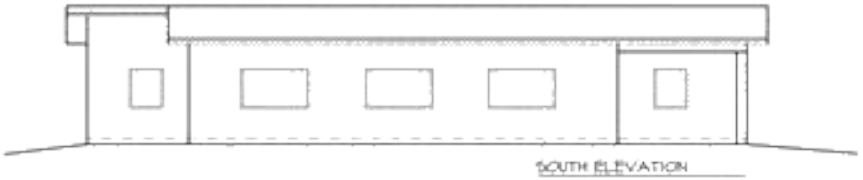
Seasonal Temperature Swing of 150 Degrees

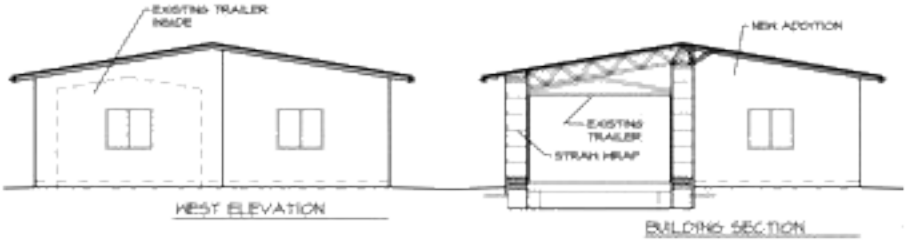
Summer Highs — 120° F

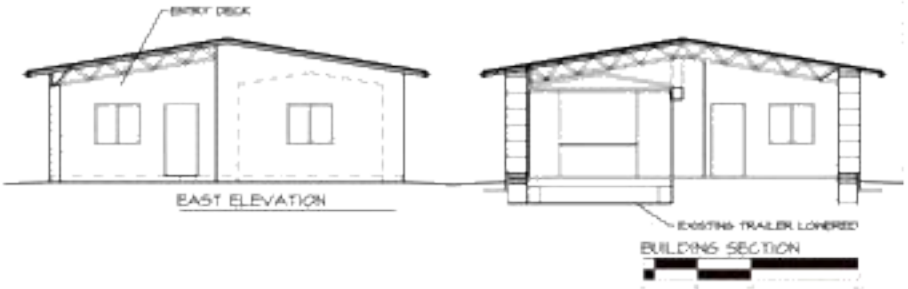
Human Comfort Range — 80° F – 60° F

Winter Lows — -30° F

COUP FEMA Trailer Wrap Design Concept







COUP Concept Credits: A.vonBachmayr, L.Bartels, D.Benjamin, D.Eisenberg, M.Myhrman, B.Gough © 2007

Supported, in part, by a grant from the Quaker Indian Committee

Conditions Are Ideal for Using Strawbale for Building Construction on Many U.S. Indian Reservations

- Semi-arid climatic conditions on Northern Great Plains are ideal for construction and long-term maintenance of strawbale buildings
- Great Plains Reservations are located in rural North American pasture & grain belt (Strawbale construction techniques originally developed in Nebraska)
- Seasonal temperature swings of over 150 degrees F require housing designed for significant heating and cooling to maintain acceptable levels of comfort

Intertribal COUP held a series of Tribal housing charettes in North and South Dakota developing straw bale and stick built conceptual designs.

