

# Tribes Building Sustainable Homeland Economies Through Energy and Housing

Browning, MT August 20, 2014



**Council On Utility Policy**

*Tribes Building Sustainable Homeland Economies*

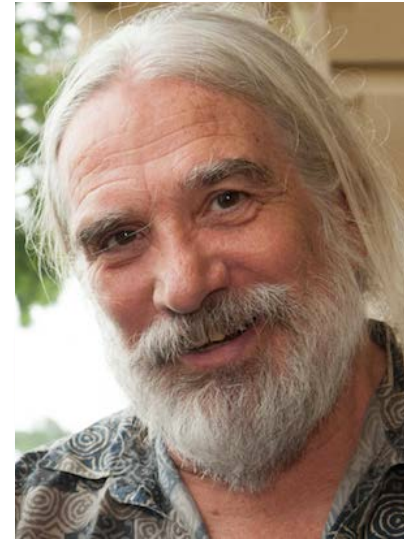
*P.O. Box 25, Rosebud, SD 57570*

*IntertribalCOUP.org*



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**Bob Gough, Esq.**

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Secretary, [IntertribalCOUP.org](http://IntertribalCOUP.org)  
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Member, Western Governors' *Clean and Diversified Energy Advisory Committee*  
[Westgov.org](http://Westgov.org)

Consultant, Wind Powering America Program, Native American Initiative  
[WindPoweringAmerica.gov](http://WindPoweringAmerica.gov)

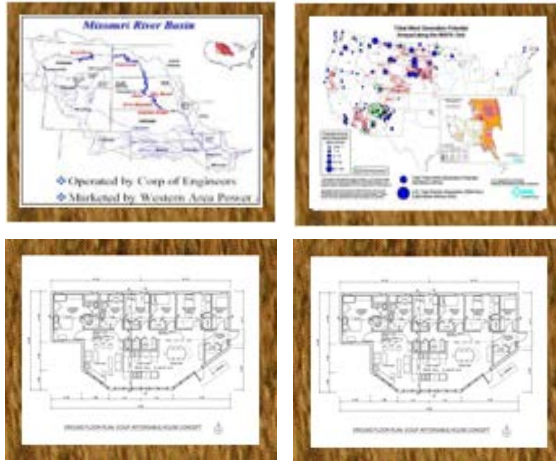
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# Intertribal COUP Vision for Building Indigenous Sustainability

## INTERTRIBAL Council On Utility Policy COUP

*Tribes Building Sustainable Homeland Economies*  
 P.O. Box 25, Rosebud, SD 57570  
[www.IntertribalCOUP.org](http://www.IntertribalCOUP.org)  
[www.NativeWind.org](http://www.NativeWind.org)  
[www.NativeEnergy.com](http://www.NativeEnergy.com)

### Planning



### Economic Development

#### Utility Scale



#### Community



### Training Hands On



Efficient,  
Affordable  
Straw Bale  
Housing



Classroom



Re-use and Maintenance

### Policy Collaboration



# INTERTRIBAL COUP ACTIVITIES and ASSOCIATIONS



NREL- WPA



UN COPs



Mni Sose Intertribal  
Water Rights Coalition



American Indian/Alaskan Native  
Climate Change Working Group



Environmental  
Justice Project



USGCRP  
Native Peoples/Native  
Homelands



**Council On Utility Policy**

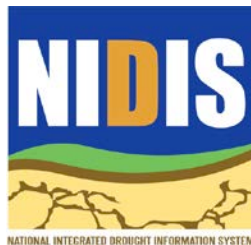
*Building Sustainable Homeland Economies  
IntertribalCOUP.org*



Haskell Indian  
Nations Univ.



SAFE Homes  
Straw Bale  
Training



U.S. Global Change Research Program  
**National Climate  
Assessment**



# Patrick Spears (1950-2012)



Intertribal COUP President Pat Spears speaking in Washington DC on Tribal Climate and Energy Issues.

Former Chairman, Lower Brule Sioux Tribe  
President, Intertribal COUP  
Co-Chair, Native Peoples/Native Homelands  
Contributor to the NCA Tribal Chapter

Pat's response upon hearing reports that the human contribution to global warming and climate change appeared to be reduced by increased solar activity and natural variation:

**“Hau, that means that humans are the Swing Vote!”**



**THERE  
IS  
NO  
EMERGENCY  
BACKUP  
PLANET**



# Crises In Indian Country:



# Crises In Indian Country:



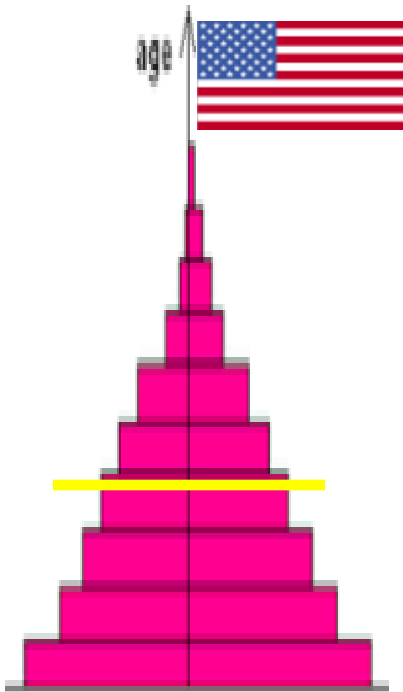


# Population Statistics

## AVERAGE LIFE EXPECTANCY

75.6 Yrs Males  
80.8 Yrs Females

48 Yrs Males  
52 Yrs Females

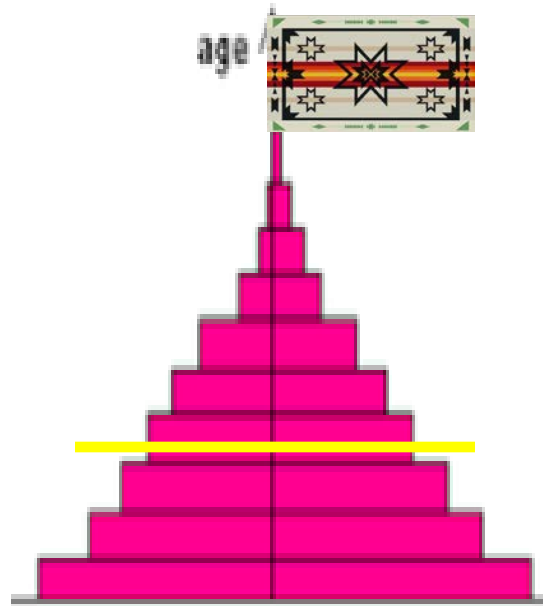


36.9 Yrs

2010 Census

General U.S.  
Population

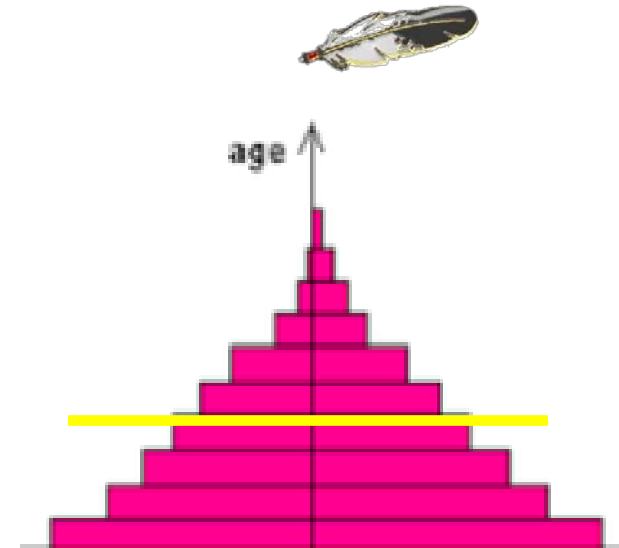
## MEDIAN AGE



29 Yrs

2008 Census

On+Off Reservations



Under 20 Yrs

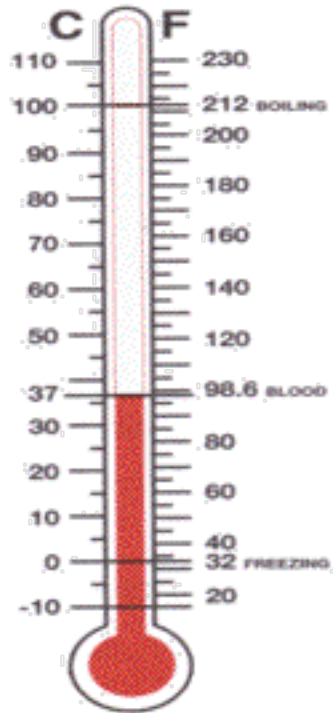
2010

On Reservation American Indian  
Populations

# CLIMATE CHANGE 101:

**Almost all living beings on the Earth flourish where they do because of the daily, seasonal and annual range of temperature and humidity.**

**Thermometer Comparisons**

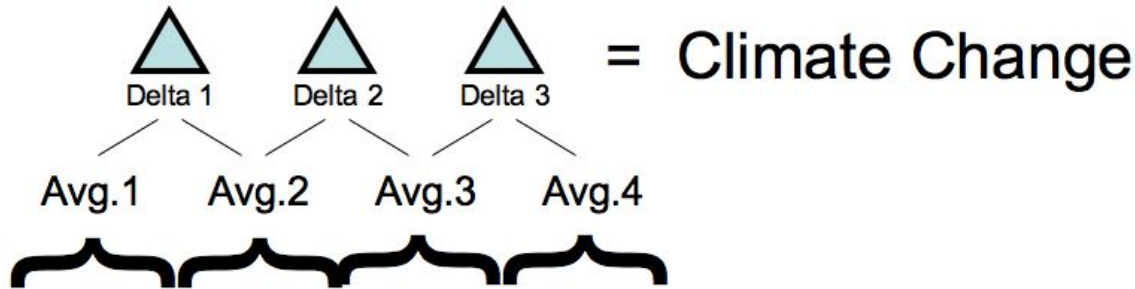


**Temperature: How Hot and Cold?**

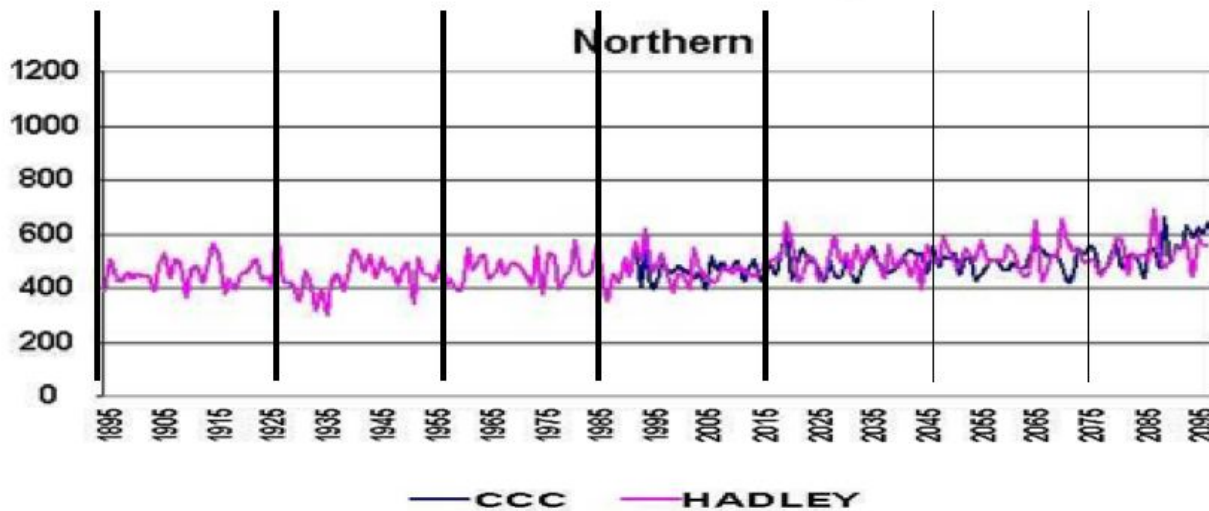
**Humidity: How Wet and Dry?**

# CLIMATE SCIENCE 201

Conclusions Abstracted from Comparative Weather Data



## Great Plains Precipitation



Climate  
Scientists  
And Policy  
Wonks Live  
Here

Most  
Real  
People  
Live  
Here

NATIVE PEOPLES-NATIVE HOMELANDS  
CLIMATE CHANGE WORKSHOP

- Final Report -  
Nancy G. Maynard, Editor

CIRCLES OF WISDOM

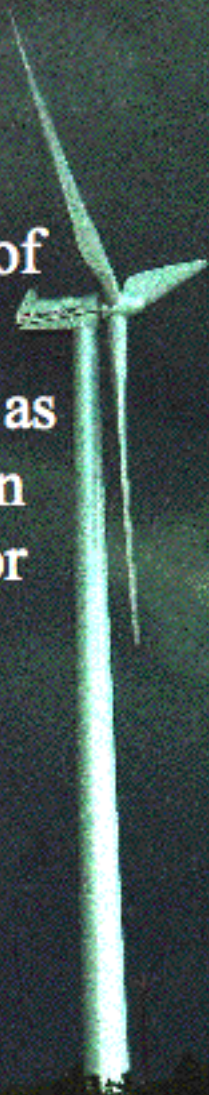


U.S. Global Change Research Program

OCTOBER 28 - NOVEMBER 1, 1998  
Albuquerque Convention Center  
Albuquerque, New Mexico

Sponsors:  
The National Aeronautics and Space Administration  
American Indian Chamber of Commerce of New Mexico  
City of Albuquerque

“Entering the 21st century, a prime Native strategy encourages the development of sustainable homeland economies to ensure survival as Nations and for the restoration of a more balanced climate for Mother Earth. The Strategy includes the protection of naturally diverse ecosystems and the use of renewable energy technologies.”



[www.usgcrp.gov/usgcrp/Library/nationalassessment/native.pdf](http://www.usgcrp.gov/usgcrp/Library/nationalassessment/native.pdf)

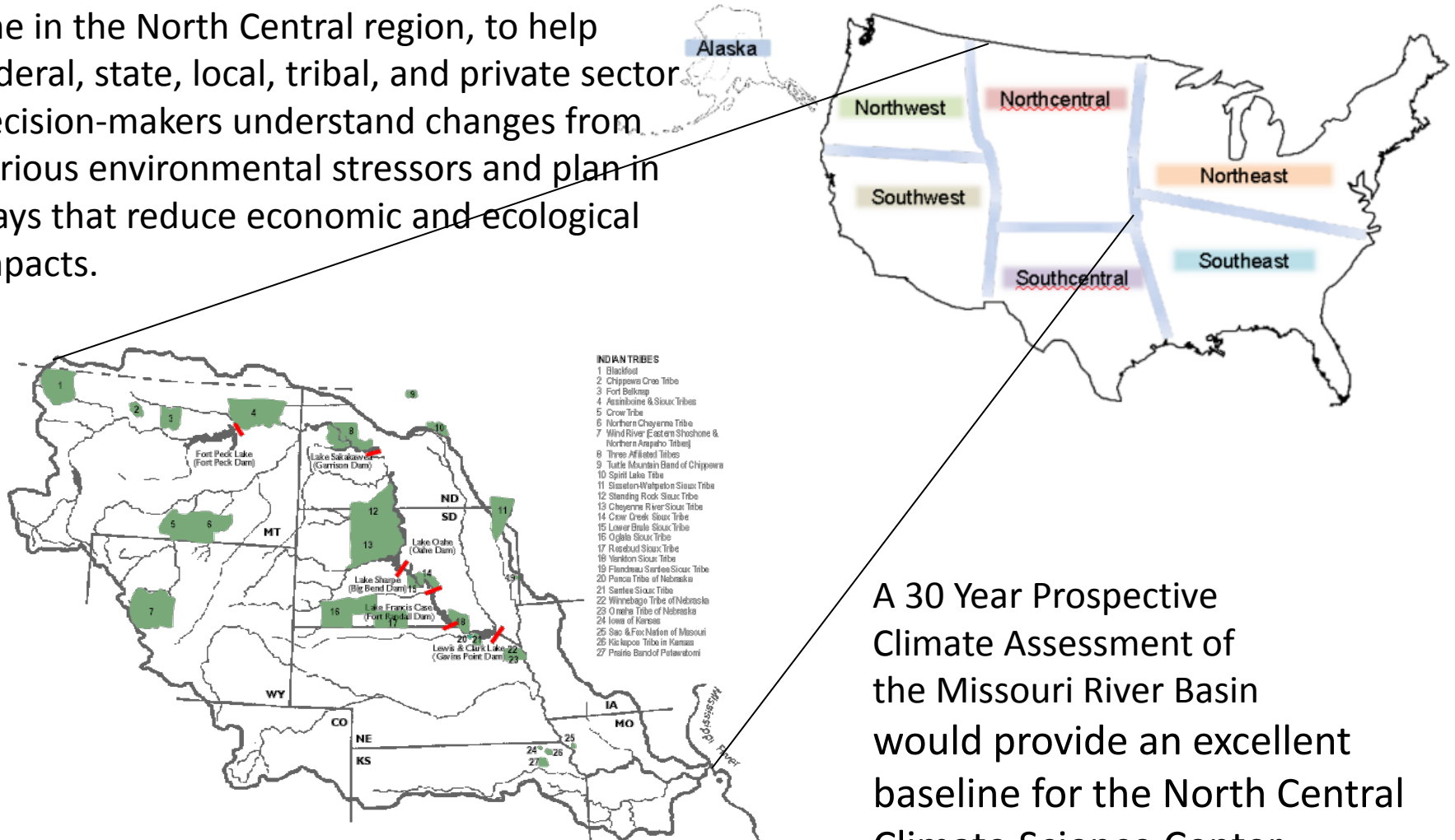
[www.EnergyIndependenceDay.org](http://www.EnergyIndependenceDay.org)



Intertribal Council On Utility Policy

# DOI Climate Science Centers (CSC)

The Interior Department is establishing a series of Climate Science Centers, including one in the North Central region, to help federal, state, local, tribal, and private sector decision-makers understand changes from various environmental stressors and plan in ways that reduce economic and ecological impacts.



A 30 Year Prospective Climate Assessment of the Missouri River Basin would provide an excellent baseline for the North Central Climate Science Center.

# NATIONAL CLIMATE ASSESSMENT 2014

(After over 15 years, Native Peoples finally have a Chapter!)

## **Our Changing Climate:**

Global climate is changing. Most of the warming of the past half-century is due to human activities. Some types of extreme weather are increasing, ice is melting on land and sea, and sea level is rising.

## **Indigenous Peoples, Lands, and Resources:**

Climate change threatens Native Peoples' access to traditional foods and adequate water. Alaskan Native communities are increasingly exposed to health and livelihood hazards related to rising temperatures and declining sea ice. Climate change impacts are forcing relocation of some Native communities.

