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UN-ENCUMBERED WEALTH:
LIBERATING MONEY TO STIMULATE
THE ECONOMY AND CREATE JOBS



Sustainability & Economic Prosperity

SC views sustainability as a pathway to enhanced economic prosperity while simultaneously safeguarding our environment and promoting the health and well-being of all Arkansans.

We are taking a page from Walmart's playbook.





It's simple:

Energy costs money.

When you save energy, you save money.



Encumbered Wealth

There is a significant amount of money in our economy that is encumbered for utility costs.

Business and Industry

City, County, and State Government

Schools, Churches, Non-profits

Homes

How much money?

Total Energy \$\$ Spent in 2008:

S \$363,649,643,000
(1/3 of a Trillion dollars)

Arkansas \$ 3,506,799,000

Source: Energy Information Administration, 2008.



How much money?

Commercial & Industrial Energy \$ Spent 2008:

S \$208,216,609,000

Arkansas \$ 1,893,991,000

Source: Energy Information Administration, 2008.

How much money?

Residential Energy \$\$ Spent in 2008:

S	\$155,427,208,934
Arkansas	\$ 1,612,820,386
ayetteville	\$ 26,782,507

Source: Energy Information Administration, 2008.

Hypothesis:

Reduction in energy consumption through conservation and energy efficiency measures would **free up** or **generate** money in the economy that could be used for other purposes and would have a **positive impact** on local and state economies through:

- saving jobs,
- increasing disposable income,
- increasing sales tax collections,
- reducing foreclosures,
- preventing loss of equity in residential real estate markets,
- creating new jobs



Saving Jobs

Reduce operating costs for businesses, schools, churches, and government offices.

Savings can be significant.

Example: U of A is saving 30% on its annual \$10 million budget for utilities.

How many jobs does a \$3 million reduction in energy costs save?

Reducing Foreclosures & Preserving Real Estate Equity

Reduce costs of homeownership, making home ownership (and operation) more affordable.

Example: Sonoma, California's energy improvement district (EID) allowed homeowners to make energy efficiency improvements in their homes, reducing their utility bills.

Result: Sonoma had a ***lower incidence of some foreclosures*** during the mortgage crisis, ***preserving the equity of ALL homeowners.***

Increase Disposable Income

Reduced utility expenses equals an ***increase in disposable income.***

Lower energy costs cause other forms of consumer spending (such as dining out or discretionary purchasing) to increase.”

Increase Disposable Income

Example: N. Charleston, SC – energy efficiency for low income families has resulted in an **average annual savings of \$1,500** on utility bills.

These families have pent up demand and spent their \$1,500 at local stores and businesses, helping **boost the local economy.**

Every \$1 saved on utilities has > \$1 impact on the local economy due to the multiplier effect.

Sales Tax Collections

When people reduce their utility bills, their **disposable income increases**.

When people spend their added disposable income in their local economy, they help local businesses **increase sales** and stay healthy. Avoid layoffs.

When businesses increase sales, the city and county collect **additional sales tax**.





What is the size of the opportunity?

US Department of Energy estimates that energy efficiency could meet up to 50% of the future energy needs of this country.

US has potential to reduce energy use by 23% by 2020. (Granade, HC, Creyts, J, Derkach, A, Farese, Nyquist, S, & Ostrowski, K, 2009, "Unlocking Energy Efficiency in the US Economy.")

What that tells me is that we are currently wasting a lot of energy. The opportunity is significant!

Arkansas & EE

41st – Arkansas' ranking in ACEEE 2010 scorecard for energy efficiency

11th – highest energy consumption per real dollar of GDP (US EIA and Neubauer et al, 2010).

indicates significant energy use and potential for improvement in overall energy efficiency.

ACEEE 2010 State Scorecard Ranking
<http://www.aceee.org/sector/statepolicy/arkansas>
<http://www.eia.doe.gov/emeu/states/seds.html>



Residential Energy Consumption

US average = 920 kWh/mo

AR average = 1107 kWh/mo

AR is 20% higher than the national avg.

Room for improvement!