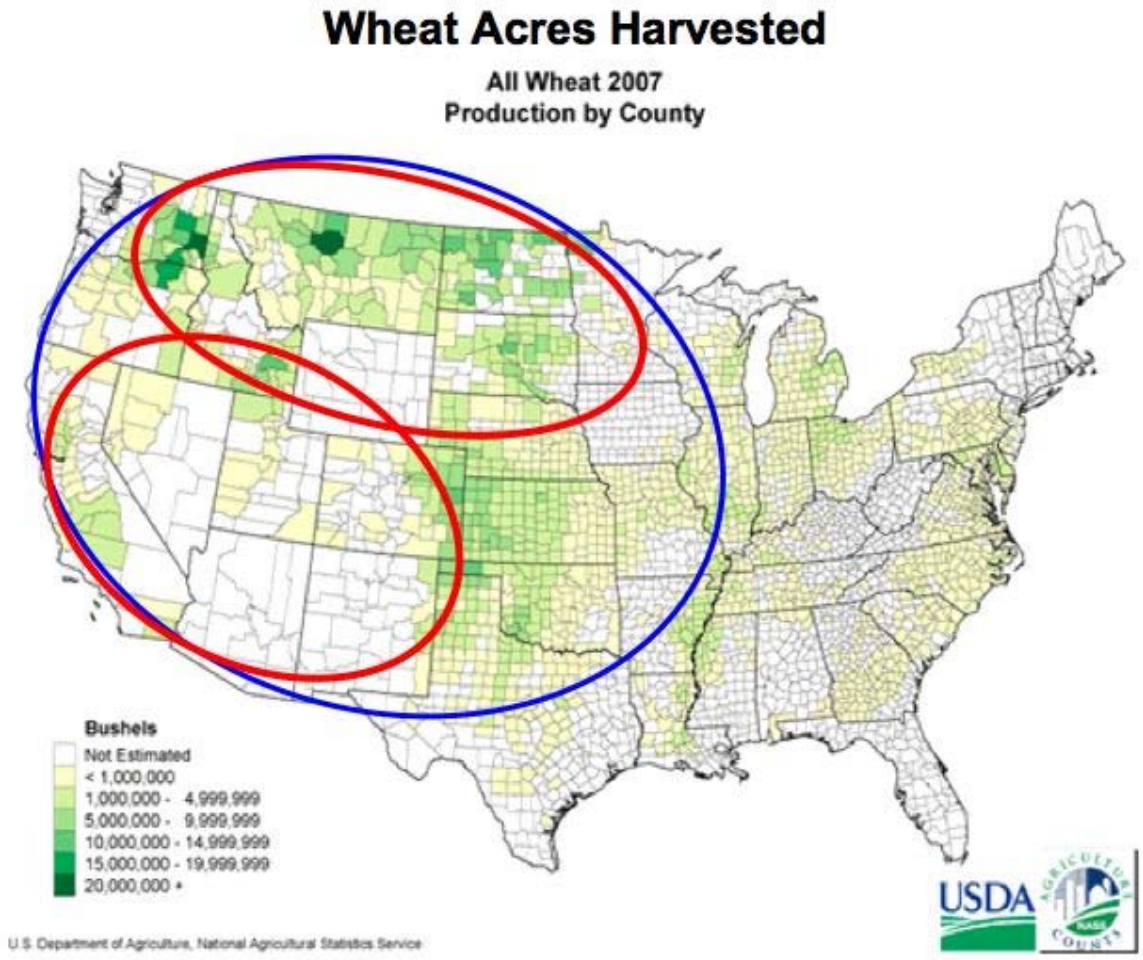
TRIBAL SUSTAINABLE ENERGY DEVELOPMENT

19th AND 21st CENTURY MODELS

Sustainable, Affordable, Future-Proof and Efficient Homes

Both Built on a Base of Renewable Natural Resources

STRAW RESOURCES ARE RELATIVELY ABUNDANT IN OR NEAR INDIAN COUNTRY



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Tribes Building Sustainable Homeland Economies

RENEWABLE ENERGY AND GREEN CONSTRUCTION PRACTICES IN PUBLIC HOUSING

Notice PIH 2008-25 (HA) June 11, 2008

DEFINING GREEN BUILDING. For the purposes of this Notice, green building is a systems-based approach to achieving sustainable buildings that incorporates environmental considerations into every phase of the building process -- *design, construction, operation, maintenance, renovation, and deconstruction/demolition*.

Green building can provide the following advantages over conventional building:

- · Lower utility bills resulting in more affordable homes;
- · Better indoor environmental quality;
- · Preservation of natural resources;
- · Less national reliance on fossil fuels and reduced greenhouse gas emissions; and
- · Durability of building materials and structures.
- · More skilled local jobs for both men and women.