<http://nca2014.globalchange.gov/report>





## Climate Change Impacts in the United States

# CHAPTER 12

# INDIGENOUS PEOPLES, LAND, AND RESOURCES

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### **Contributing Author**

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# Indigenous Peoples and the IPCC

Climate scientists on the Intergovernmental Panel on Climate Change (IPCC) have accomplished three of their four primary tasks requested by World Governments, i.e., to determine:

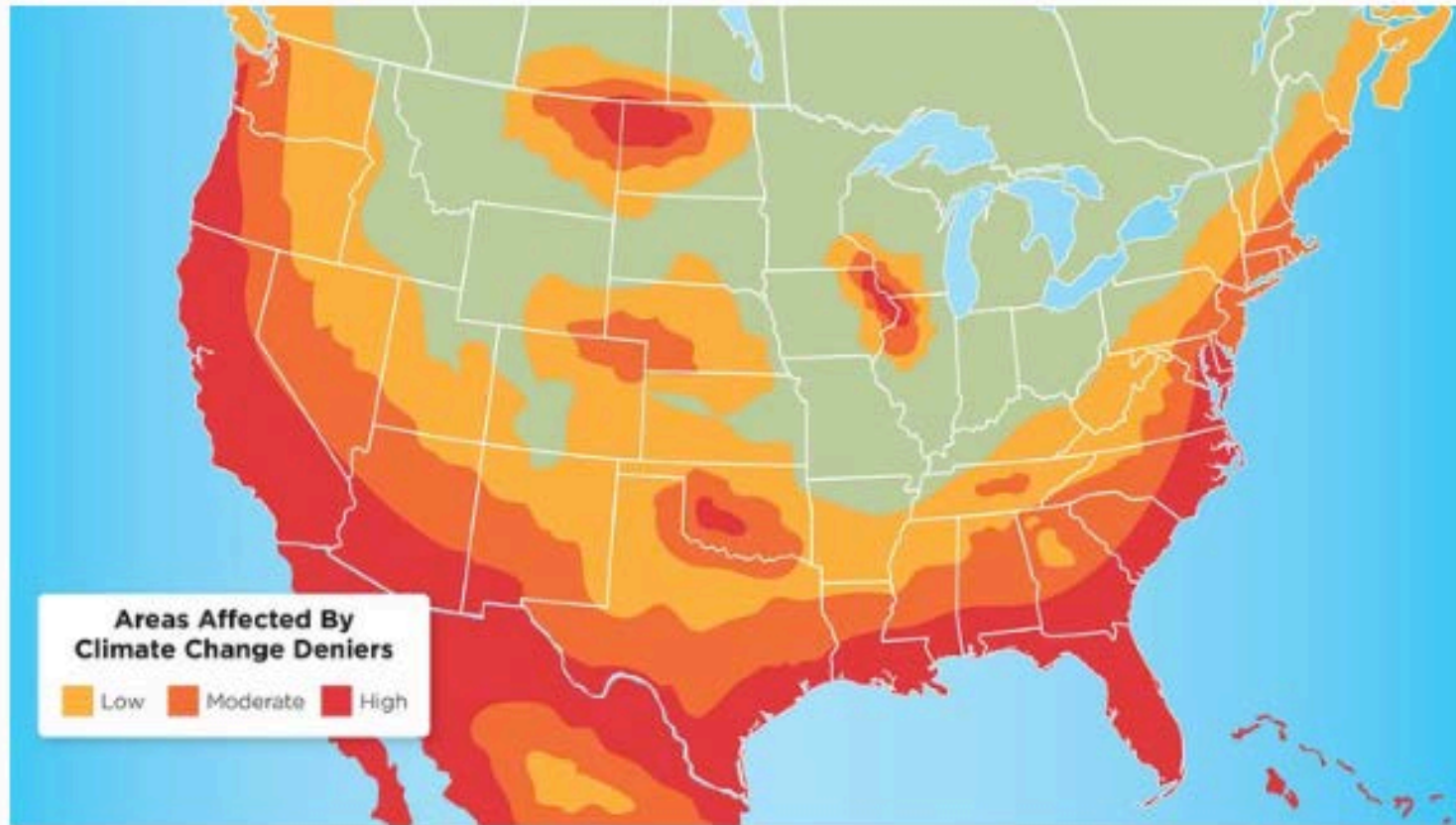
1. Is climate change (global warming) real? **YES**
2. Is the current planetary warming anthropogenic or human-induced? **YES**
3. Can we mitigate the causes of global warming? **YES**
4. How can human beings adapt (or cope) with the consequences of the changes/impacts that can not or will not be mitigated?

**... GO ASK LOCAL and INDIGENOUS PEOPLES!**



# Report: Climate Change Skeptics Could Reach Catastrophic Levels By 2020

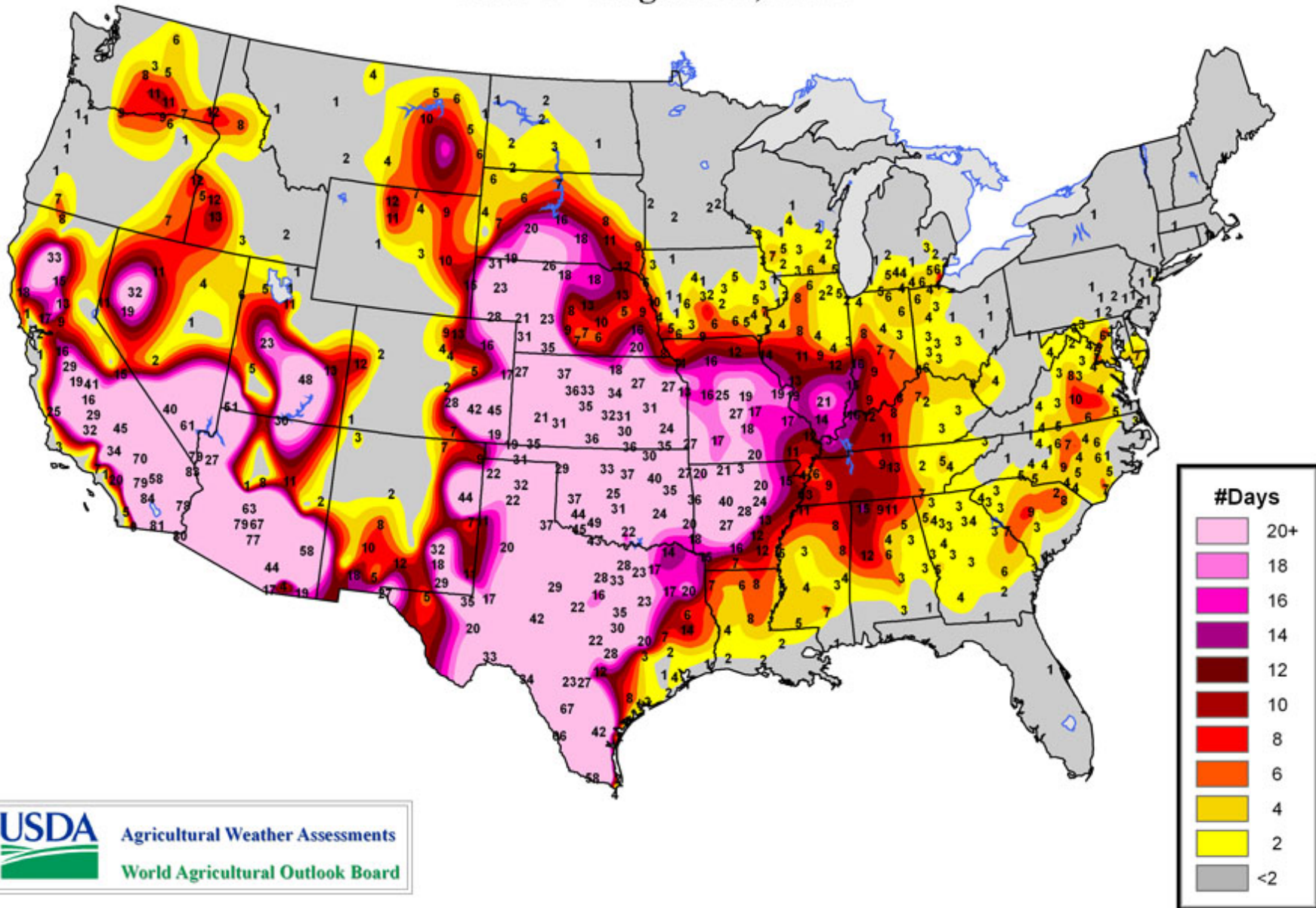
NEWS · Weather · Science & Technology · Science · ISSUE 50·29 · Jul 23, 2014



Scientists say it may be too late to effectively combat climate change deniers and that humanity may simply have to learn to live with their negative effects.

# Number of Days $\geq 100^{\circ}\text{F}$

June 1 - August 31, 2012



Agricultural Weather Assessments

World Agricultural Outlook Board

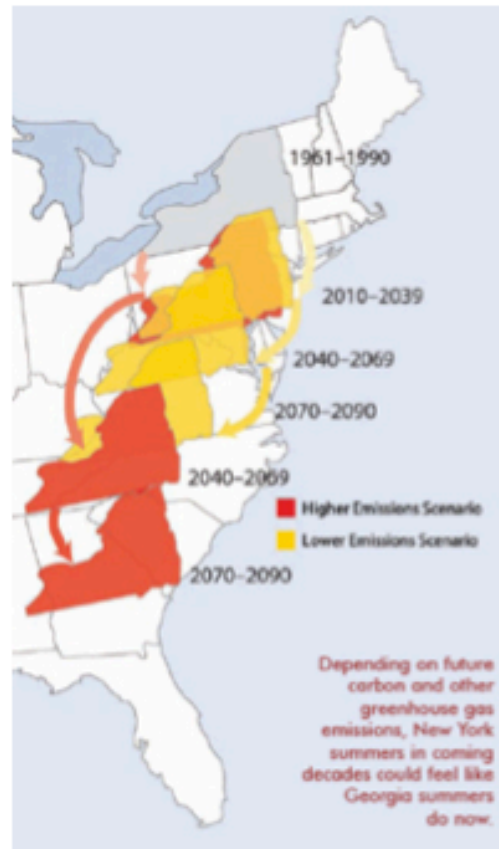
## Regional Climate Impacts: United States



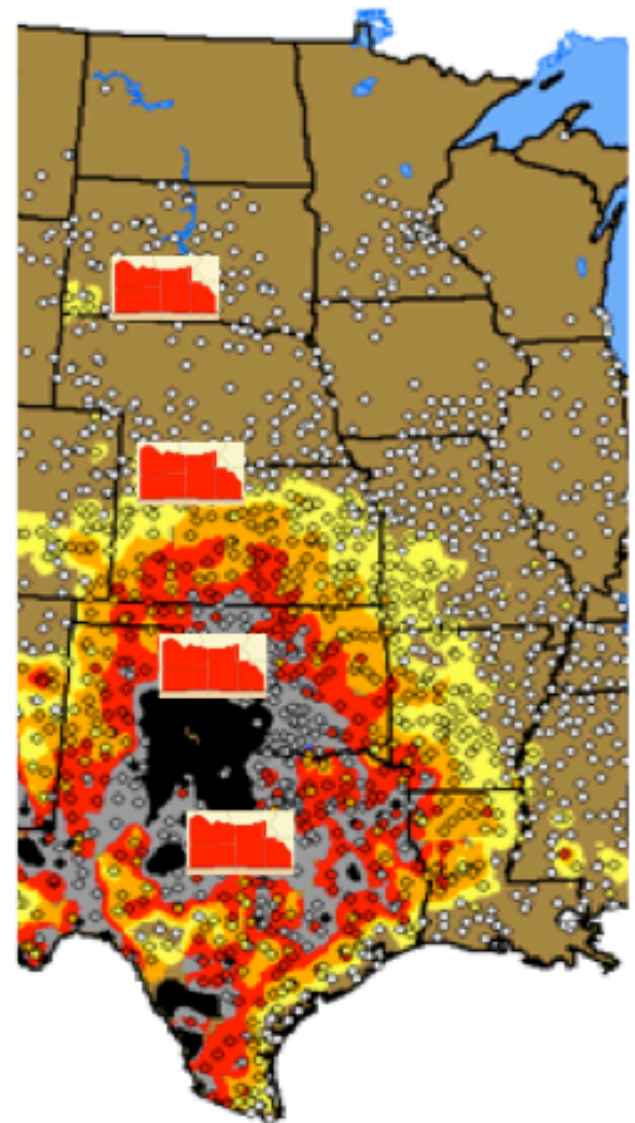
Hayhoe et al.<sup>2013</sup>

Model projections of summer average temperature and precipitation changes in Illinois for mid-century (2040-2059), and end-of-century (2080-2099), indicate that summers in this state are expected to feel progressively more like summers currently experienced in states south and west. Illinois is projected to get considerably warmer and have less summer precipitation.

<http://colli239.fts.educ.msu.edu/2009/06/16/regional-climate-impacts-united-states-midwest-2009/>



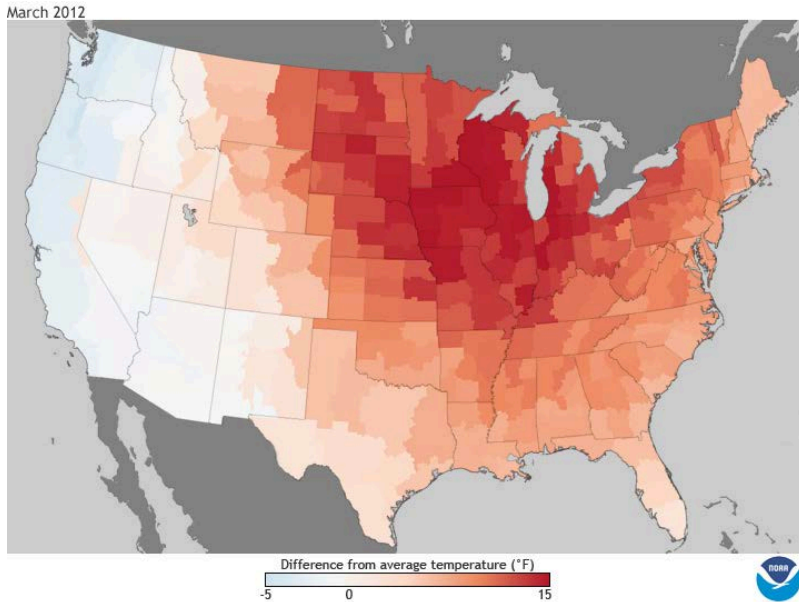
<http://www.dec.ny.gov/pubs/39313.html>



With the climate at Rosebud Reservation in South Dakota likely becoming more like that of central Texas by 2100, greater energy efficiency and insulation in housing for summer cooling as well as winter heating saves money in fuel and reduces carbon emissions.

# HUMAN UNDERSTANDING:

## Conclusions Abstracted from Comparative Weather Data



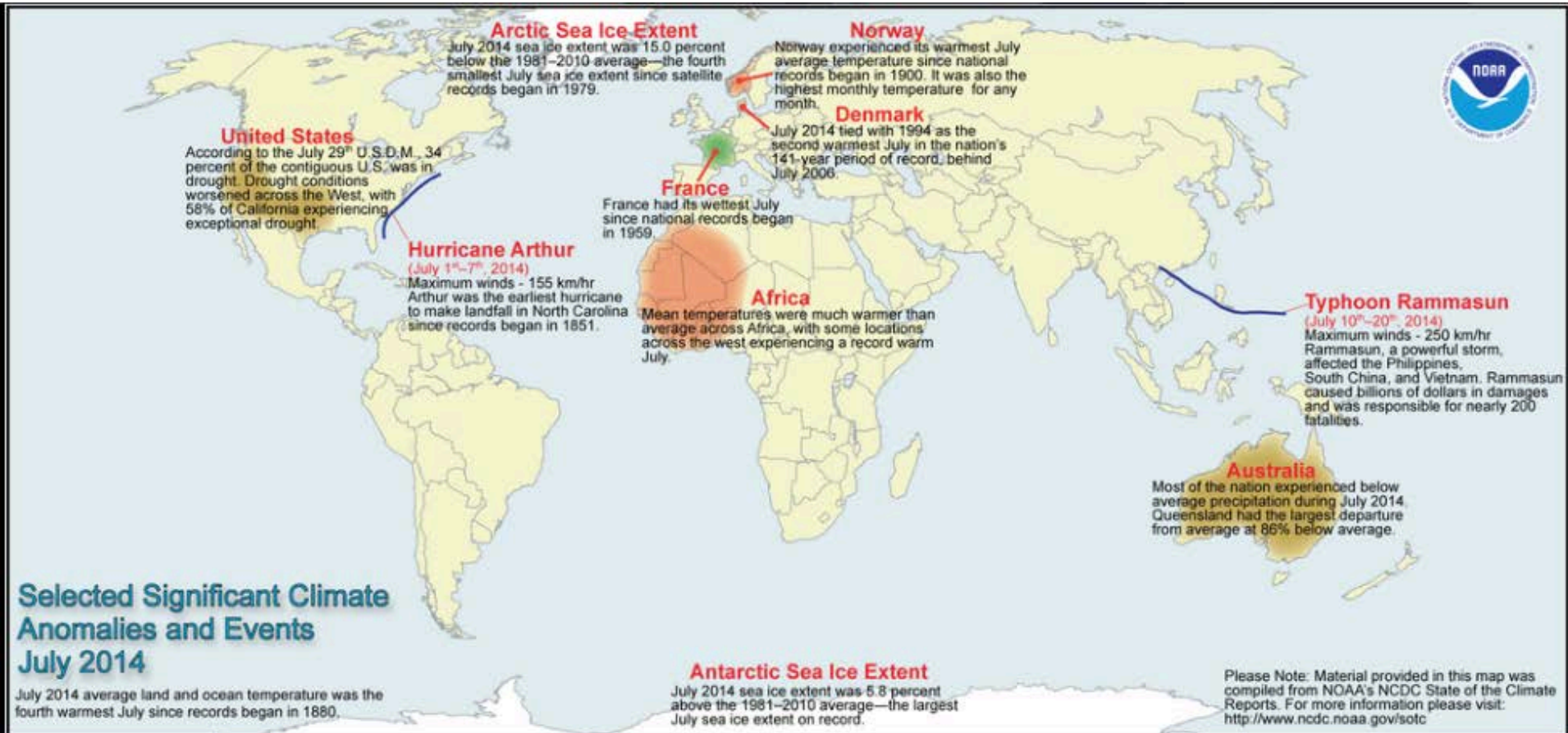
**“HOT” WEATHER = GLOBAL “WARMING”**

Recent polls show more Americans believe in climate change.