Energy Efficiency = First Fuel

Alternative Energy Commission

Energy Efficiency is the “first fuel”

As such it is a resource that can be
“mined” just like any other

Mining this resource creates jobs

Mining this resource saves money

Mining EE insulates our economy &
hedges against energy price increases

Arkansas

Arkansas electricity expenses 2008:

\$3.5 billion Total; \$1.6 billion Residential

10% reduction = \$350 million; \$160 million

20% reduction = \$700 million; \$320 million

30% reduction = \$1.05 billion; \$480 million

Fayetteville

Residential energy expenses 2009: \$26,782,507

0% = \$2,678,250

0% = \$5,356,501

0% = \$8,034,752

S Average = 920 kWh per month

R Average = 1107 kWh per month - 20% > nat'l avg.

Fayetteville Average - 1100 kWh per month



Analogy:

Our economy is leaking . . .

We are leaking energy . . .

We are leaking money . . .

Energy in-efficiency and rising energy prices combine to erode budgets . . .

Businesses, homes, schools, city government.



Is 20% - 30% Reduction Possible?

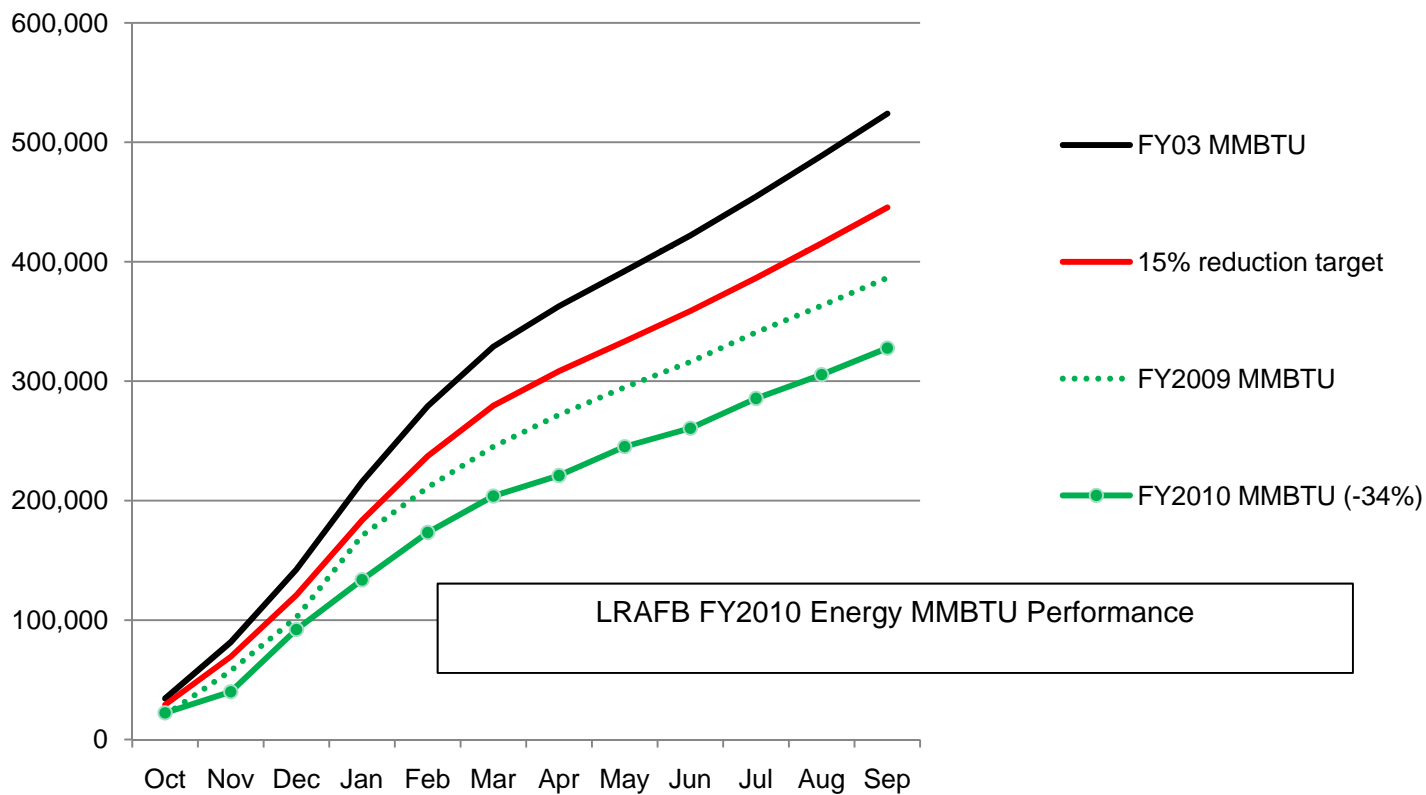
Example #1: Jacksonville AFB

Example #2: Halsell Household

Example #3: Joyce Household

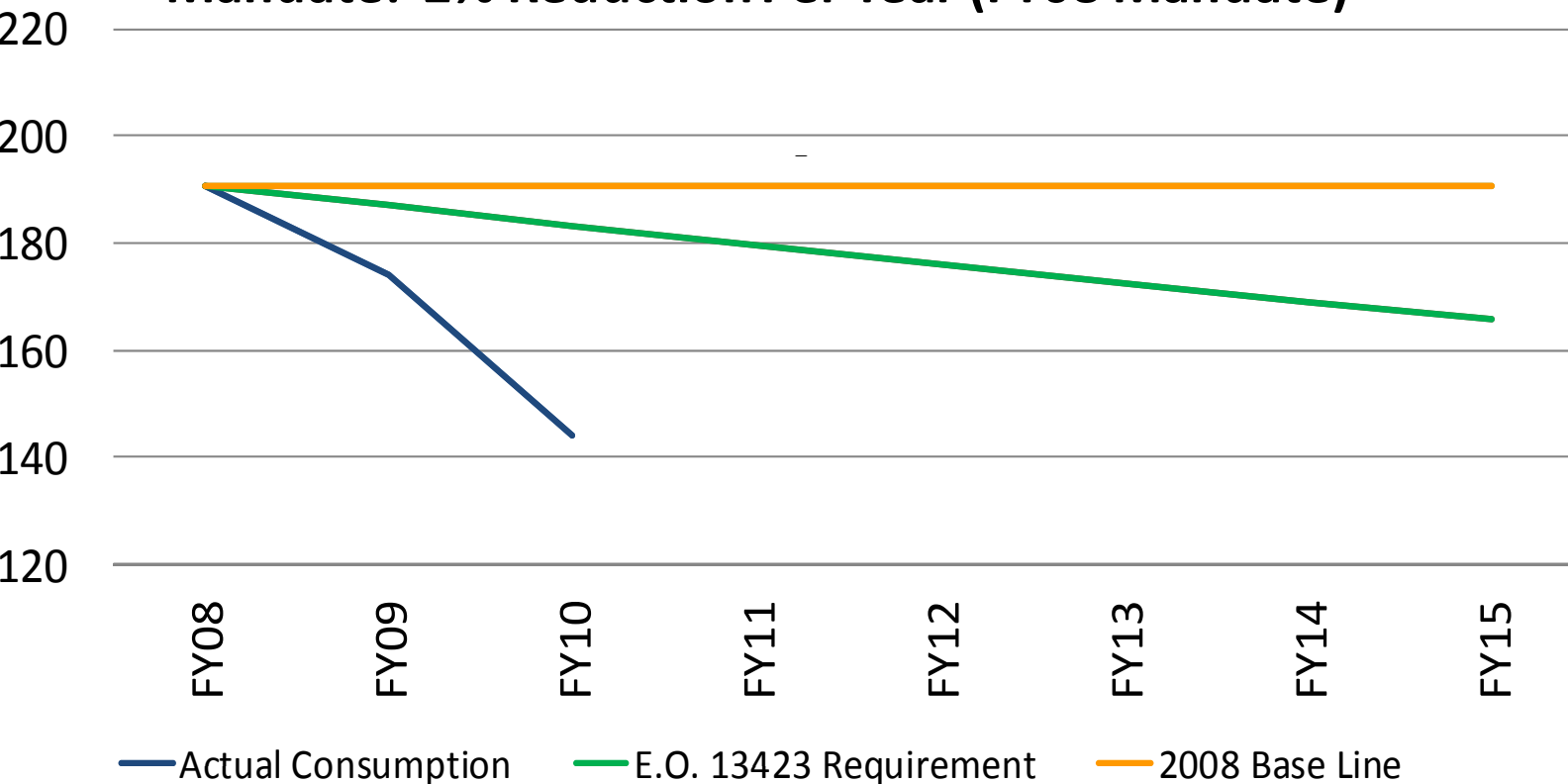
Example #4: Clinton School

Little Rock Air Force Base Energy Performance in MMBTU's