NEED FOR HOUSING IN INDIAN COUNTRY

Indian Reservation Population	=	2.5 million
Indians who are homeless or living in over-crowded, substandard conditions	=	1.5 million or 60%
Waiting list for Reservation housing in 2003	=	200,000 homes
Estimated Housing Need	=	Over 500,000
Existing mobile homes/trailers	=	33%
Reservation unemployment	=	60% to 80%+
Reservation median age	=	under 25 yrs old
U.S. median age	=	36.9 yrs old

GREEN COLLAR JOBS

Energy Efficiency Jobs

More Jobs for factory workers, builders, and operation and maintenance personnel

For every $1 million invested:

- Efficiency creates 21.5 jobs
- Natural gas produces 11.5

SGU VOTECH STRAW BALE TRAINING

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OPTIMIZING AND EXTENDING RESOURCES

Standard Log House
Logs Per House: 50 to 60

The number of 24 ft logs in a single Log House (1) could be used to build up to six (6) Post and Beam Straw Bale Houses each with at least twice as much insulative capacity.

Straw Bale House
Logs Per House: 10 to 15

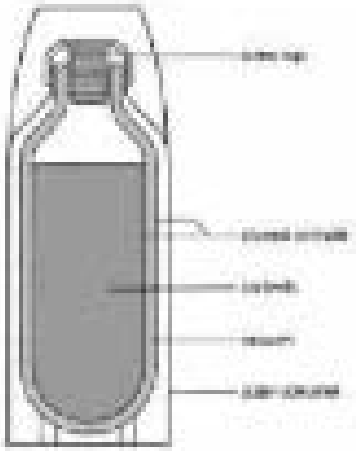
Straw Bale building technology can help close the over 200,000 housing deficit in Indian Country by providing quality sustainable, affordable and energy efficient homes and creating local green collar jobs with the use of local, natural materials.