“Record Heat Wave Pushes U.S. Belief in Climate Change to 70%”

# ICYMI: July 2014 Global Select Climate Anomalies & Events Map

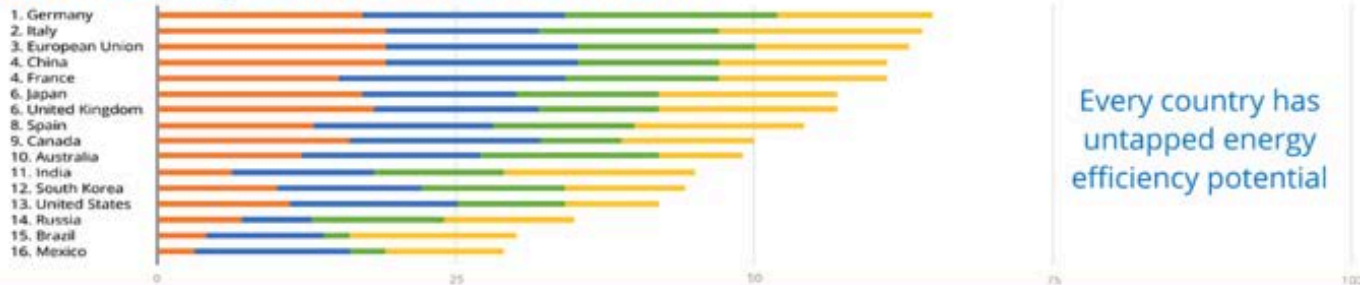
#StateOfClimate <http://1.usa.gov/Vqhkjt>



# 2014 International Energy Efficiency Scorecard



## Overall country scores with sector breakdown



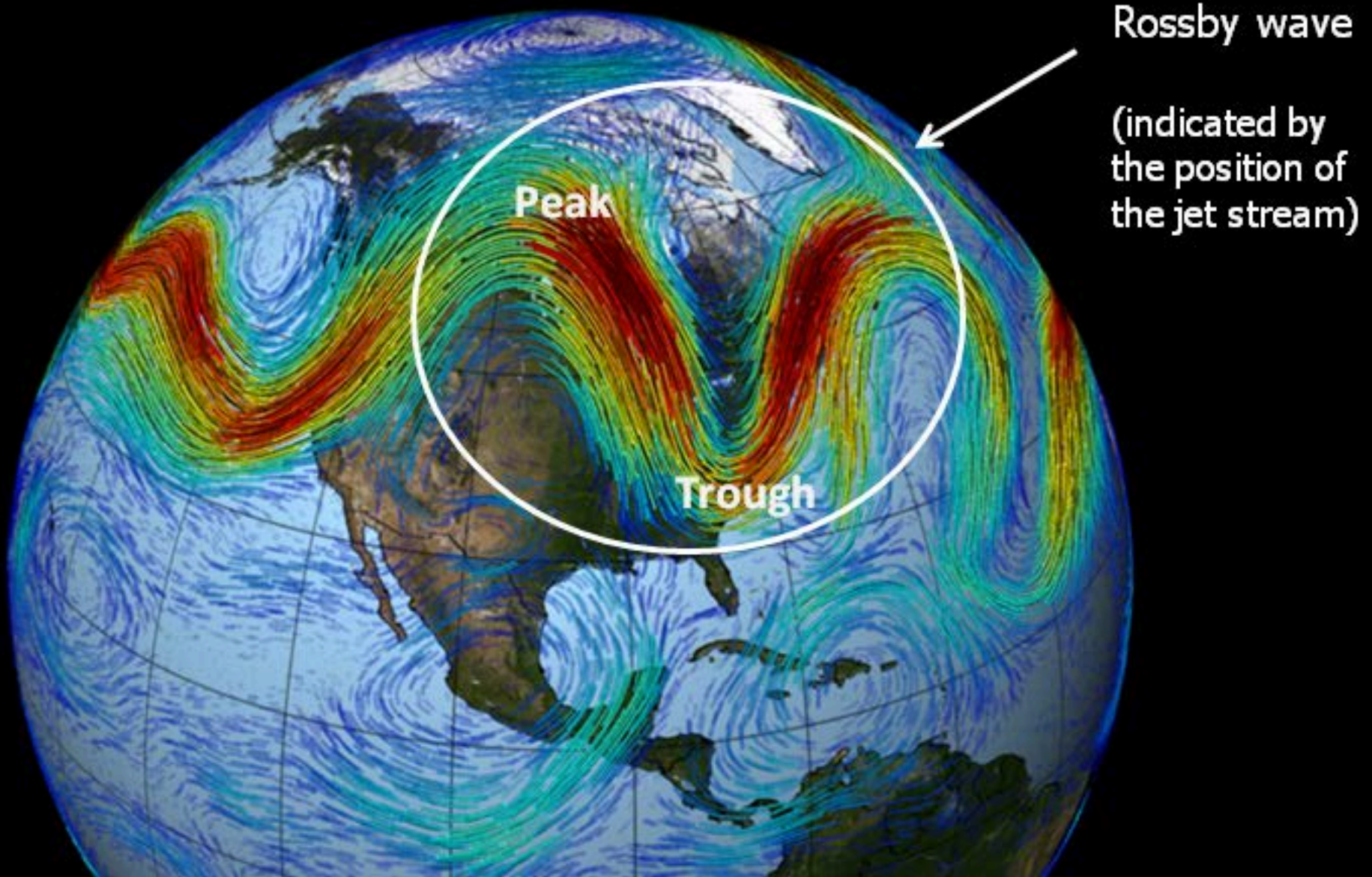
**THE US RANKS #13  
OUT OF 16**

The United States – long considered an innovative and competitive world leader – has allowed other nations to surpass it.

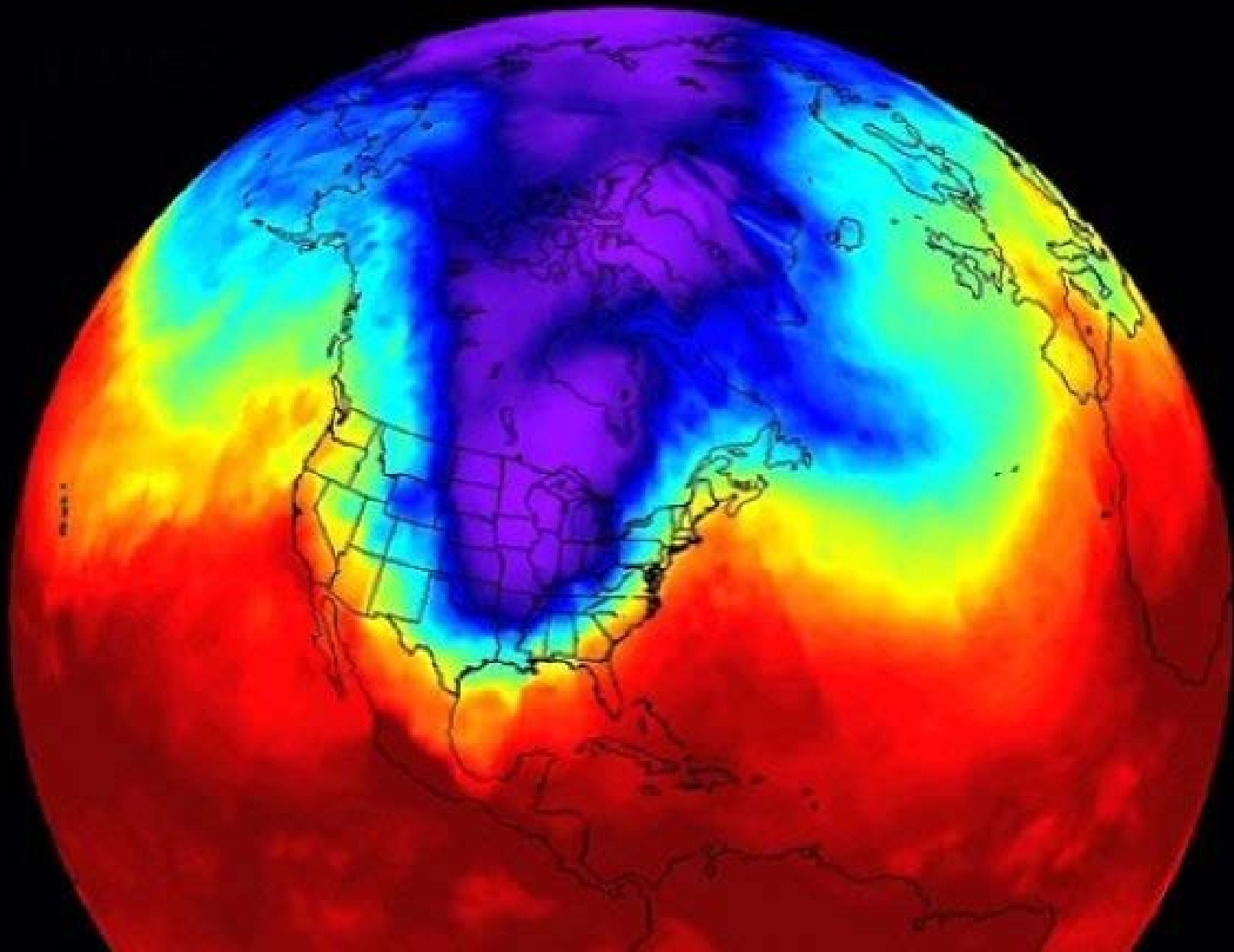
Graphic credit: ACEEE

<http://ecowatch.com/2014/07/20/u-s-rank-energy-efficiency/>

# POLAR VORTEX Winter 2013-14



# POLAR VORTEX Winter 2013-14





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

The poorest part of America  
~ Not here, surely?

The Economist print edition Dec 8th 2005



“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.

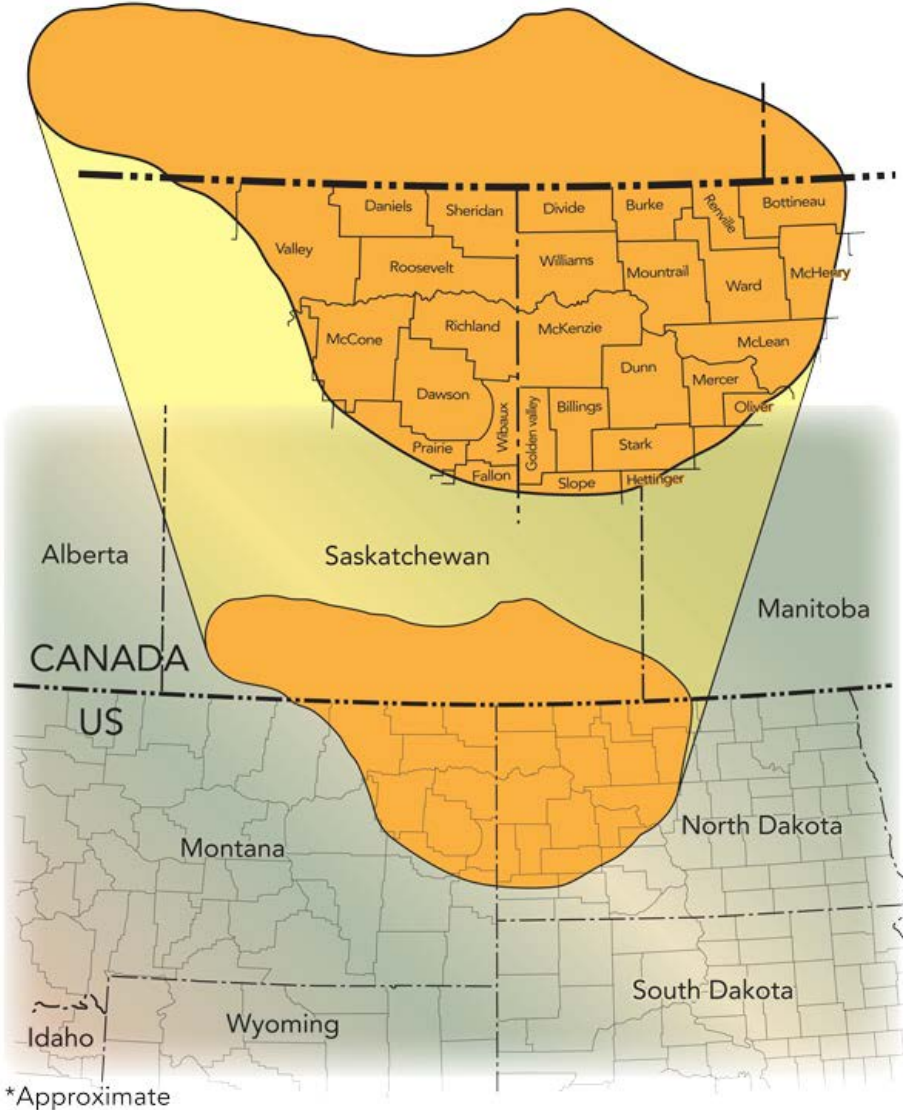
“There are two unusual things about the deprivation in this region:

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.”

# BAKKEN WEALTH A BOON TO NORTH DAKOTA

August 5, 2013



In 2012, North Dakota reported the highest annual increase in real per capita GDP of any state in the country for the second consecutive year. In 2012, real per capita GDP in North Dakota increased by nearly 11% from the previous year, according to statistics released June 6, 2013 by the US Bureau of Economic Analysis (BEA). This is considerably higher than the national growth rate of less than 2% and is more than three times as large as the growth rate in Texas (3.27%), the state with the next highest annual growth.

\*Approximate

# Dream of U.S. Oil Independence Slams Against Shale Costs

By Asjylyn Loder Feb 26, 2014 5:00 PM MT

The path toward U.S. energy independence, made possible by a boom in shale oil, will be much harder than it seems. Just a few of the roadblocks:

Independent producers will spend \$1.50 drilling this year for every dollar they get back. Shale output drops faster than production from conventional methods.

It will take **2,500 new wells a year just to sustain output of 1 million barrels a day in North Dakota's Bakken shale**, according to the Paris-based International Energy Agency.

**Iraq could do the same with 60.**



# Mitigation - Energy and Housing

## Energy—tribal energy programs

- Energy efficiency
- Renewable Energy—wind, geothermal and solar

## Housing

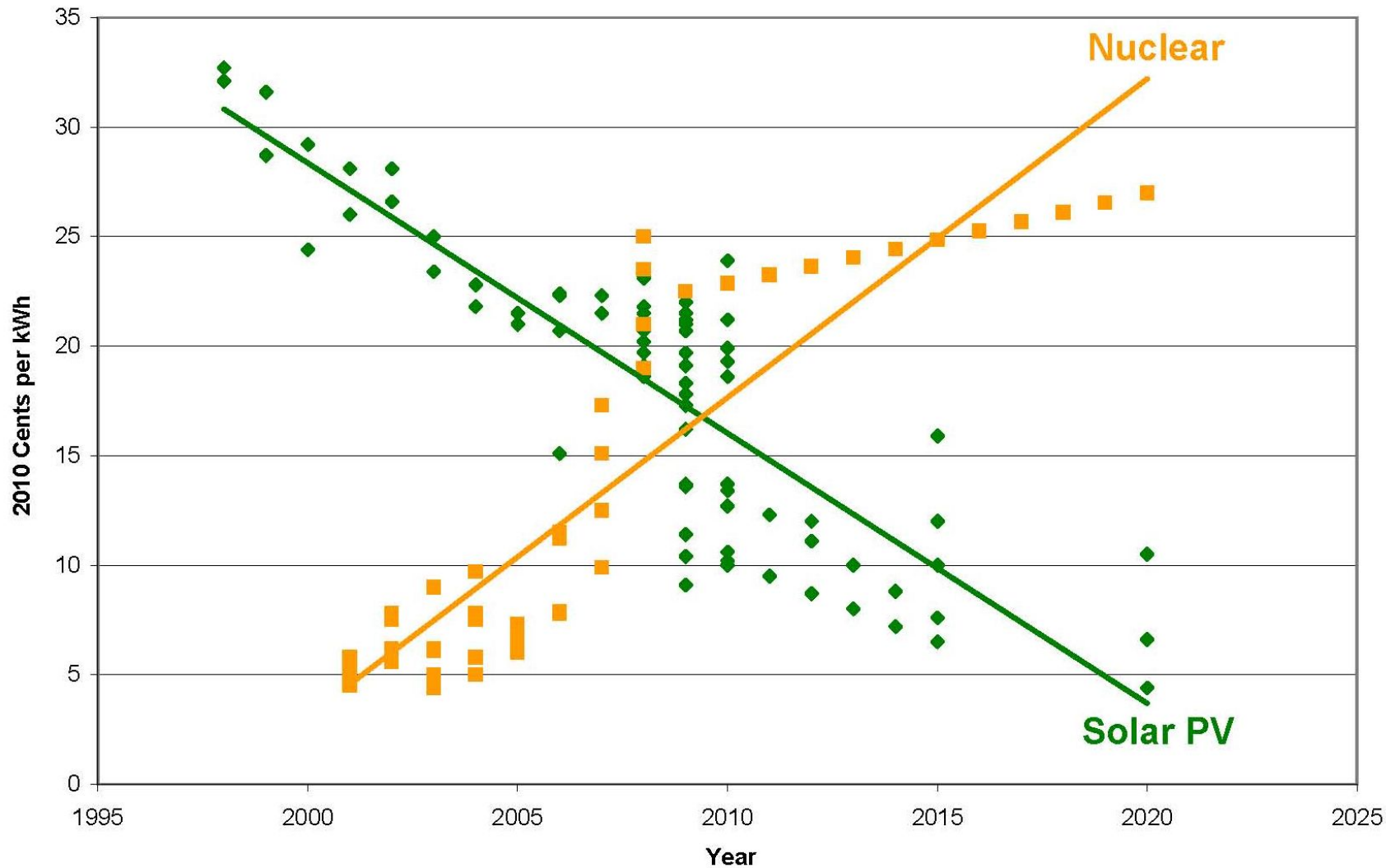
- Tribal housing is vulnerable to weather extremes and natural disasters
- Critical need for almost half a million safe, healthy, and affordable homes
- Straw bale homes--low energy, high performance buildings, very resistant to high winds, tornadoes, earthquakes and fire, risk for mold and mildew due to water has been reduced
- Need to build tribal capacity to meet housing needs



**National  
Climate  
Assessment**

U.S. Global Change Research Program

# Solar-Nuclear Kilowatt-Hour Cost Comparison

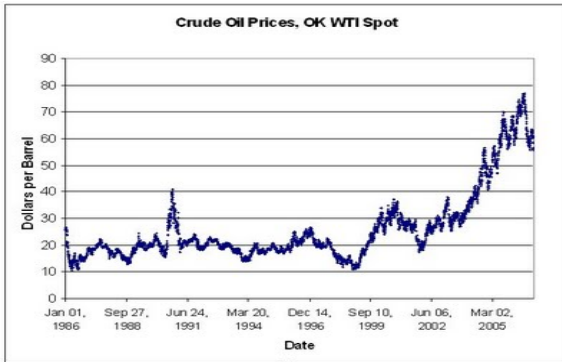
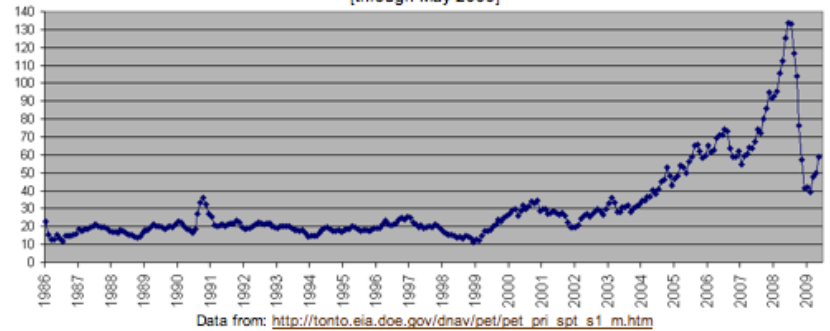