Little Rock Air Force Base Energy Performance in MMBTU's

Mandate: 2% Reduction Per Year (FY08 Mandate)



DOD: Serious about Energy Efficiency

<http://www.defense.gov/news/newsarticle.aspx?id=63548>

Fort Hunter Liggett = DOD's 1st Net-zero energy installation (it produces more energy than it uses)

Army Energy Security Implementation Strategy

Reduce energy consumption

Increase energy efficiency

Increase renewables

Reduce adverse environmental impacts

Is 30% Possible?

Example #2: Halsell Household

Built: 1951

Size: 2150 SF

kWh 1998: 1100 kWh/month

kWh 2011: 688 kWh/month

Reduction: 37.45%

Annual Savings: >\$480/year on electricity.

NOT DONE YET!!!! Goal = 650 kWh or less!



30% is possible over time . . .

Attic insulation (1999)

Wall insulation (1999)

Double pane windows (1999)

High SEER AC (2007)

Energy Star Appliances (2010)

Ducts Sealed (2010)

CFL's (2008-2011)

Programmable Thermostats (2009)

Low Flow shower head (2010)

Joyce HH

Built in 1957; 1950 SF

Pre retrofit = 1,743 kWh/mo

Post retrofit = 1,245 kWh/mo (29% reduction)

Since June 2011 saved \$581 on electricity and \$310 on natural gas in 8 months.

Saving approx. \$100 per month.

If the retrofits had been made in 2005 when they purchased the home, they would have saved over \$5,400.

Clinton School

Shoctaw Station, built in 1899 (113 yrs)