PASSIVE SURVIVABILITY

Mass

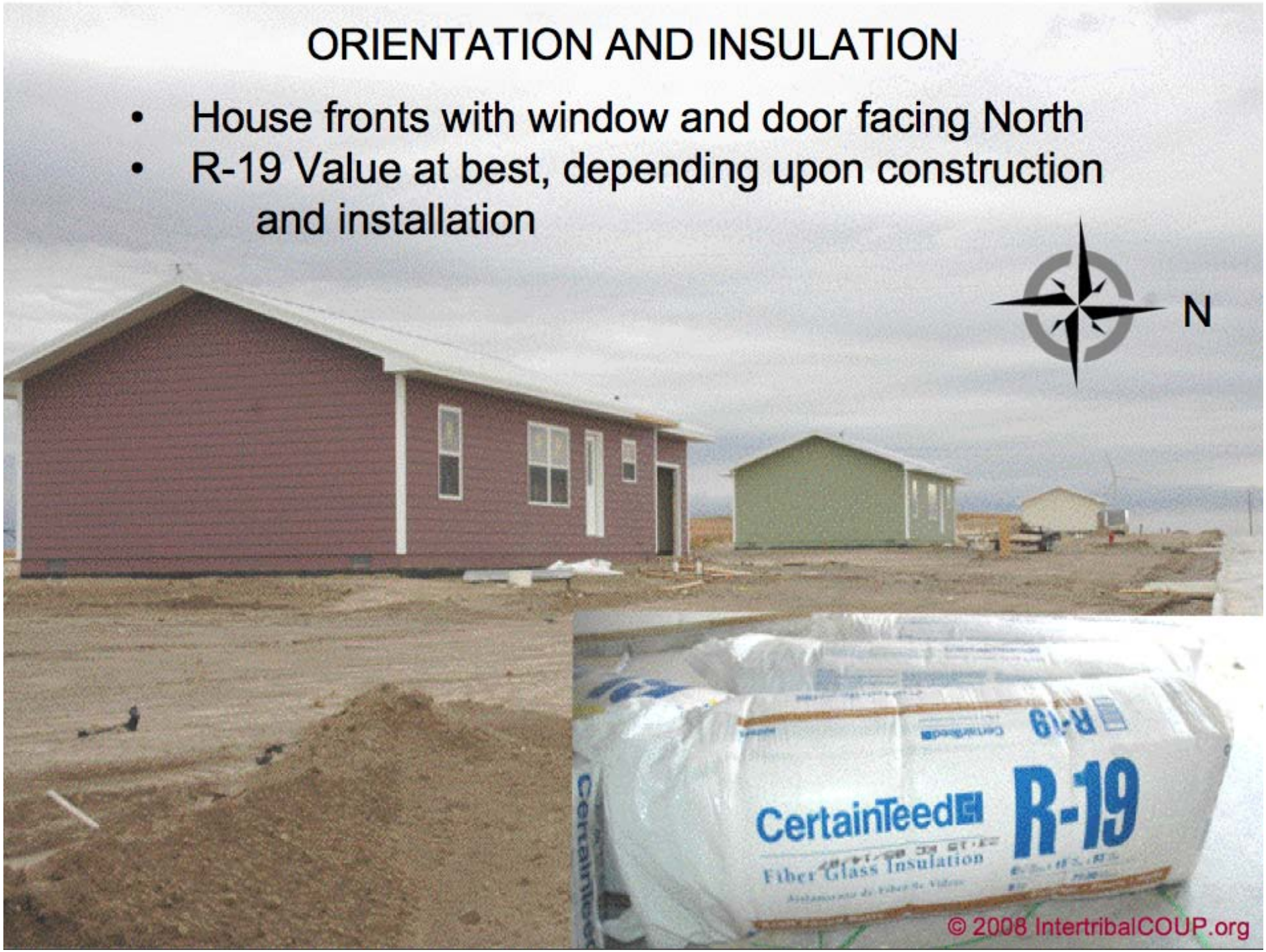
+

Insulation



ORIENTATION AND INSULATION

- House fronts with window and door facing North
- R-19 Value at best, depending upon construction and installation



Controlling Solar Gain by Roof Overhang

Top photo taken at Thanksgiving (4 weeks before Winter Solstice)

Bottom photo taken at SGU Graduation (6 weeks after Summer Solstice)

Cultural Traditions of Owner-Constructed Housing of Natural Materials

Traditional Lakota Buffalo Hide Tipi

15 to 20 new buffalo hides required every two years

Conventional Post and Beam Straw Bale House

With thousands of years of seasoned "green" cultural histories, Tribes recognize the value homes built with Natural Materials.

GOOD JOBS
GREEN JOBS

Intertribal COUP
SAFE Homes
Initiative

Sustainable
Affordable
Future-Proof
Energy Efficient

Sustainability in Housing ~ 2009/10

Straw Bale Building Initiative

Buffalo Lodge Project for Tribal College Faculty & Students

Sinte Gleska University ~ Antelope Campus Rosebud Sioux Indian Reservation

Developed By

Intertribal Council On Utility Policy (COUP)

GreenWeaver Inc ~ Straw & Timber Craftsmen

Environmental Design Partners ~ One World Design Architecture

Development Center for Appropriate Technology ~ 3DE

Sinte Gleska University

Institute of Technologies ~ Buffalo Ranch Program ~ Art Institute

Oglala Lakota College Applied Science General Construction

United Tribes Technical College

American Indian Higher Education Consortium

Rosebud, Oglala, Turtle Mtn., Ft. Berthold, Flandreau Sante, Lower Brule, Yankton

With Support From

DOI ~ Office of Indian Energy and Economic Development

Rosebud Sioux Tribe ~ Sinte Gleska University ~ Intertribal COUP

DOE-TEP ~ Friends' PYM Indian Committee (Quakers) ~ UNCF

South Dakota Community Foundation ~ Greiner Family Foundation

Solar Energy International ~ Untours Foundation ~ USDA-NRC-RC&D

COUP SGU Buffalo Lodge Straw Bale Building pouring foundation.

COUP SGU Buffalo Lodge Straw Bale Building
Bale raising.

COUP SGU Buffalo Lodge Straw Bale Building
Fixing J-strip for exterior plaster.

COUP SGU Buffalo Lodge Straw Bale Building Window Wrap Installation:
Used to seal out water leakage along the window frame.