◆ Solar PV    ■ Nuclear    — Solar Trendline    — Nuclear Trendline

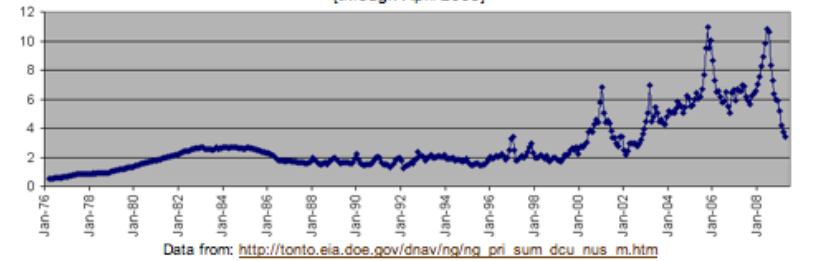
# CONVENTIONAL ENERGY COST TRENDS



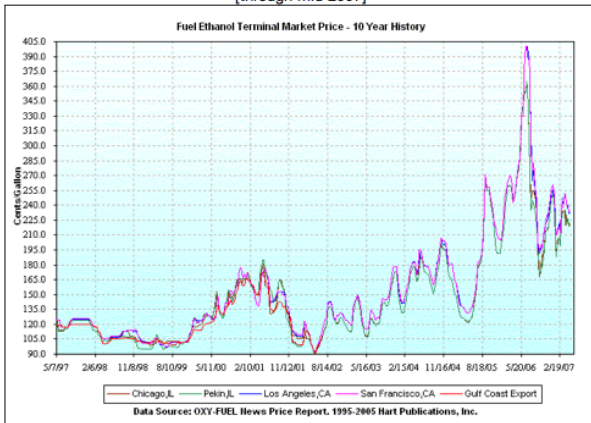
**U.S. Crude Oil Price**  
(Dollars per Barrel)  
[through May 2009]



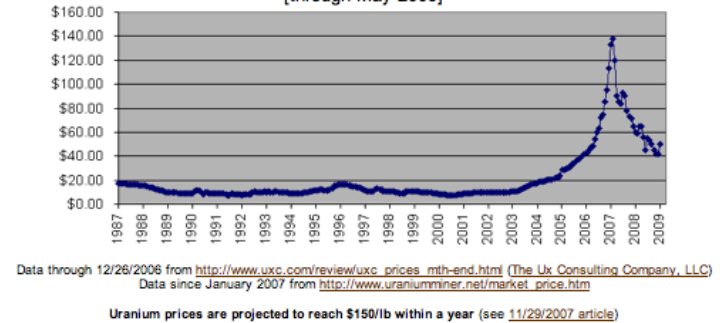
**U.S. Natural Gas Wellhead Price**  
(Dollars per Thousand Cubic Feet)  
[through April 2009]



**Ethanol Prices**  
[through mid-2007]

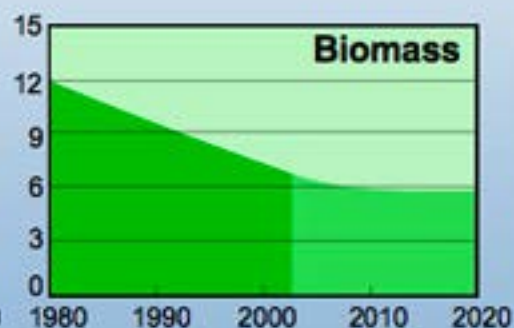
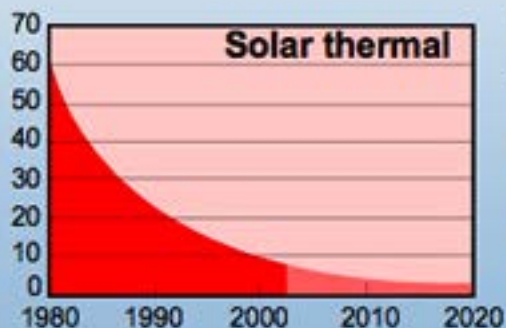
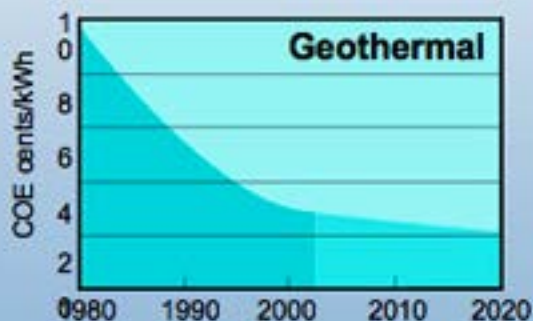
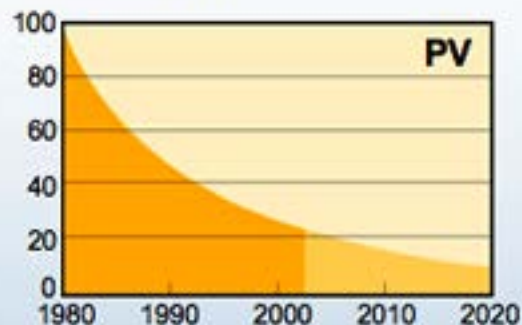
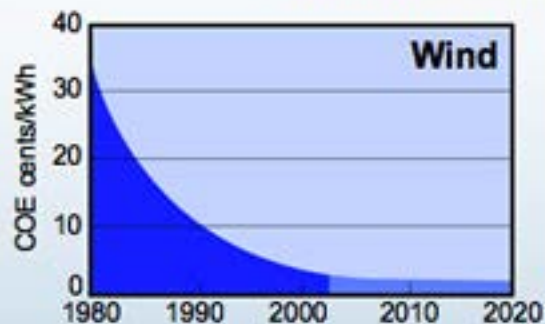


**Uranium Prices**  
(Ux U3O8 Price \$/lb)  
[through May 2009]



# Renewable Energy Cost Trends

Levelized cents/kWh in constant \$2000<sup>1</sup>



Source: NREL Energy Analysis Office ([www.nrel.gov/analysis/docs/cost\\_curves\\_2002.ppt](http://www.nrel.gov/analysis/docs/cost_curves_2002.ppt))

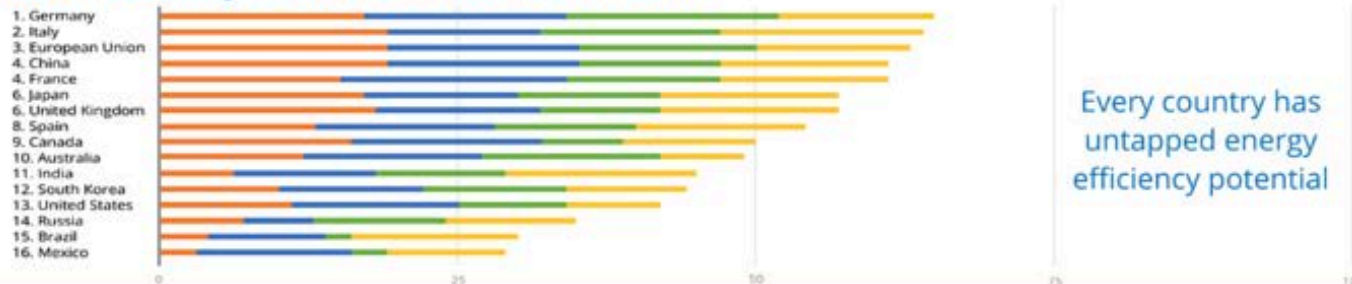
<sup>1</sup>These graphs are reflections of historical cost trends NOT precise annual historical data.

Updated: October 2002

# 2014 International Energy Efficiency Scorecard



## Overall country scores with sector breakdown



**THE US RANKS #13  
OUT OF 16**

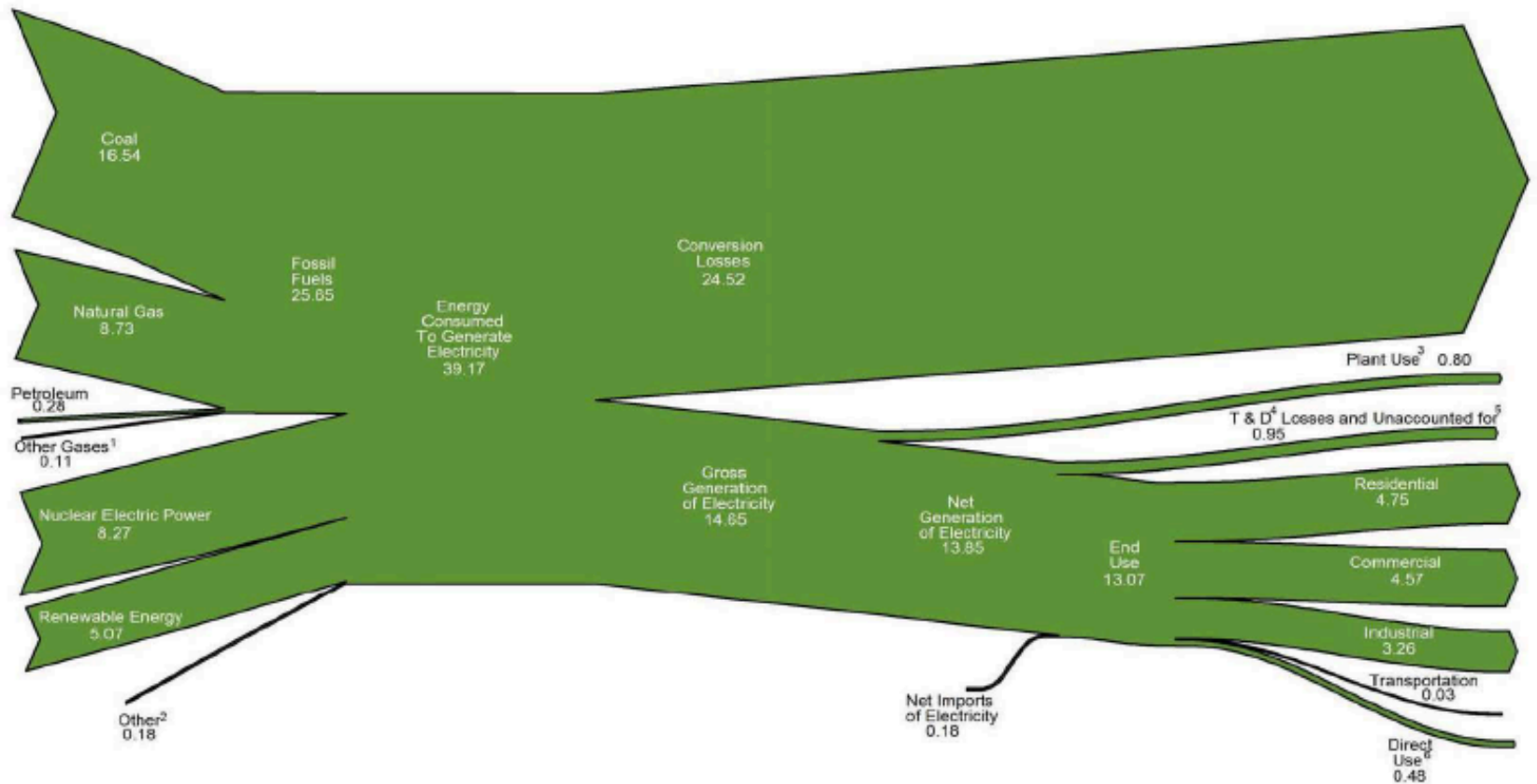
The United States - long considered an innovative and competitive world leader - has allowed other nations to surpass it.

Graphic credit: ACEEE

<http://ecowatch.com/2014/07/20/u-s-rank-energy-efficiency/>



# U.S. Electricity Flow, 2013 (Quadrillion Btu)



<sup>1</sup> Blast furnace gas and other manufactured and waste gases derived from fossil fuels.

<sup>2</sup> Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

<sup>3</sup> Electric energy used in the operation of power plants.

<sup>4</sup> Transmission and distribution losses (electricity losses that occur between the point of generation and delivery to the customer).

<sup>5</sup> Data collection frame differences and nonsampling error.

<sup>6</sup> Use of electricity that is 1) self-generated, 2) produced by either the same entity that consumes the power or an affiliate, and 3) used in direct support of a service or industrial

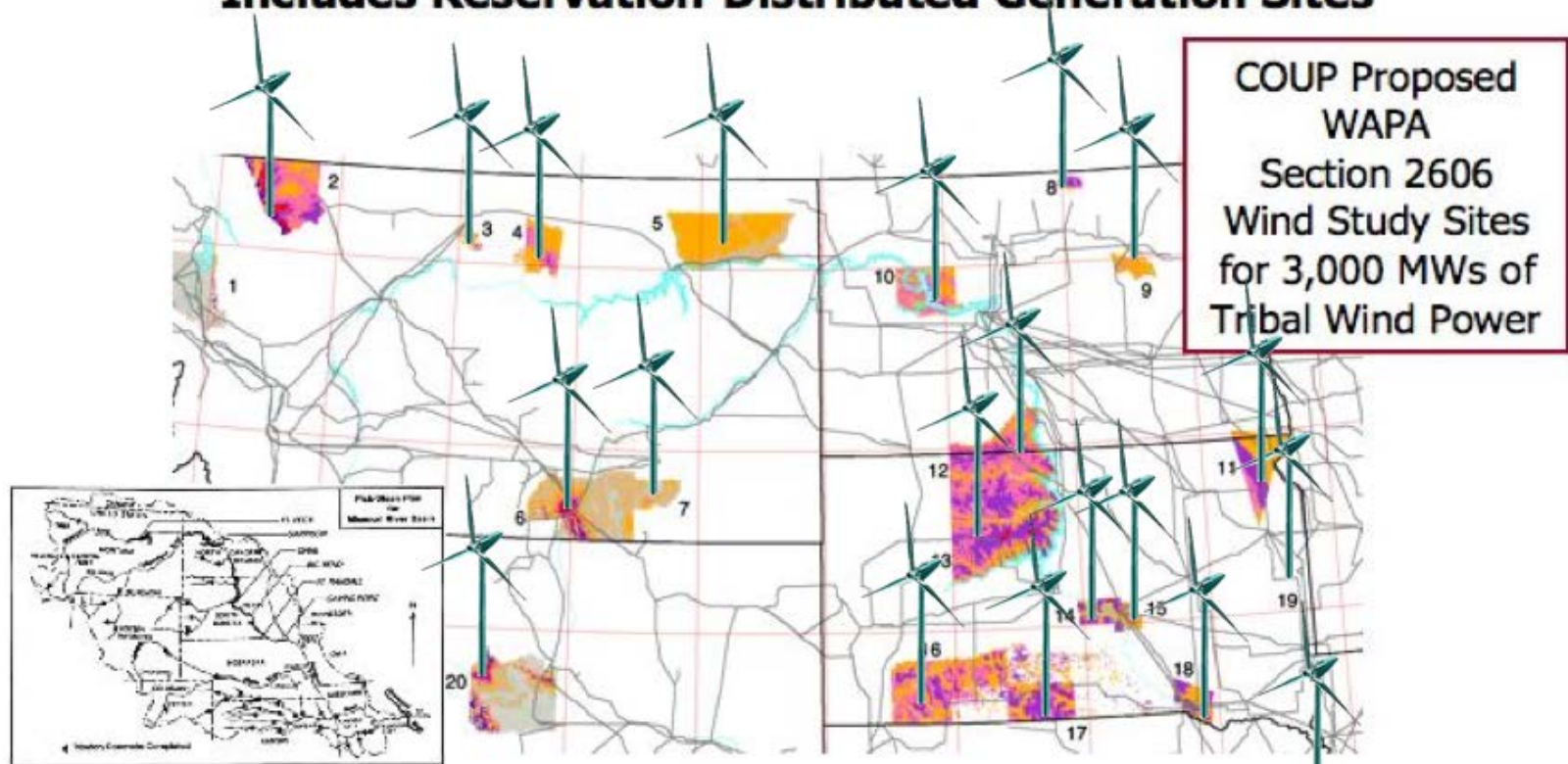
process located within the same facility or group of facilities that house the generating equipment. Direct use is exclusive of station use.

Notes: • Data are preliminary. • See Note 1, "Electrical System Energy Losses," at the end of EIA, *Monthly Energy Review* (May 2014), Section 2. • Net generation of electricity includes pumped storage facility production minus energy used for pumping. • Values are derived from source data prior to rounding for publication. • Totals may not equal sum of components due to independent rounding.

Sources: U.S. Energy Information Administration, *Monthly Energy Review* (May 2014), Tables 7.1, 7.2a, 7.3a, 7.6, and A6; and EIA, Form EIA-923, "Power Plant Operations Report."

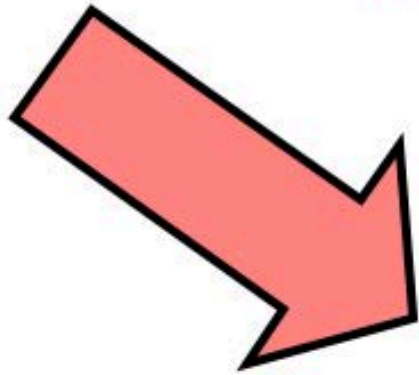


## Wind/Hydro Feasibility Study Area (Section 2606) Includes Reservation Distributed Generation Sites

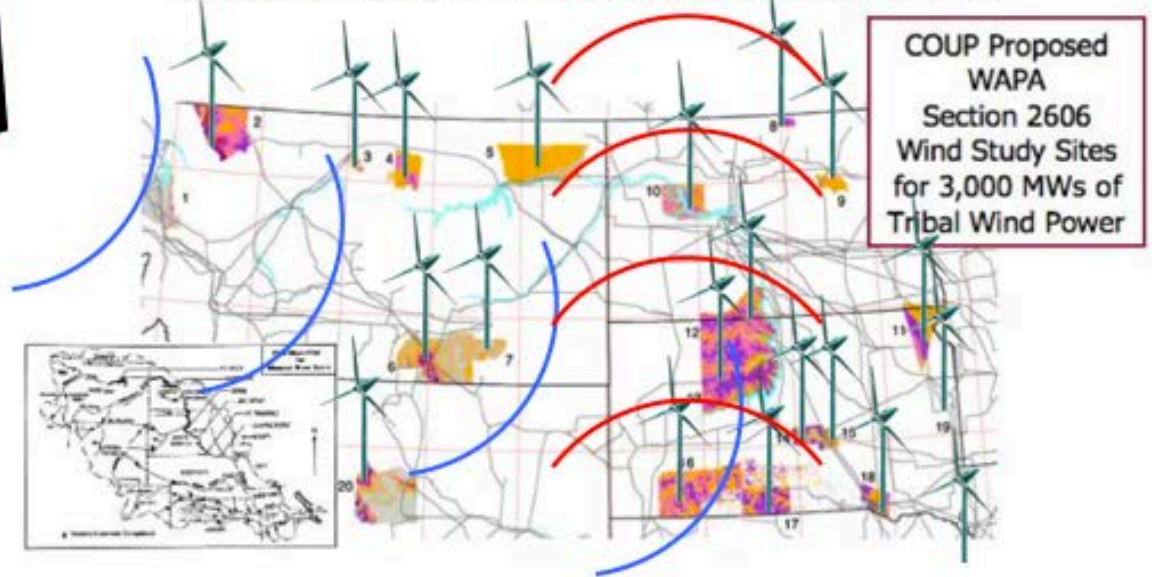


Section 2606 authorizes the expenditure of up to \$1 million to conduct a wind/hydro feasibility study to evaluate the opportunities for wind/hydro integration throughout the Missouri River Basin to supply power to WAPA. 3,000 MWs on 20 Reservations averaging 150 MWs per Reservation.