2010-11 versus 2009-10:

Saved 496,752 kWh (51.9%)

Saved \$29,246 (45.5%)

Occupancy sensors for lighting and HVAC

Spent \$270,000 on upgrades

Pay out = 9 years



DOE Better Buildings Challenge

Minimum 20% reduction in energy consumption

Participants are achieving 20%, 30% and higher energy savings.

What if . . .

Jacksonville as a community had achieved a 20-30% reduction over the past 5 years?

Fayetteville as a community had achieved a 20-30% reduction?

What if we were as serious about energy efficiency as the Department of Defense?

It may take 10 years or longer to achieve the full potential for EE, so what are we waiting for? For energy to get more expensive?

Create New Green Jobs

To achieve a 10%, 20%, or 30% reduction usually requires some sort of investment. Someone has to do this work!

Duct sealing

Air infiltration sealing

Insulation – attic, walls, floor

High SEER AC

High AFUE Furnace

Windows



Energy Efficiency = Jobs!

Jobs that cannot be outsourced to
Pakistan or China

Jobs that pay good wages to people in
your community

Wages that will also be spent in your
community



Jobs for whom?

Graduates of our Centers of Excellence

NWACC

Pulaski Tech



Energy Efficiency: Engine of Economic Growth

16.8 billion invested in energy efficiency in
states in the north east would result in:

\$162 billion increase in economic activity
over 15 years

\$99 billion increase in Gross State Product

\$73 billion returned to workers through
increased real household income

51,000 new jobs over 15 years



Encouraging the Green Economy

National

State

Local



State Level

Arkansas PSC – Energy Efficiency
Standard

Utility Incentives

PACE

Arkansas Energy Efficiency Standard

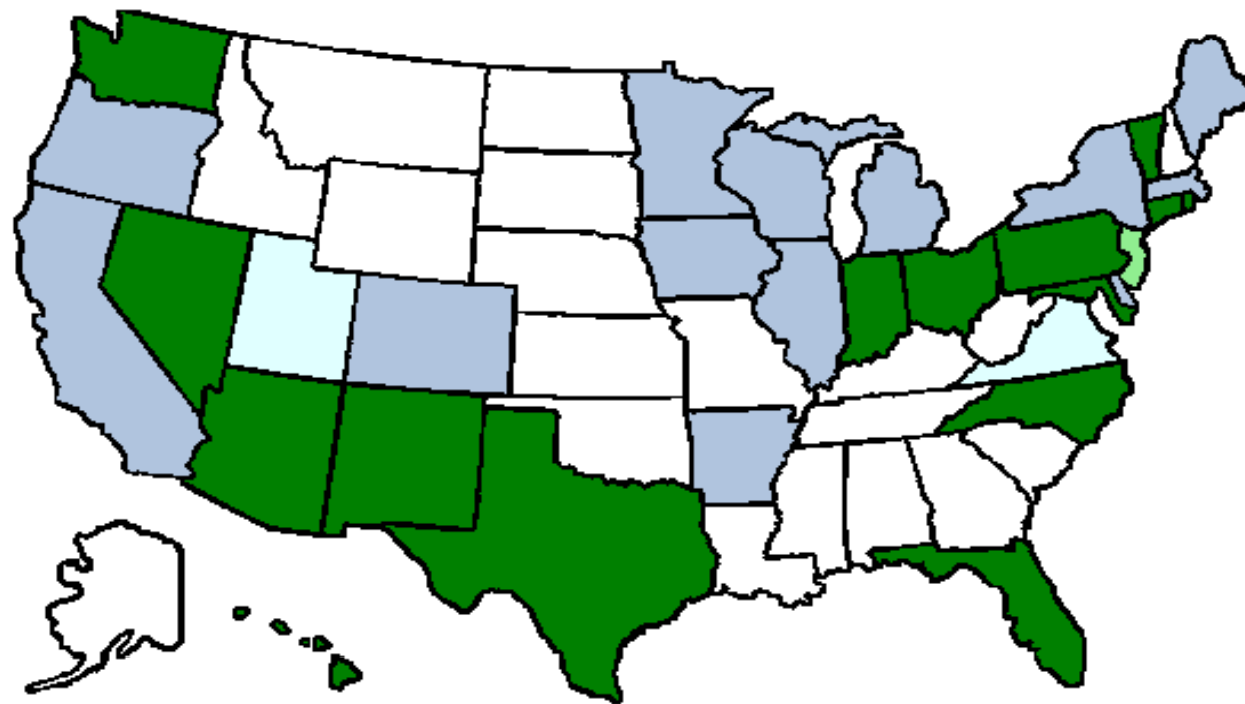
Arkansas Public Service Commission established an Energy Efficiency Standard for Arkansas on 12/10/2010.

Arkansas became the 27th state in the nation, the only southern state, to have an EES.

IOU's must reduce kWh sold by a total of 1.5%:

- .25% in 2011
- .50% in 2012
- .75% in 2013

Energy Efficiency Standards by State



- Completed Electricity Targets
- Completed Electricity & Gas Targets
- Pending Energy Efficiency Targets
- Voluntary Efficiency Goal

Pew Center 9-7-11





Energy Efficiency Standards by State

How does Arkansas' EES compare?

Range is 1.5% to 26.1%

Arkansas 1.5% over 3 years

Pennsylvania 2.98% over 3 years

Iowa 6.3% over 5 years

Texas 4.08% over 12 years

Washington 11.74% over 12 years

Massachusetts 26.1% over 12 years



Utility Incentive Programs

Addresses financial barriers to EE retrofits.

Entergy (\$18 million 2011)

AEP Swepco (\$1.6 million 2011)

SourceGas (Arkansas Western Gas)

Centerpoint

Residential, commercial and farm

AC replacement, insulation, duct sealing,
energy audits, etc.