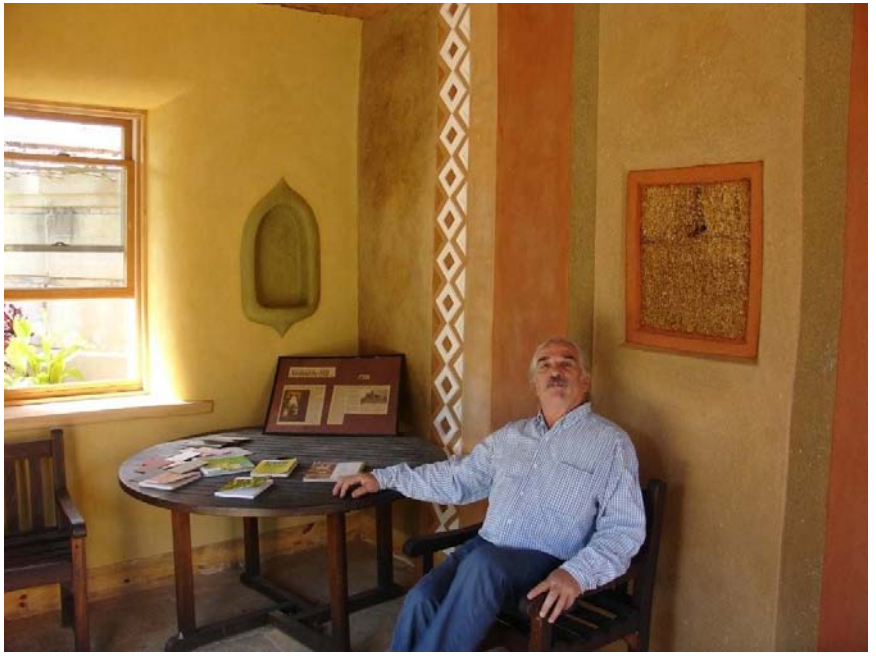
COUP SGU Buffalo Lodge Straw Bale Building
Application of Exterior Plaster.

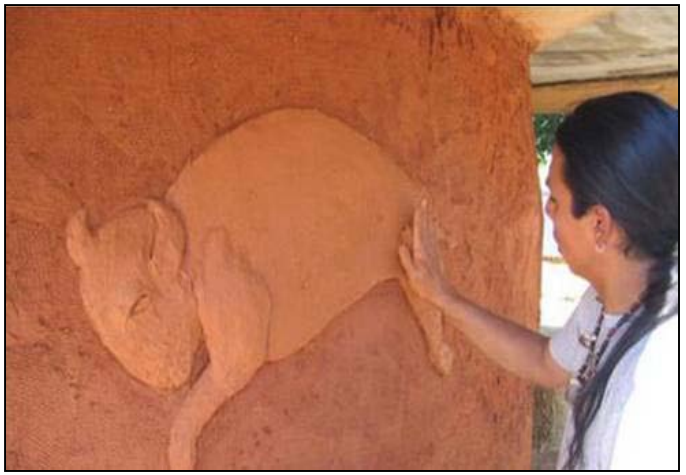
Training Workshops through Tribal Colleges

Construction Crew
Summer 2009

Plastering Crew
Spring 2010

Interior
Earthen
Plasters





Earthen Plastering

TRIBAL COLLEGE / VOTECH TRAINING

www.aihec.org

Development Of Tribal College and University Training Courses for Reservation Job Creation and Employment

INTERTRIBAL Council On Utility Policy
ICOUP

INTERTRIBAL COUP
STRAW BALE BUILDING TECHNOLOGIES

2009 TRAININGS AT SGU / UTTC

TRIBAL COLLEGE / VOTECH TRAINING

Development Of Tribal College and University Training Courses for Reservation Job Creation and Employment