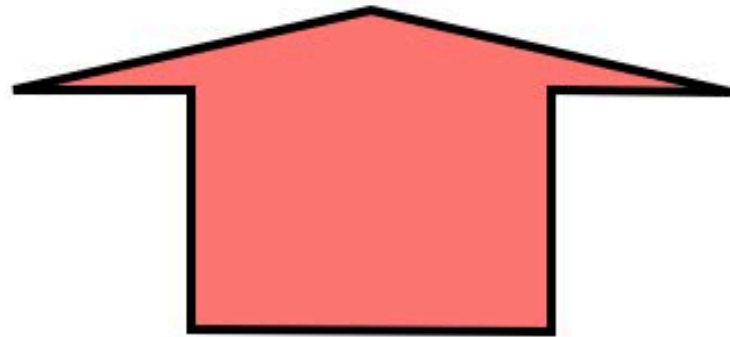
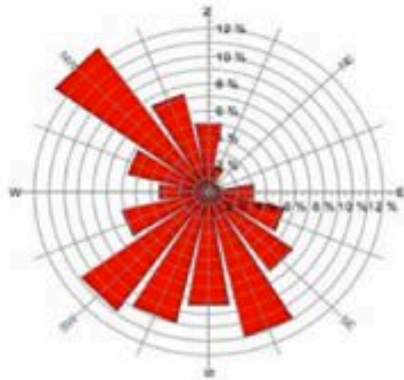
# PREVAILING WIND DIRECTIONS



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



## WIND DIRECTION AND FREQUENCY



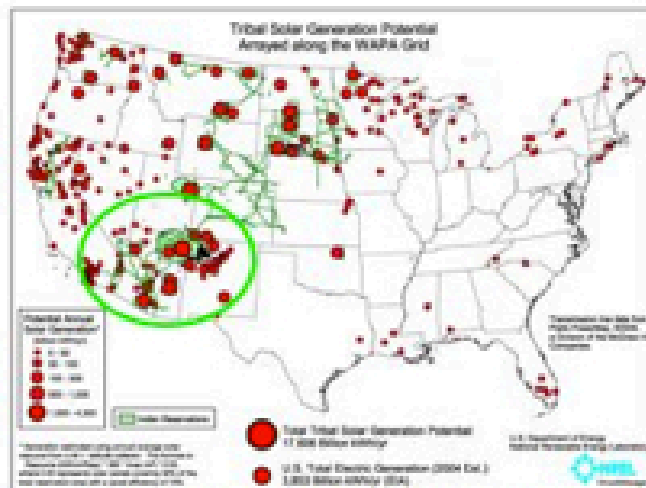
It's not the WIND that is *intermittent*,  
... it is our collection system!!

# Cancun

## Potential ~~Copenhagen~~ Announcement:

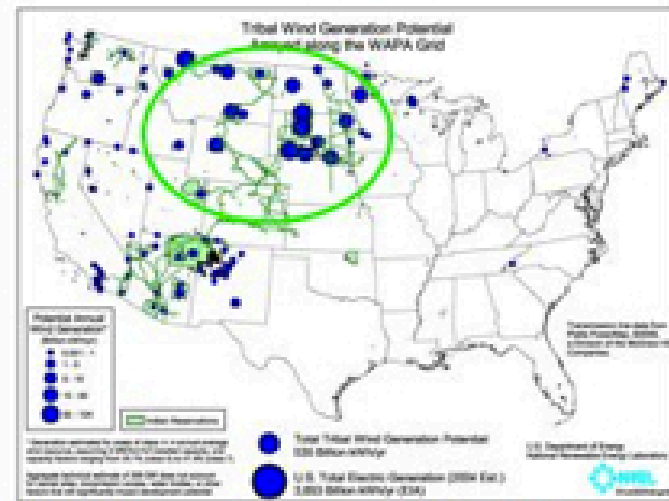
American Indian Tribes Could Support Plans to De-Carbonize the Federal Supplemental Power Purchases for the Western Area Power Administration Transmission Grid By Integrating Over 4,500 Megawatts of Tribal "Shovel Ready" Renewable Energy Projects on the Federal WAPA Transmission Grid

### 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.

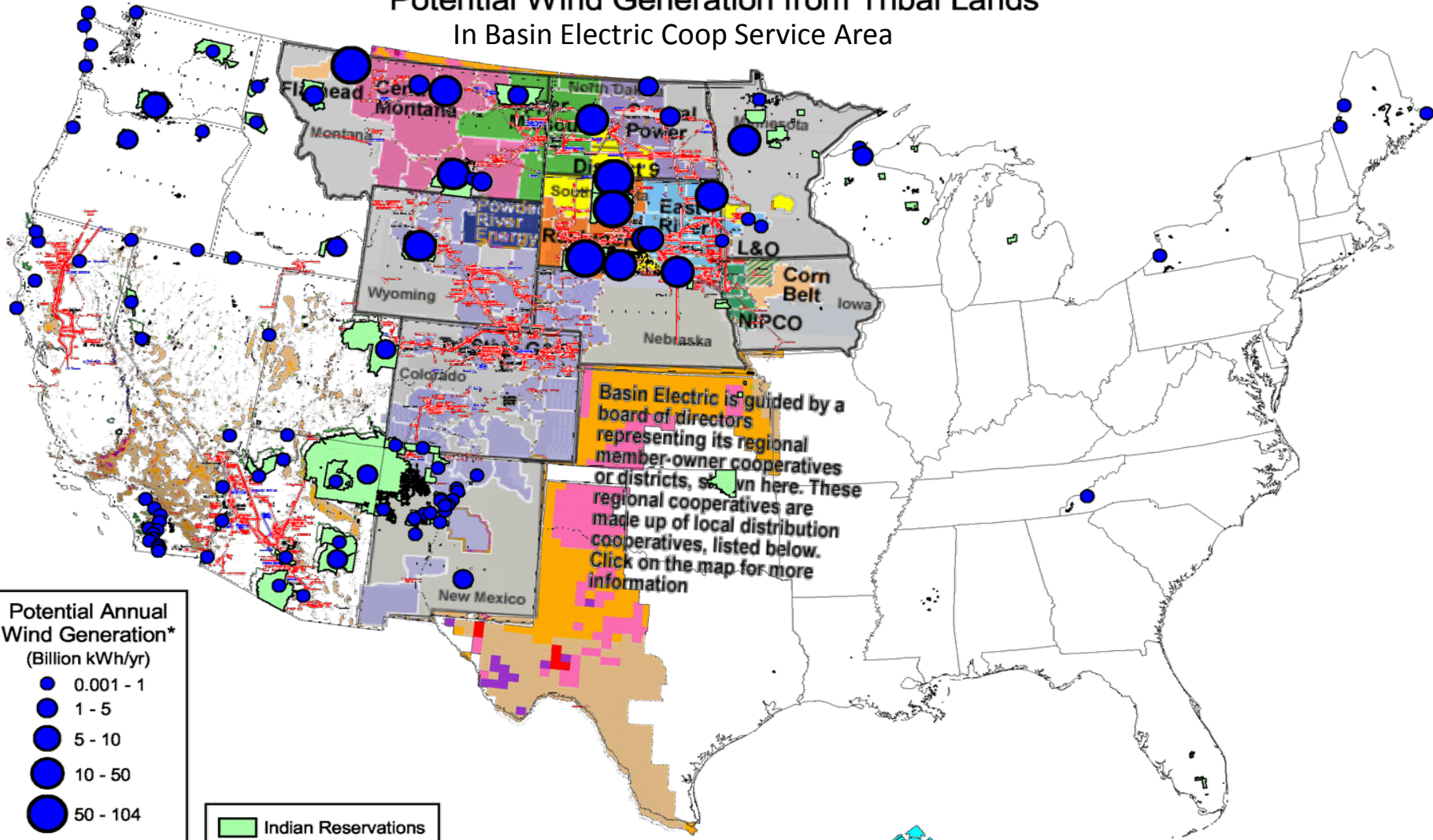
### Tribal Wind



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!

# Potential Wind Generation from Tribal Lands In Basin Electric Coop Service Area



Potential Annual Wind Generation\*  
(Billion kWh/yr)

- 0.001 - 1
- 1 - 5
- 5 - 10
- 10 - 50
- 50 - 104

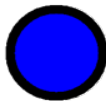
Indian Reservations

\* Generation estimated for areas of class  $\geq 4$  annual average wind resource, assuming 5 MW/km<sup>2</sup> of installed capacity, and capacity factors ranging from 25.1% (class 4) to 41.4% (class 7).

Aggregate technical estimate of 209 GW does not account for sacred sites, transmission access, water bodies, or other factors that will significantly impact development potential.



Total Tribal Wind Generation Potential:  
535 Billion kWh/yr

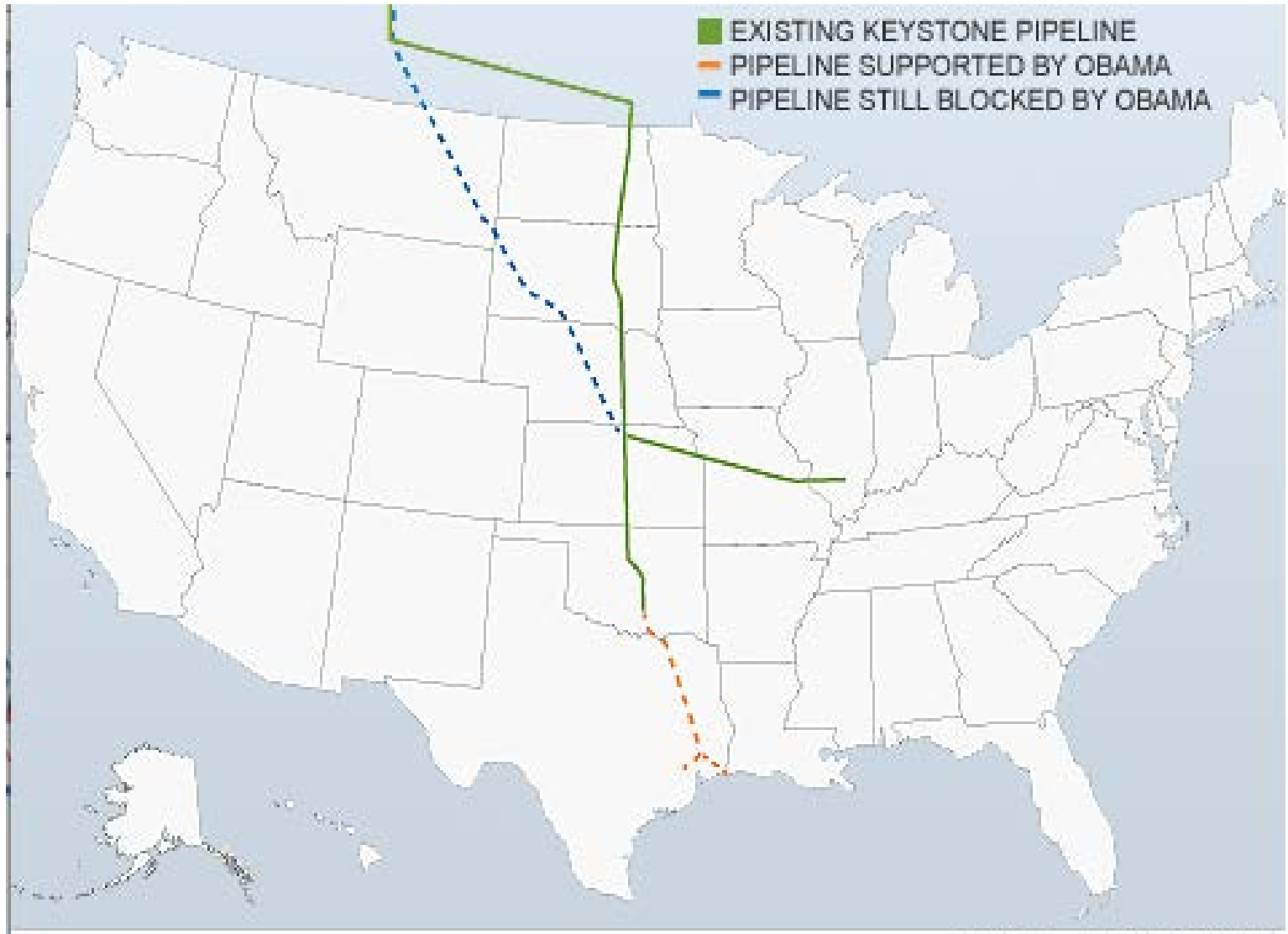


U.S. Total Electric Generation (2004 Est.):  
3,853 Billion kWh/yr (EIA)



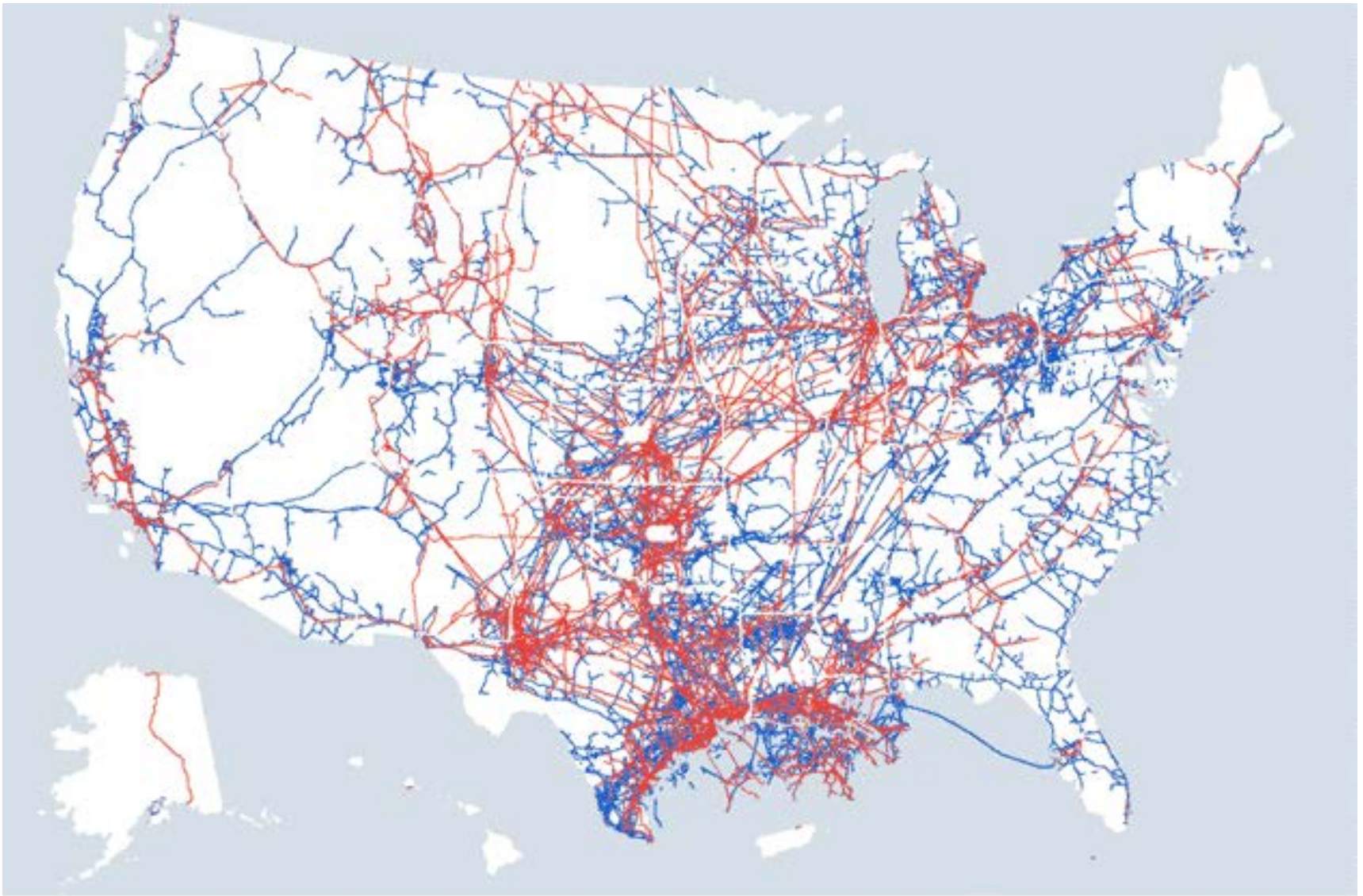
U.S. Department of Energy  
National Renewable Energy Laboratory





<http://money.cnn.com/2012/03/22/news/economy/keystone-pipeline/index.htm>

Map of major natural gas and oil pipelines in U.S. Hazardous liquid in red, gas in blue.