City Codes & Enforcement

City Building Codes

State adopted 2003 IECC building codes

2006, 2009, 2012 IECC standards

Fayetteville is planning to adopt 2009

Austin, TX – requires a home energy audit in order to sell a home (point of sale energy audit requirement).

Cities can mandate EE for city-owned buildings



Summary

20%-30% IS a stretch, but it is possible.

It requires an investment (insulation, ducts, high SEER AC, LED lights).

That investment creates LOCAL jobs.

There are utility incentives to help offset the upfront costs.

The savings result in increased disposable income that benefits the local economy.



What if we don't take action?

Crystal Ball: Future of energy prices . . .
Up?
or Down?

Failure to act leaves Arkansas' economy
vulnerable to future energy price increases.



Applied Sustainability Center's Role:

Collecting Data on top 30 cities in Arkansas on energy consumption and amount of wealth that is currently encumbered.

Estimating economic impact of energy efficiency in terms of increased disposable income and job creation.

Educating Arkansans about the importance of energy efficiency as a way to promote economic resilience across the state.



Index & Scorecards

Index of Leading Sustainability Indicators
for Arkansas Cities

Sustainability Scorecards for Arkansas
Cities

Focusing on identifying and plugging
leakages in local economies

Empower data-driven decision making



Energy, Jobs & the Economy

Workshop for prospective legislators

4 sessions in July

4 locations around the state

EE, RE, Alternative Fuels, Policy

Build bi-partisan support for EE and RE
measures

EE and RE in campaign platforms



Thank You

AT&T

Data Centers are energy intensive

Collected data – energy use varied across data centers

Selected a metric – kWh/Terabyte of data carried

Set a reduction goal

Transferred BMP's from best performing data centers to the rest

Exceeded their initial reduction target and set more aggressive goals.

AT&T

2008 – Baseline: 654 kWh per terabyte of data

2009 Goal = 15% reduction in energy intensity,

2009 Actual = 498 kWh per terabyte of data, a reduction of 23.8%

2010 Goal = 16% reduction versus 2009

Launched Energy Scorecard to benchmark energy performance of 500 largest AT&T facilities

Saving Jobs

Commercial and Industrial Energy Spending in Arkansas in 2008 was \$1,893,991,000.

10% reduction would have saved \$189 million.

Money that could be spent on marketing and promotion to **grow sales**, R&D to innovate and maintain or **grow market share**, capital improvements to **remain competitive, avoid layoffs**, etc.



Energy Improvement Districts

Anne Arbor, MI

SF commercial space renovated



Germany

Growing economy measured by GDP

Measure of economic efficiency

kWh/\$ GDP

Use less energy to produce the same or greater gross domestic product.