INTERTRIBAL COUP
STRAW BALE BUILDING TECHNOLOGIES

2010 -11 TRAININGS AT OTHER TCUs

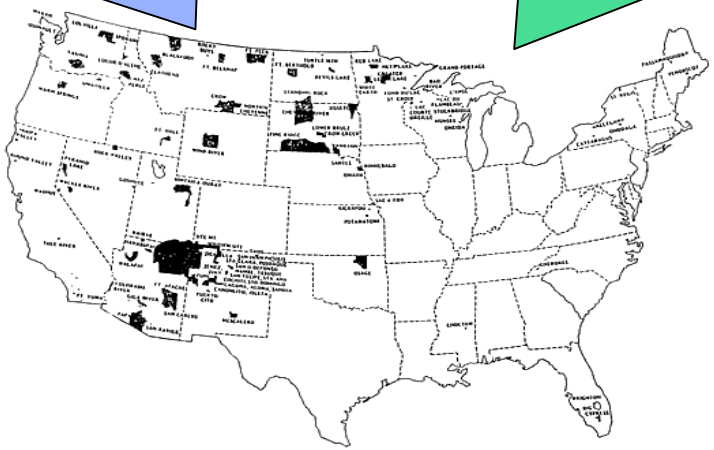
TRIBAL COLLEGE / VOTECH TRAINING

Development Of Tribal College and University Training Courses for Reservation Job Creation and Employment

PRESENT FUNDING STREAMS INTO INDIAN COUNTRY

LIHEAP FUNDS = **$4.5 M/08**
NEW RENEWABLE ENERGY FUNDING = UNDER **$3 M/YR**

PRESENT INDIAN HOUSING FUNDING = **$650 M/YR**
NEW HOUSING = **$260 M/YR**



Indian Housing Funding: Approximately $650 million a year has been appropriated towards Native housing over the last few years. Funds are distributed to 575 housing entities, amounting to an average of $1.1 million per tribe. Of that funding amount, about 40 percent, or ($440,000 per tribe) goes towards new housing construction. (U.S. Commission on Civil Rights, "Quiet Crisis," 2003)

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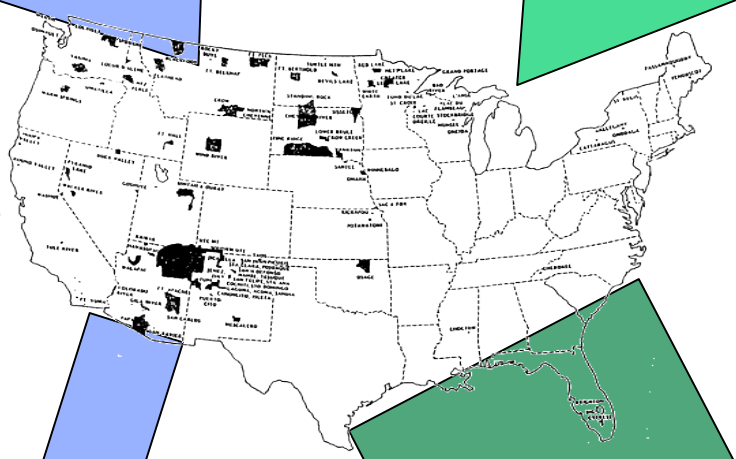
PRESENT FUNDING STREAMS

Into Indian Country are Largely Pass-Throughs

LIHEAP FUNDS = **$4.5 M/08**
NEW RENEWABLE ENERGY FUNDING = UNDER **$3 M/YR**

PRESENT INDIAN HOUSING FUNDING = **~$650 M/YR**
NEW HOUSING = **$260 M/YR**

Near all of these meager energy funds leave for the purchase of off-reservations fuels or technology.



Most of these tribal housing funds quickly leave the Reservations for materials or prefab houses and labor.