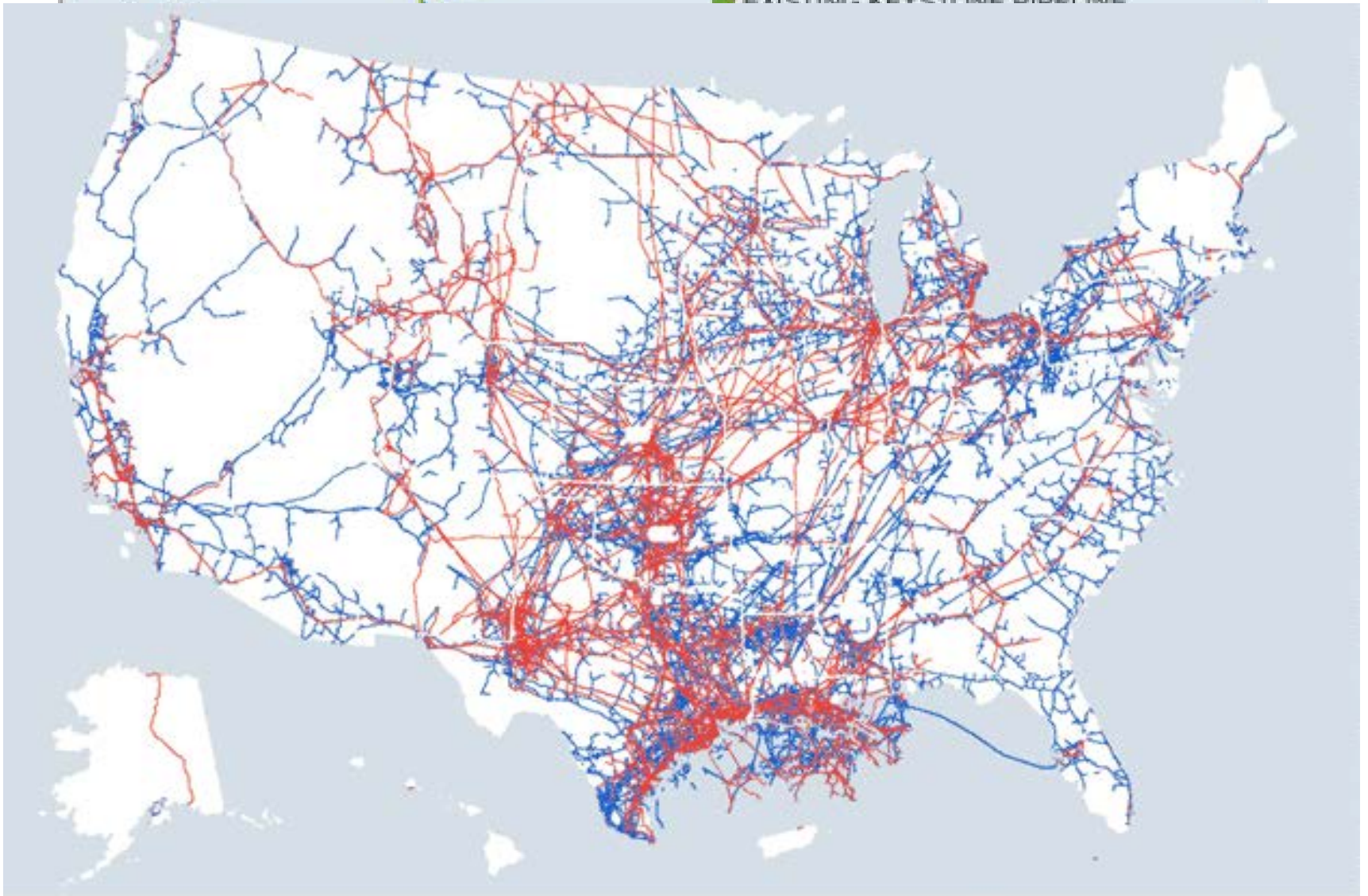
*Map of major natural gas and oil pipelines in the United States. Hazardous liquid lines in red, gas transmission lines in blue. Source: Pipeline and Hazardous Materials Safety Administration.*

<http://www.scientificamerican.com/article.cfm?id=how-safe-are-americas-2-5-million-miles-of-pipelines>

© 2012 IntertribalCOUP.org

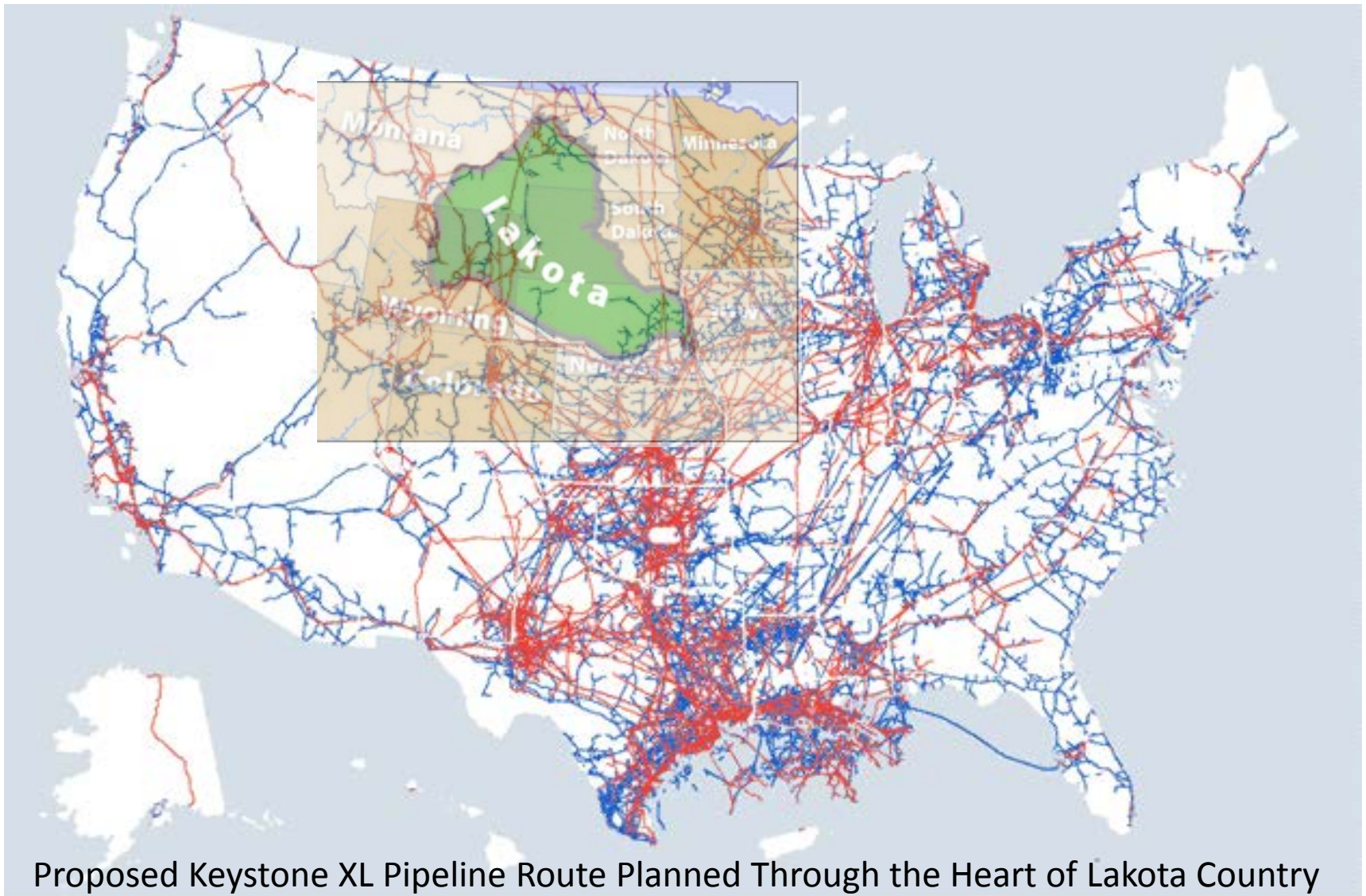


Map of major natural gas and oil pipelines in U.S. Hazardous liquid in red, gas in blue.  
Proposed Keystone XL in dotted blue line crossing through the Great Sioux Nation!



*Map of major natural gas and oil pipelines in the United States. Hazardous liquid lines in red, gas transmission lines in blue. Source: Pipeline and Hazardous Materials Safety Administration.*

Map of major natural gas and oil pipelines in U.S. Hazardous liquid in red, gas in blue.



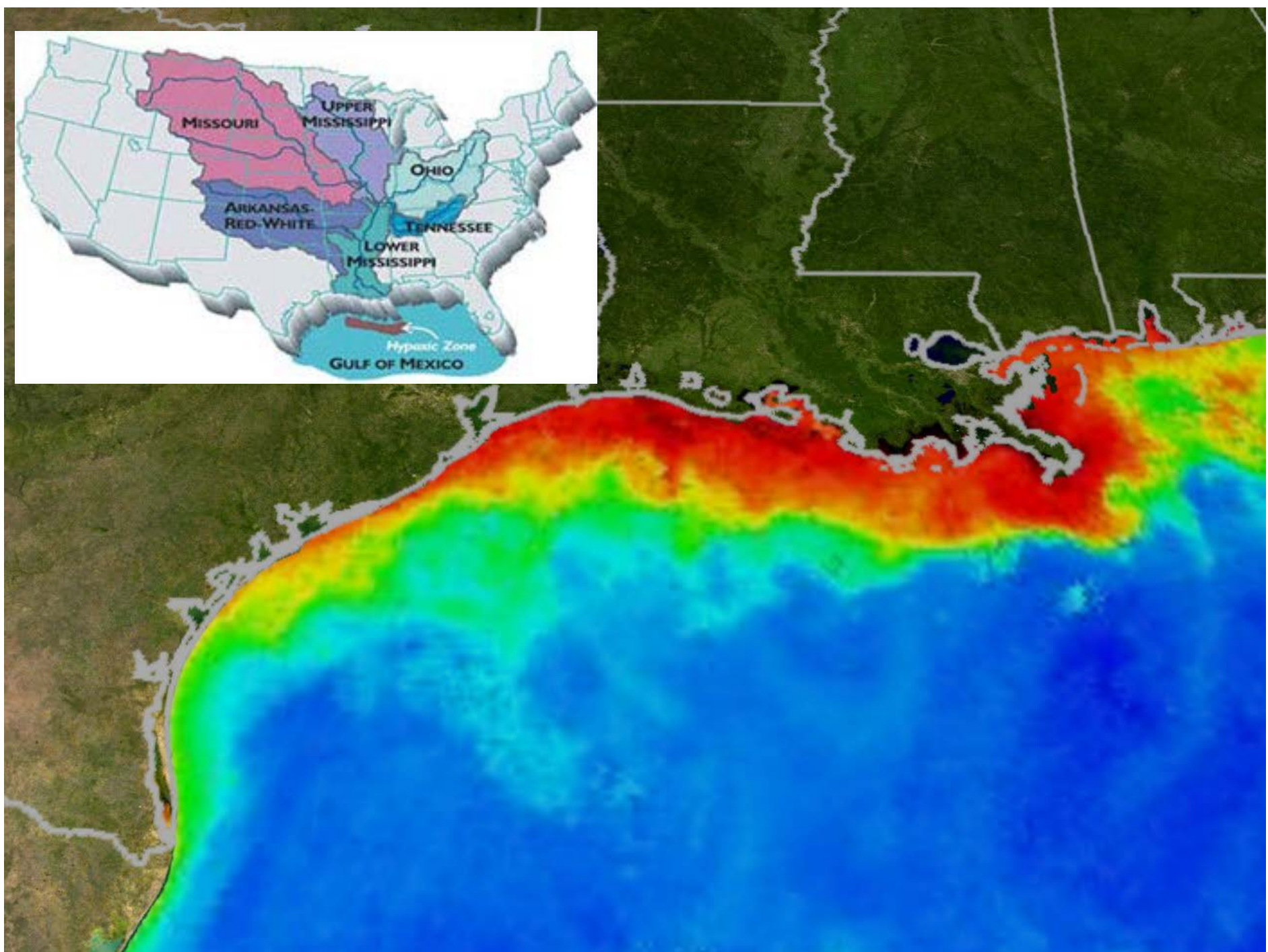
Proposed Keystone XL Pipeline Route Planned Through the Heart of Lakota Country

*Map of major natural gas and oil pipelines in the United States. Hazardous liquid lines in red, gas transmission lines in blue. Source: Pipeline and Hazardous Materials Safety Administration.*

# Chart: The 7,000 Streams that Become the Mississippi River

A new tool maps the thousands of connections among U.S. rivers.





# *The True Sources of ... and Solutions to Global Warming!*



Reliance on fossilized hell-fire, and not our more heavenly resources, has resulted in a significantly warmer planet.

"A wise, detailed, and comprehensive blueprint" —President Bill Clinton

# REINVENTING FIRE®

**BOLD BUSINESS SOLUTIONS  
FOR THE NEW ENERGY ERA**

**AMORY B. LOVINS AND  
ROCKY MOUNTAIN INSTITUTE**



FOREWORDS BY

MARVIN ODUM, PRESIDENT, SHELL OIL COMPANY

JOHN W. ROWE, CHAIRMAN AND CEO, EXELON CORPORATION

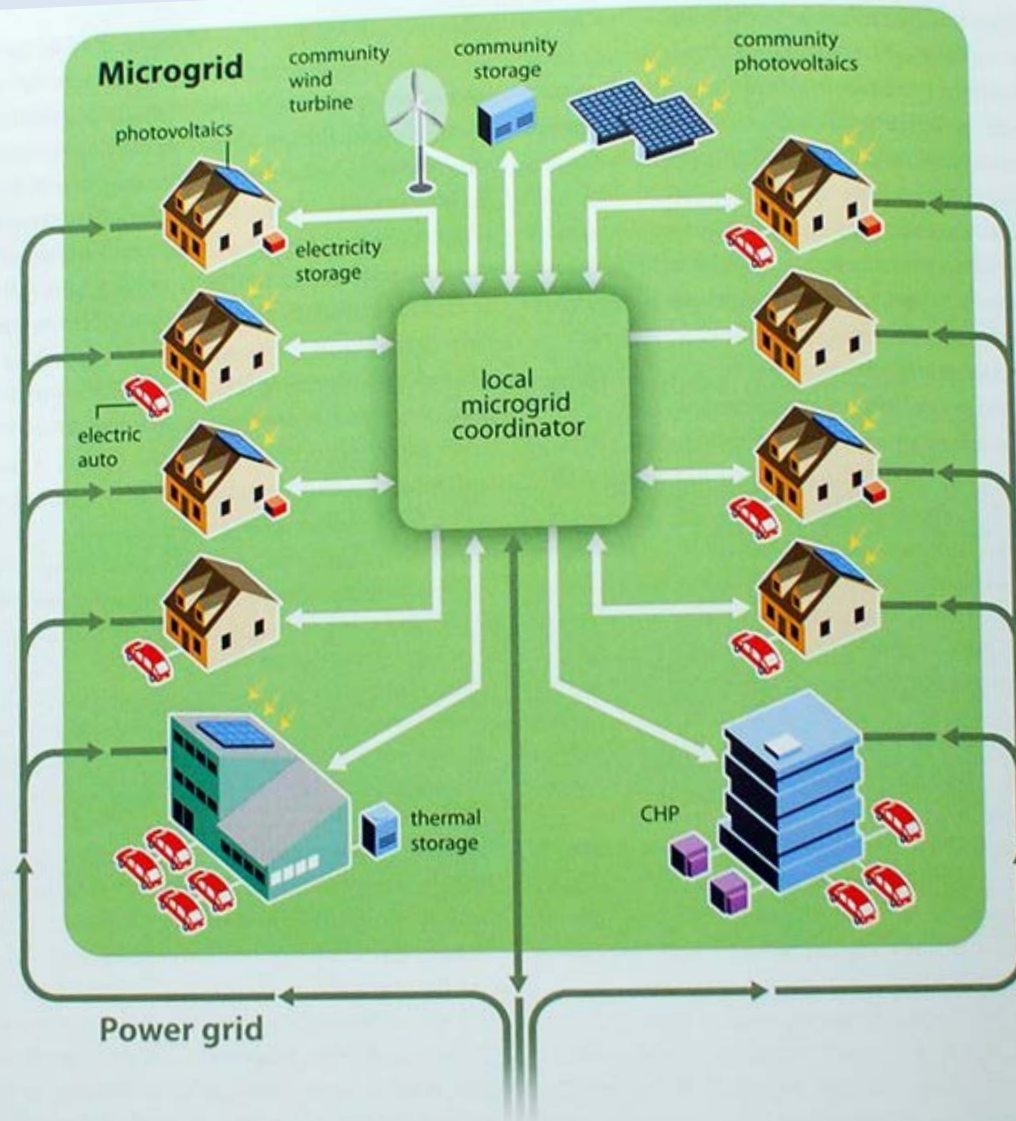
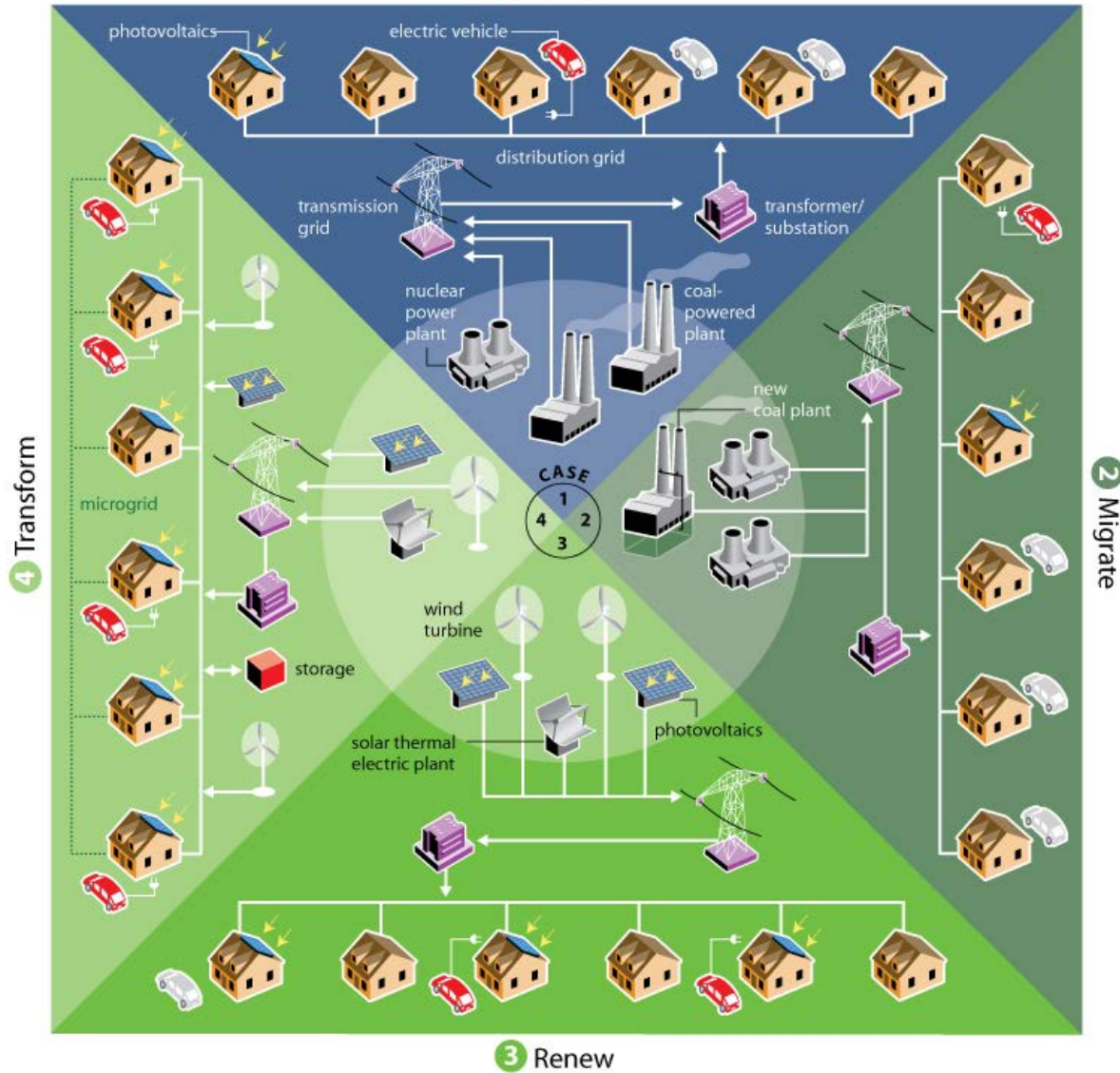


FIG. 5-26. Each intelligent microgrid links a diverse array of demand- and supply-side resources. It normally interconnects with the main power grid but can island from it if necessary. Distributed community storage can be even more valuable than household storage. Some storage looks like a pad-mounted neighborhood transformer box; other kinds are truck-mounted for easy relocation for greatest value.