US uses twice as much energy for every \$ of GDP



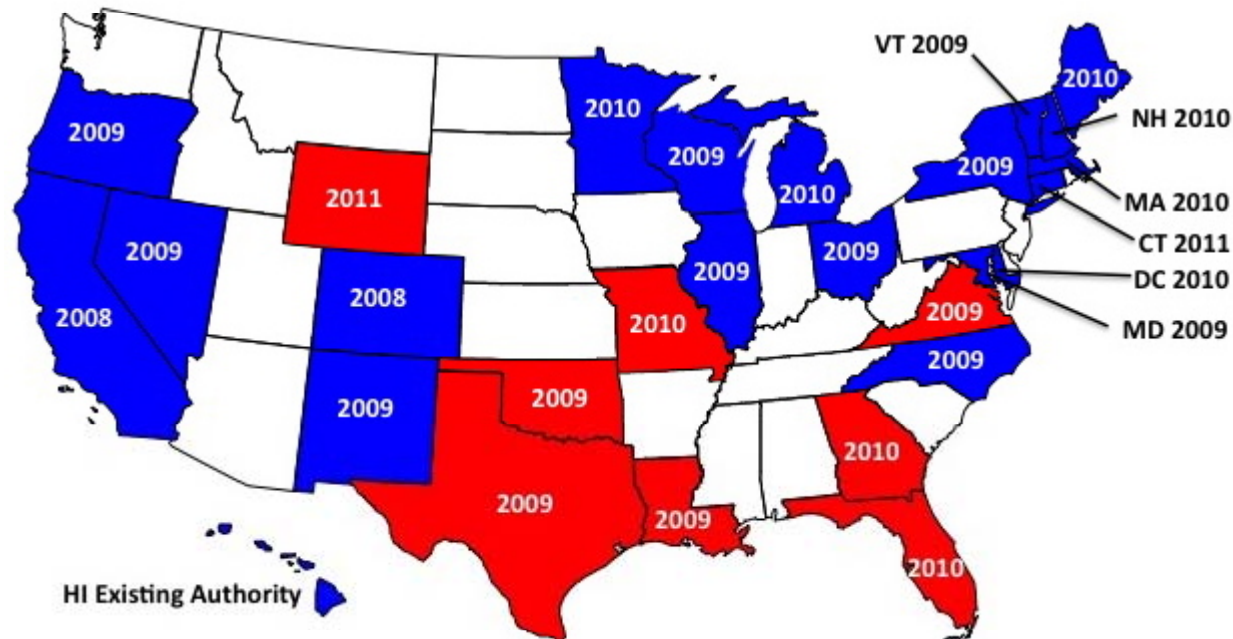
Barriers to EE

Lack of knowledge

Lack of transparency

Funding

PACE Legislation by State



State Majority (REP / DEM) when PACE Legislation was Passed

www.pacenow.org/bl
og/
(9/7/2011)

PACE in Arkansas

SB 516 introduced in February 2011

Passed unanimously by Senate 35-0

Failed in House 54-33 with 12 non-votes
on 3/31/11

On April 1, SB516 was brought up for a
second vote and needed 18 additional
votes in order to pass.

PACE failed by 3 votes.



PACE in Congress

HB 2599 introduced July 20, 2011

Nan Hayworth, Republican, New York

Dan Lungren, Republican, California

Mike Thompson, Democrat, California

Would make it easier for states to pass their own PACE legislation.

National Legislation

S. 398, the Implementation of National Consensus Appliance Agreements (INCAA), which contains consensus energy and water saving standards, was passed earlier this year by the Senate Energy Committee on a strong bi-partisan basis by a vote of 18-4.

S. 1000, the Energy Savings and Industrial Competitiveness Act of 2011, Sponsored by Senators Shaheen and Portman, would encourage efficiency in commercial buildings, the industrial sector and government facilities. Bi-partisan support on the Senate Energy Committee by a vote of 18-3.

The American Council for an Energy Efficient Economy (ACEEE) estimates that these provisions would provide over **\$200 billion in net energy savings** to American households and businesses over the next two decades.

Additionally, analysis by both ACEEE and the Political Economy Research Institute indicate that the same provisions would create more than **85,000 annual jobs by 2020**, and approximately **155,000**