$ $

$ $ $

PRESENT FUNDING STREAMS

Into Indian Country are Largely Pass-Throughs

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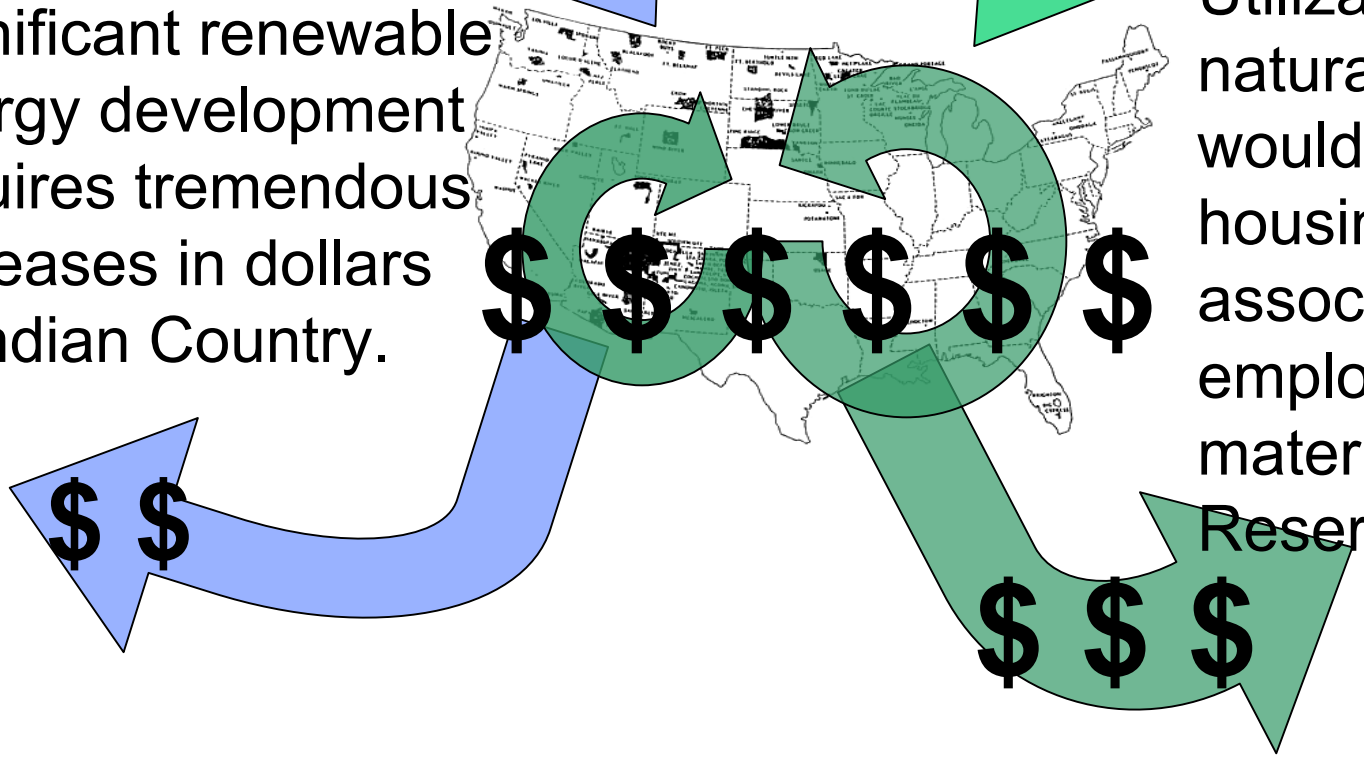
Significant renewable energy development requires tremendous increases in dollars to Indian Country.



Utilization of local, natural materials would keep more housing dollars associated with employment and materials on the Reservations.