# 1 Maintain





# 2050

Efficiency and renewables can end our addiction to fossil fuels, create the core industries of the new energy era, generate \$5 trillion in new economic value, and enhance resilience and security.



HYDRO



HYDROGEN



NON-CROPLAND  
BIOFUELS



NATURAL  
GAS



WIND, SOLAR, AND  
OTHER RENEWABLES

SHARE OF U.S. PRIMARY ENERGY CONSUMPTION

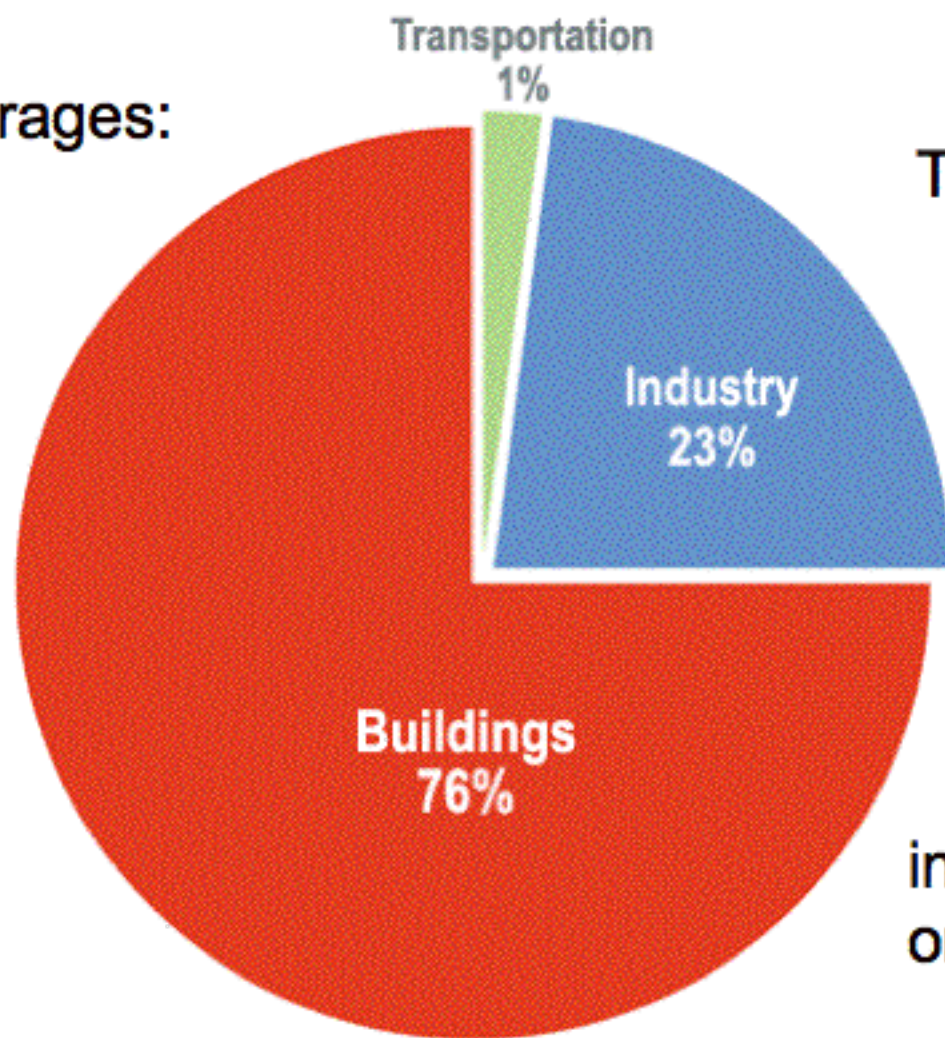


# Amory Lovins: TED Talk on Energy and Systems Thinking



# Where does our electricity go?

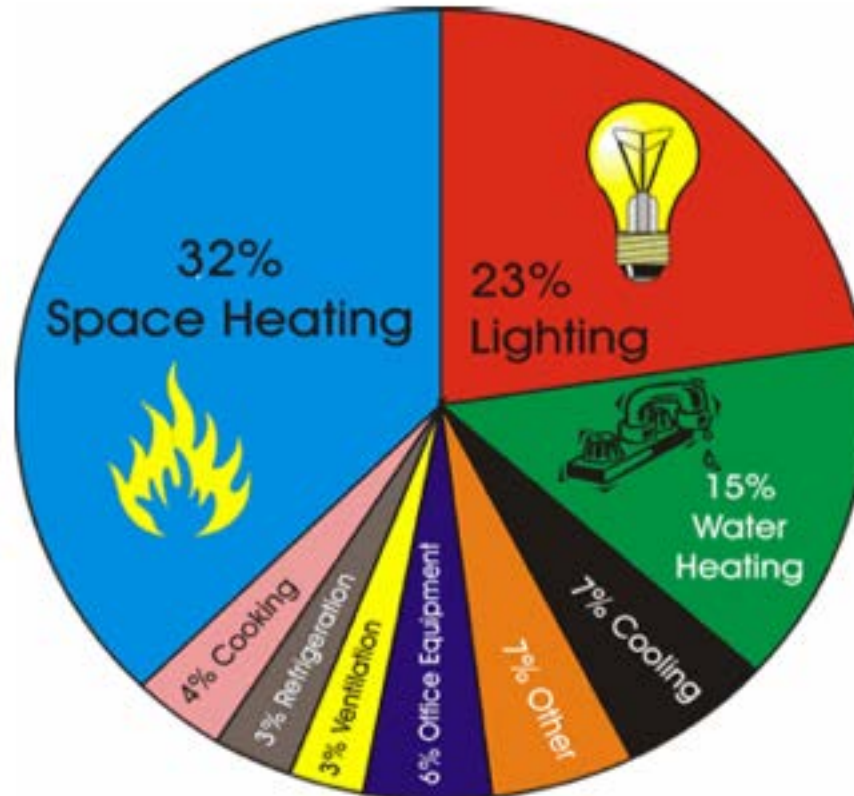
National Averages:



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

## ENERGY CONSUMPTION By BUILDINGS

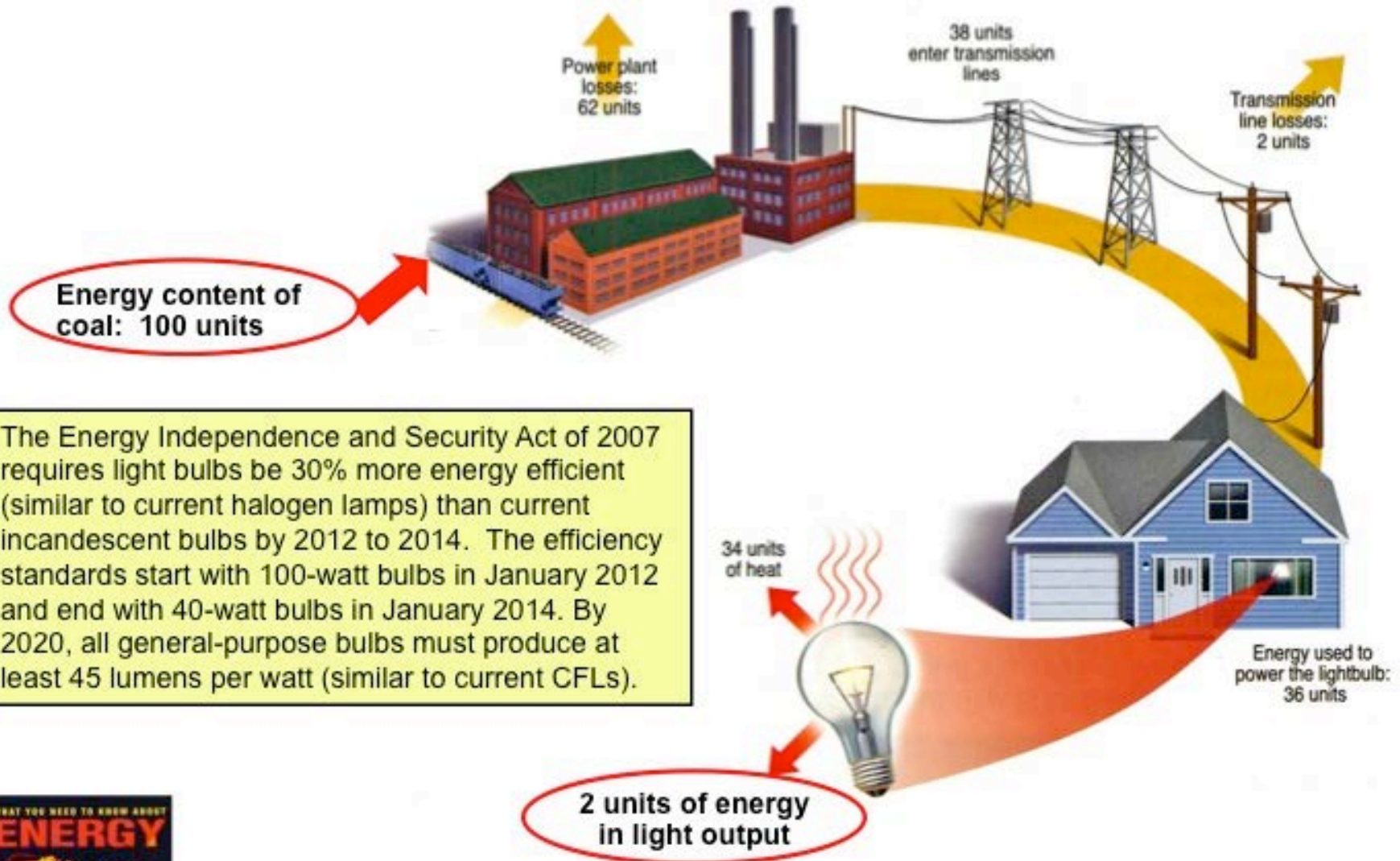
Buildings are responsible for **40% of total annual U.S. energy consumption**



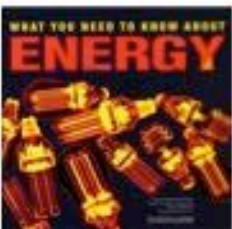
Source: "How Energy is Used In Commercial Buildings," 2004, Energy Information Administration

# Overall Efficiency of an Incandescent Bulb $\cong$ 2%

*Lighting accounts for 22% of all electricity usage in the U.S.*

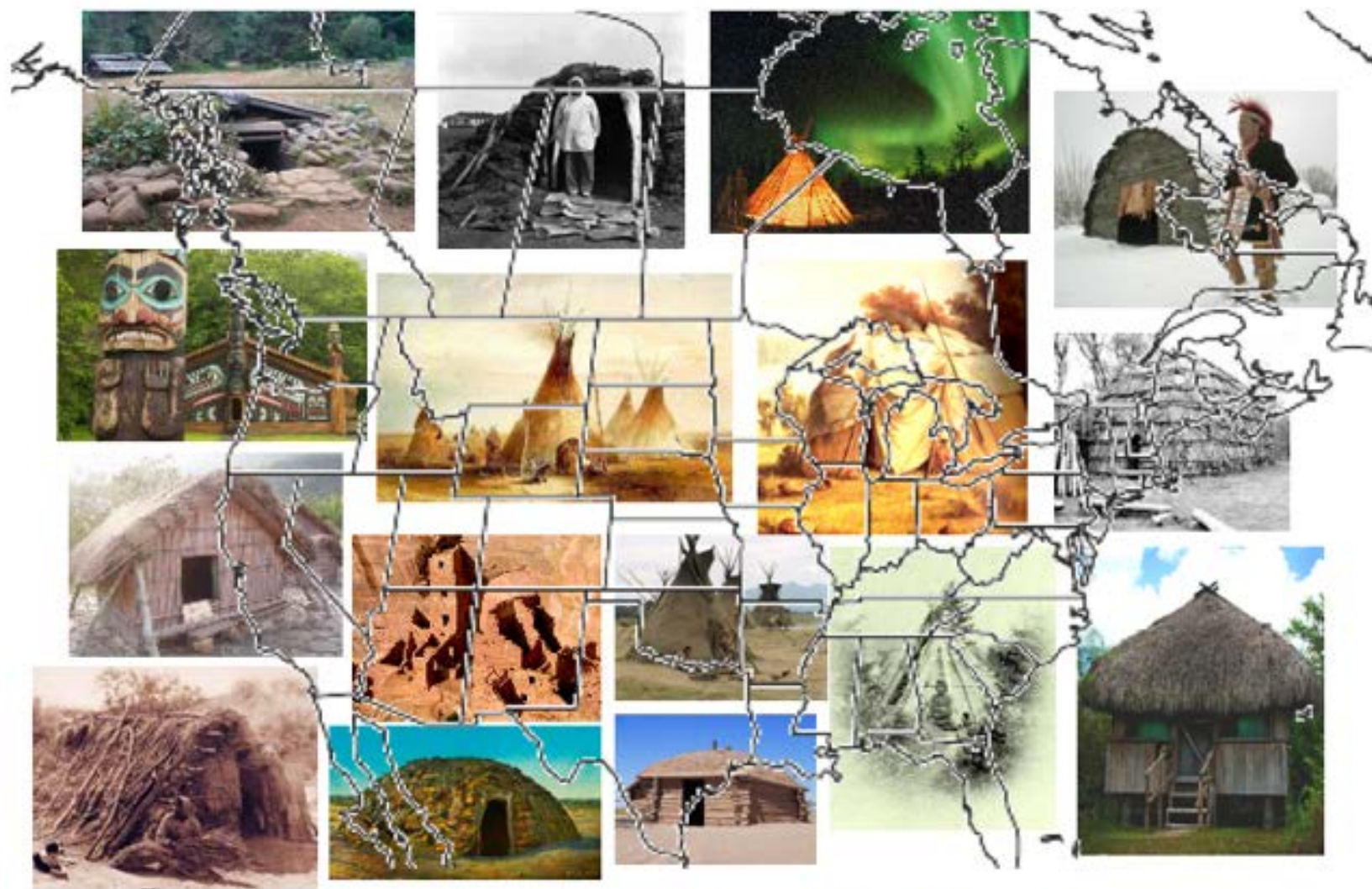


The Energy Independence and Security Act of 2007 requires light bulbs be 30% more energy efficient (similar to current halogen lamps) than current incandescent bulbs by 2012 to 2014. The efficiency standards start with 100-watt bulbs in January 2012 and end with 40-watt bulbs in January 2014. By 2020, all general-purpose bulbs must produce at least 45 lumens per watt (similar to current CFLs).

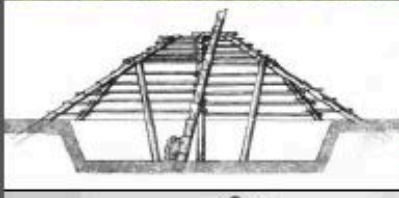
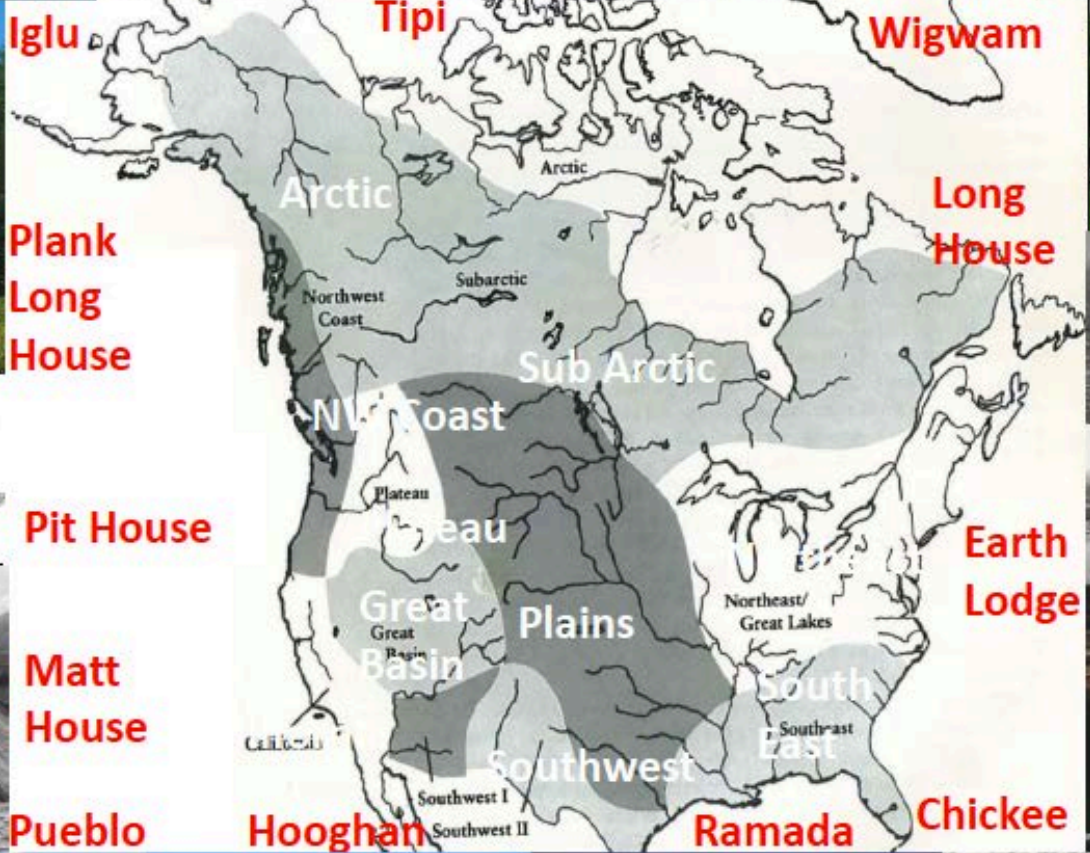


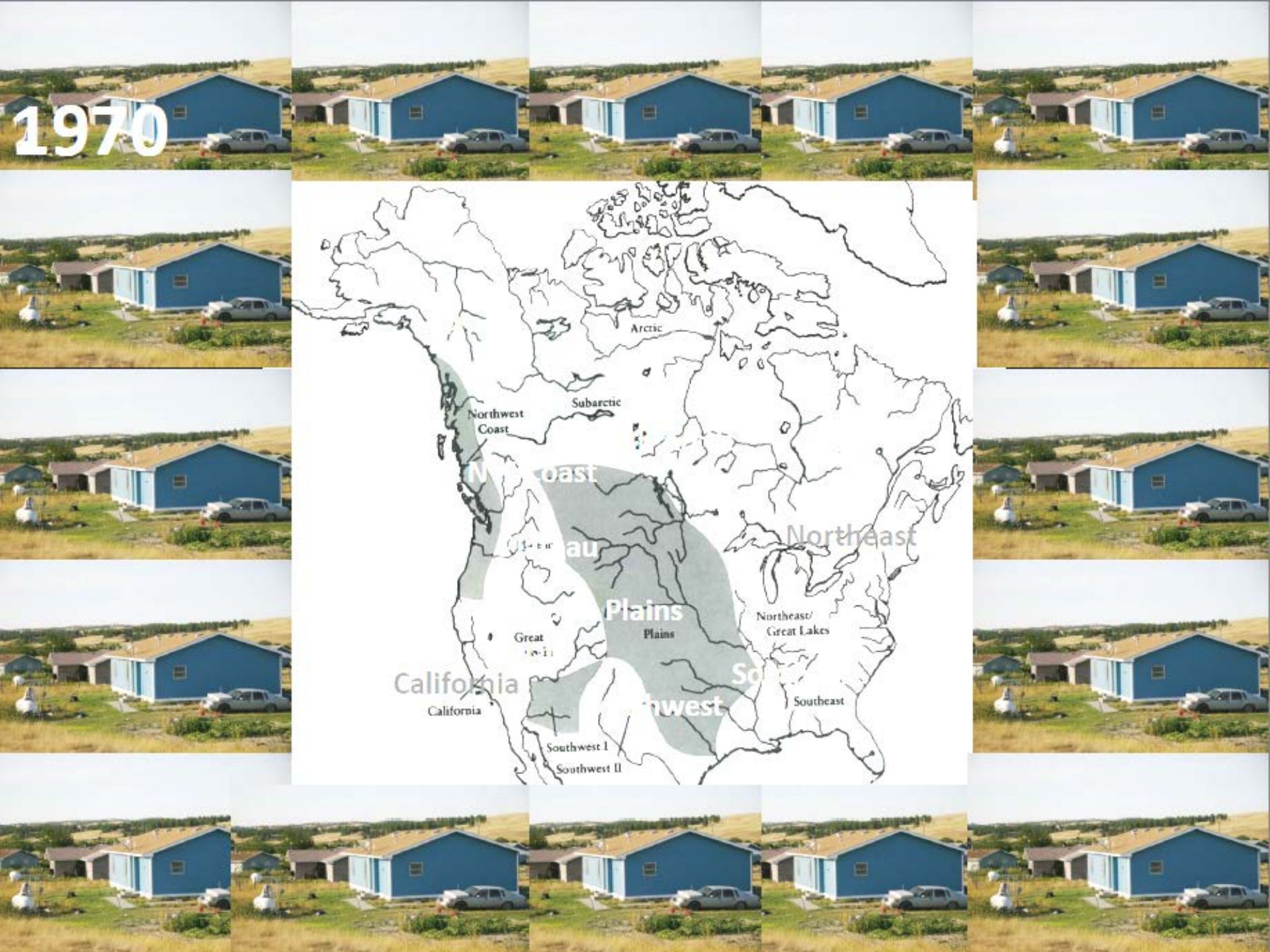
# Native Cultures are Seasoned Cultures

"Seasoned" means "rendered competent through trial and experience"



*Over 40,000 Years of Natural Building Experience.*





1970





# REZ INTENSIVE CARE UNIT



© 2008 IntertribalCOUP.org

## Our Housing Stock is on Life Support

Inspired by Randy Udall, CORE; Realization by Bob Gough

# **Risk - Through the Microscope of Codes...**



# Risk - The Bigger Picture...

## Risks to Future Generations

Climate Impact

Resource Depletion

Embodied Energy

Dependence on Non-Renewable Energy

Pollution

Loss of Habitat

Toxicity of Materials

Loss of Biodiversity

Nutrification of Water

Loss of Agricultural Land

Heat Island Effect

Increased Transportation

Externalized Costs to Society

Fire Safety  
Structural Integrity  
Means of Egress  
Light  
Ventilation  
Heat  
Water & Wastewater  
Electrical & Gas  
Energy Efficiency

# Tribal Energy Development from the 19th 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

After the buffalo, the history of Indian housing has been one of sequential disaster relief, from tar paper shacks, to inefficient HUD homes and now to FEMA trailers. Tribes need affordable, healthy homes for very young and growing populations.



# Sustainable Affordable, Future-Proofed, Energy Efficient = SAFE Homes

*Capital Cost + Operating Cost = Affordability*  
*Mass + Insulation = Comfort*

## 1. Energy

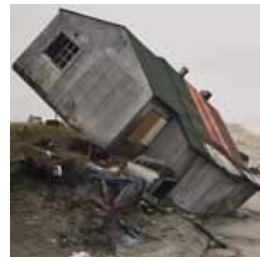
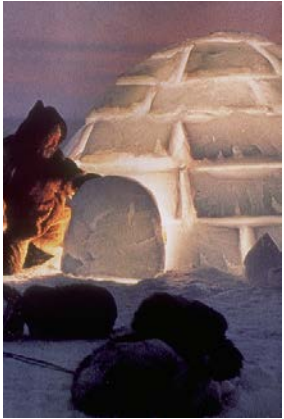
- Reduce load and heating and cooling cost
- Stretch energy assistance funding
- Reduce imports of high cost materials

## 2. Employment & Economic Development

- Create training & job opportunities
- Create value added businesses

## 3. Health

- Reduce in overcrowding
- Reduce IEQ related medical expenses
- Reduce absenteeism from work and school



## HOUSING AND ENERGY

The numbers are sobering. It is estimated that the construction, maintenance, and operation of buildings in the United States consumes close to 40 percent of the country's raw materials and energy and is responsible for about 33 percent of our CO2 emissions, 25 percent of our wood use, and 16 percent of our water use. In 1990, 70% of the 2.5 million metric tons of non-fuel materials that moved through the economy were used in construction. **Further, by one estimate we will attempt to build more buildings in the next 50 years than humans did in the past 5,000.**

~ David Orr

A well-insulated, passive solar building, being "smart" with out any more technical gadgetry than necessary, built with local labor from local natural materials, can be the most intelligent choice we can make for affordable passive sustainability!

~ Bob Gough

# 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**



# Home on the Range

(or in the Solar Oven)

## on Great Plains

Seasonal Temperature Swing of 150 Degrees

Summer Highs

120° F

Human 80° F

Comfort 60° F

Range

Winter Lows -30°





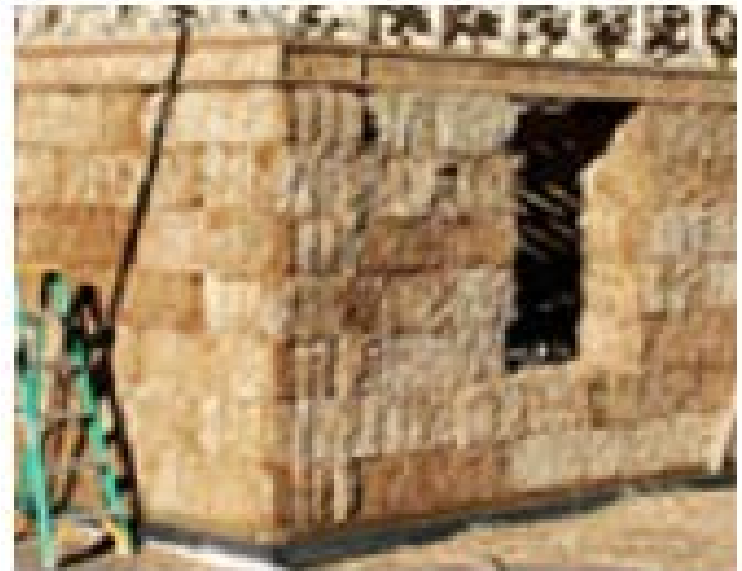
# PASSIVE SURVIVABILITY

## Mass



+

## Insulation



# Cultural Traditions of Owner-Constructed Housing of Natural Materials



## Traditional Lakota Buffalo Hide Tipi

15 to 20 new buffalo hides  
required every two years



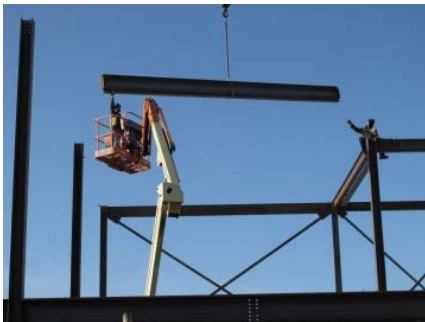
## Conventional Post and Beam Straw Bale House

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

# Role of Government In Housing Is Disparate

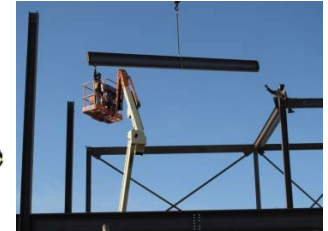


For most city or county governments, the housing sector is only a small part of a government's responsibility



# Role of Tribal Government In Tribal Housing Align More Closely Than for Other Governments

For tribal housing, tribal governments play a very big role in the planning, design, construction employment around public housing, because it is a large part of a government's responsibility



# AMERIND Risk Management Corporation

2011 Risk Pool Claims (as of 2/10/2012)

10 potentially climate related Perils

Peril	Count of Claims
Wind	121
Fire	110
Water	76
Hail	37
Falling Object	13
Flood	8
Weight of Snow	7
Lightning	5
Earthquake	3
Foundation	2
Grand Total	462

# WIND DAMAGE

## TORNADO MAP



Source: <http://www.tornadochaser.net/tornadoalley.jpg>

# WIND DAMAGE

**Turtle Mountain Reservation hit hard by 6 tornadoes  
WEDNESDAY, JULY 9, 2008**



At least 19 homes were seriously damaged, living families homeless.



Tornado Damage to Roof of Straw Bale Learning Center  
Turtle Mountain Tribal College, North Dakota

# FIRE RESISTENT

Straw Bale Walls Pass 1 and 2 Hour Fire Rating Tests





# WATER DAMAGE



**The primary reason for water damage claims:  
Not exterior flooding, but interior frozen water pipes.**

**The primary reasons for frozen pipes:  
POOR INSULATION  
INABILITY TO PAY UTILITY BILLS**

**Straw Bale Construction Addresses both through  
DESIGN, INSULATION and OPERATIONAL AFFORDABILITY**

# WATER DESIGN



Because of Greater Concern about Water in Straw Bale Plumbing is Designed and Constructed to Isolate Pipes from the Bales



# AMERIND Risk Management Corporation

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10 potentially climate related Perils

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Earthquake	3
Foundation	2
Grand Total	462

# AMERIND Risk Management Corporation

2011 Risk Pool Claims (as of 2/10/2012)

Of the 9 Potentially Weather Related Perils, the Top 3 alone = 80% of the Claims

Insured Peril Claims	Number of Claims:
Wind	121
Fire	110
Water	76
Hail	37
Flood	8
Weight of Snow	7
Lightning	5
Earthquake	3
Foundation	2
Grand Total	462

Over 66% of Insured Perils Directly Addressed by Straw Bale Construction Technology

### NDPTC TRAINING BY FEMA REGION



REGION	TRAINED	CODE
1	189	Yellow
2	2305	Green
3	334	Light Blue
4	907	Pink
5	419	Grey
6	232	Yellow-Green
7	126	Blue
7	207	Orange
9	2137	Dark Blue
10	804	Light Green

**7660**  
TRAINED

**Total Number of People Trained by FEMA Region**

» Login

**Consortium**



**Social Media**

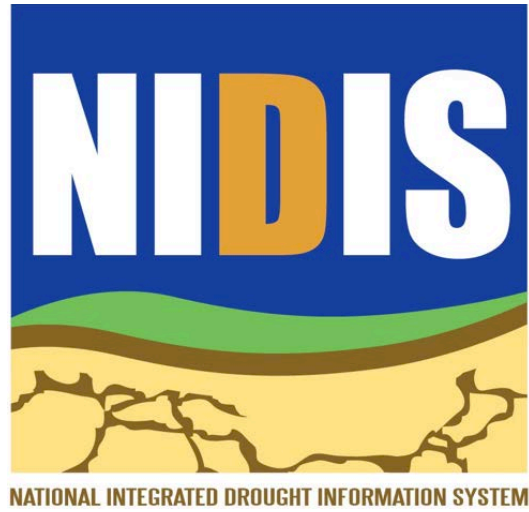
Find us on Facebook

Follow Us On **Twitter** @disasterCTR

**YouTube**



Proposal to UCAR for the Development and Delivery Of a Tribal Engagement Training Program On Climate and Weather Related Issues in the Upper Great Plains



# INTERTRIBAL COUNCIL ON UTILITY POLICY

>>>> P.O. Box 25, Rosebud, SD 57570 Phone: 605-441-8316 <<<<

President Patrick Spears ~ In Memoriam

Secretary Robert Gough < [Gough.Bob@gmail.com](mailto:Gough.Bob@gmail.com) > ~ Treasurer William Schumacher < [BillSchumacher1@yahoo.com](mailto:BillSchumacher1@yahoo.com) >  
[www.IntertribalCOUP.org](http://www.IntertribalCOUP.org)

## Tribal Leaders, Planners, Resource Managers, Tribal College Faculty and Students



**Council On Utility Policy**  
Tribes Building Sustainable Resilient Economies

U.S. Drought Monitor August 28, 2012



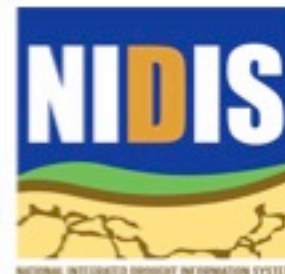
Drought Monitoring



Extended Drought



**Standing Rock Reservation  
Hosts the North Dakota  
Intertribal COUP – NOAA / NIDIS  
Tribal Engagement Workshop  
On Climate and Weather Issues  
and Emergency Preparedness  
in the Missouri River Basin  
OCT 10-12, 2012**

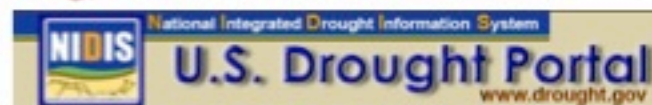


Weather Monitoring



Flooding

For more information: [www.IntertribalCOUP.org/NOAA-NIDIS](http://www.IntertribalCOUP.org/NOAA-NIDIS)





# FEMA

Training provides first responders, homeland security officials, emergency management officials, private and non-governmental partners, and other personnel with the knowledge, skills, and abilities needed to perform key tasks required by specific capabilities.

Organizations should make training decisions based on information derived from the assessments, strategies, and plans developed in previous steps of the Preparedness Cycle.

Regions, States and urban areas conduct Training and Exercise Planning Workshops (T&EPW) to review and establish priorities for training and exercises and develop Multi-Year Training and Exercise Plans to address the priorities.





# Coastal Community Resilience

## *Building Resilience from the Inside Out*

Module 3: Understanding Risks from Natural Hazards

*Version 1.0*



FEMA

# CLINTON GLOBAL INITIATIVE - AMERICA

The **Clinton Global Initiative-America** has taken a deep interest in working with Indigenous Communities on a variety of issues including:

- The Modern Grid
- Renewable Energy
- Sustainable Building
- Workforce Development



# Intertribal Wind Development Commitment at Clinton Global Initiative-America 2013

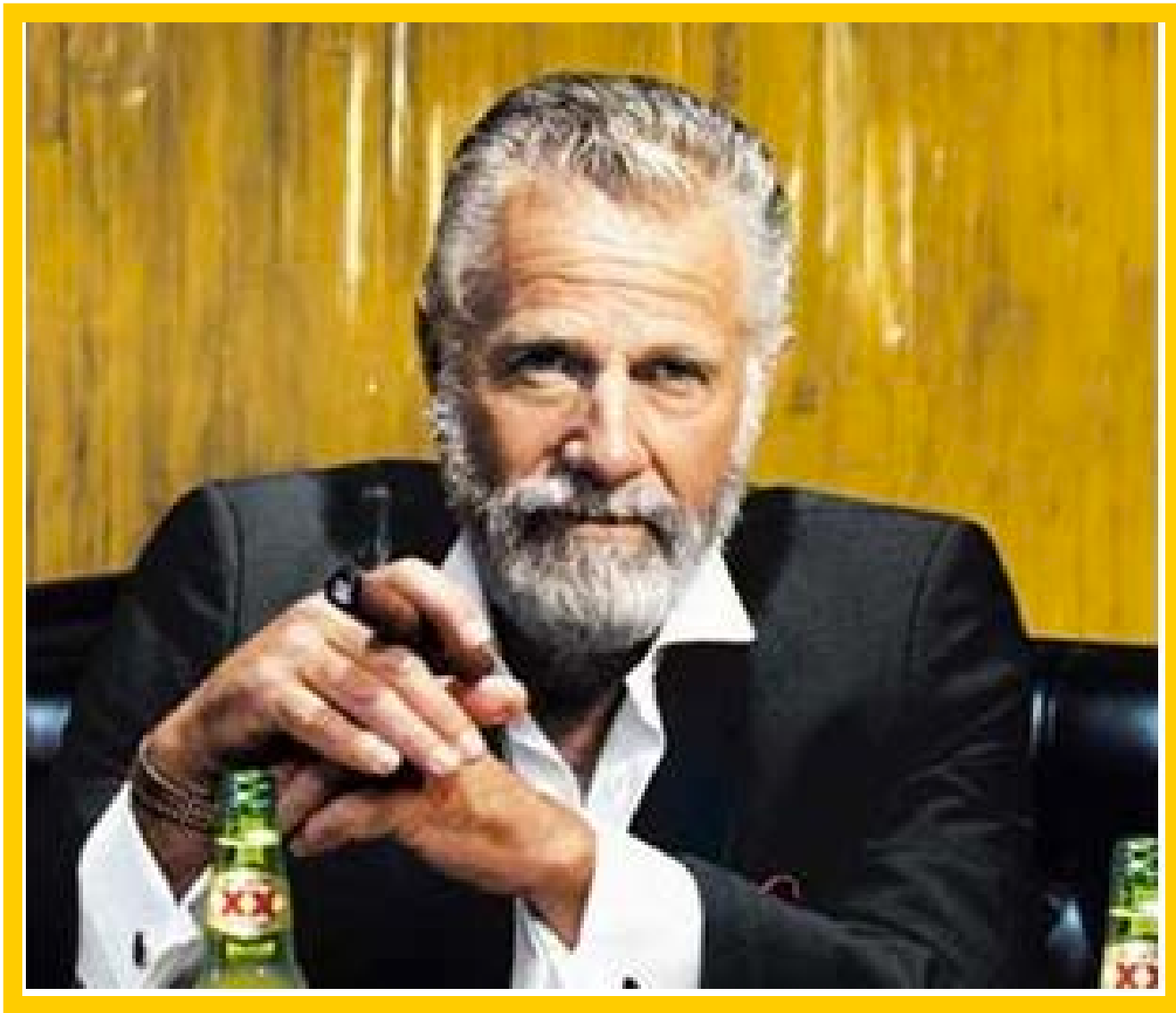




*Sitting Bull*

So ...

*"Let us put our  
minds together and  
see what life we  
will make for our  
children."*



Stay Hydrated, my friends!