Google: EESI Straw

Environmental and Energy Study Institute
EESI

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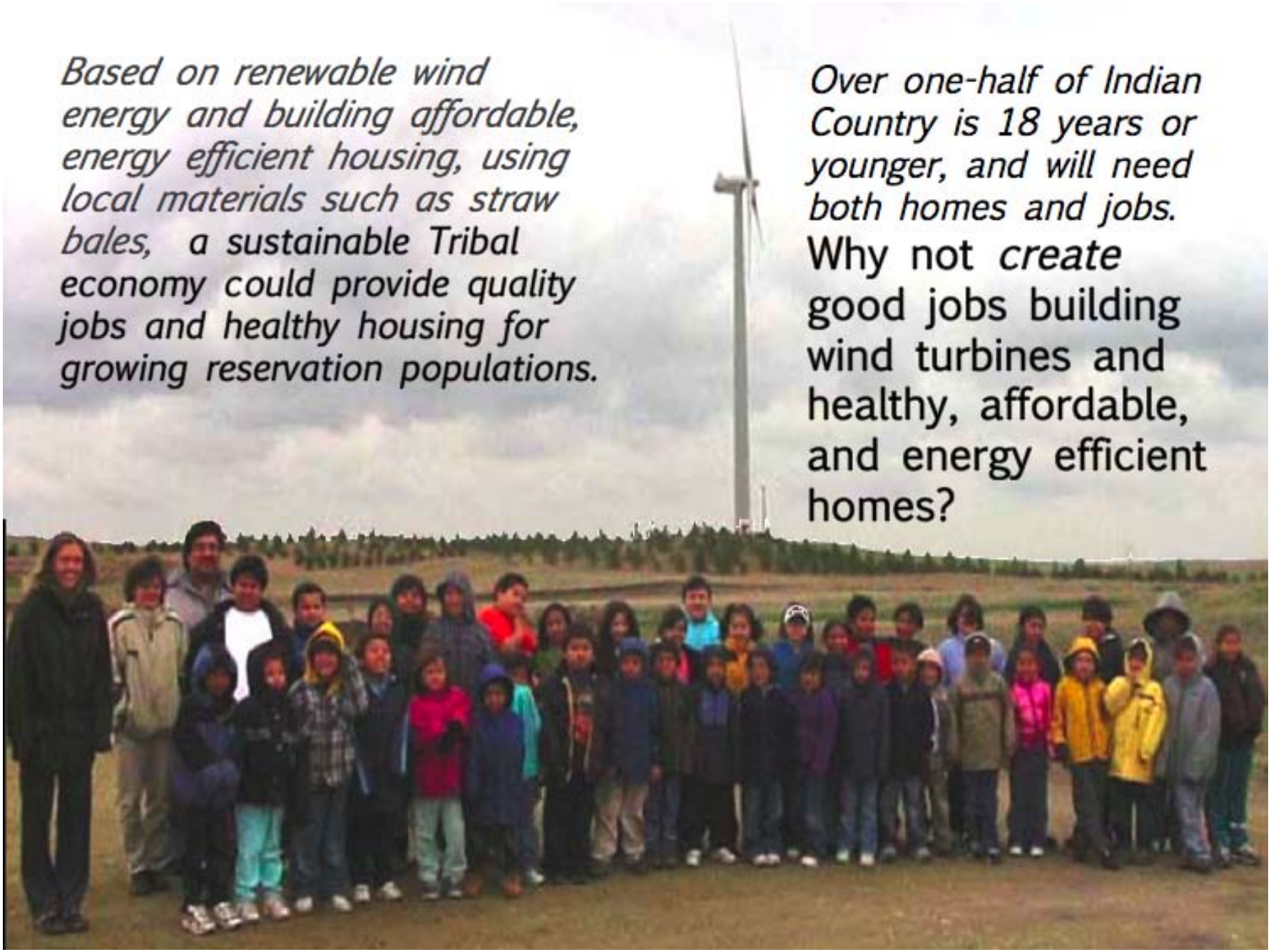
Speakers (l-r): Laura Bartels, Sandy Wiggins, Bob Gough, and David Eisenberg

Straw-Bale Construction: Harvesting Its Potential As an Affordable and Energy-Efficient Building Strategy

Friday, June 20, 2008
10:00 a.m. - 11:30 a.m.
485 Russell Senate Office Building

On June 20, the **Environmental and Energy Study Institute** (EESI) hosted a briefing about straw-bale construction and how it can help address some of our most serious national policy challenges, such as record energy prices and unemployment, inadequate supply of affordable housing, the threat of climate change, and pressing needs in transportation and infrastructure funding. The modern building industry places heavy demands on the energy and transportation sectors. Straw is a locally-sourced, widely available, and renewable resource that builders, architects,

See: http://www.eesi.org/062008_Straw-Bale_Construction




Tatanka Oti ~ Buffalo Lodge
on the SGU Antelope Campus
Rosebud Sioux Reservation
©IntertribalCOUP.org

Sitting Bull

So …

“Let Us Put Our Minds Together and See What Life We Will Make for Our Children.”