Renewables = More Green Jobs

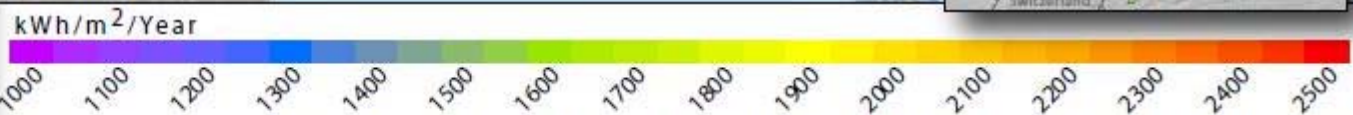
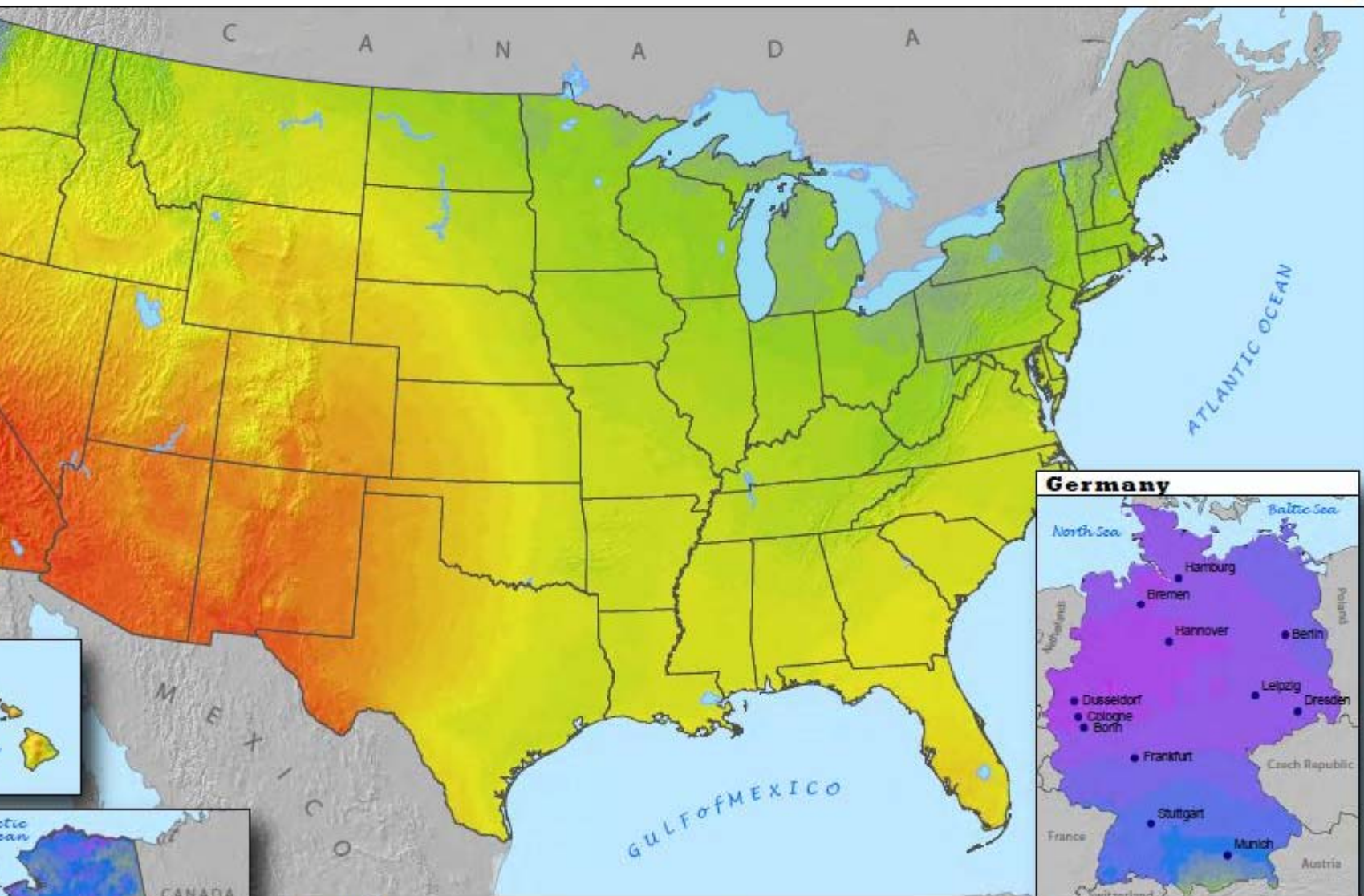
Wind turbines, wind blades

Solar

Biomass, biofuels

Farms could diversify their revenue streams through on-farm energy generation particularly if we had REFIT

Photovoltaic Solar Resource : United States and Germany



Annual average solar resource data are for a solar collector oriented toward the south at a tilt = local latitude. The data for Hawaii and the 48 contiguous

Solar Power Potential Ranked by State (2006)

1	Nevada	1.19	
2	Arizona	1.18	
3	New Mexico	1.16	
4	California	1.00	
5	Colorado	0.99	
6	Texas	0.98	
6	Oklahoma	0.98	
7	Wyoming	0.96	
8	Florida	0.95	
8	Kansas	0.95	
8	Utah	0.95	
9	Idaho	0.93	
10	Mississippi	0.92	
10	Georgia	0.92	
10	South Carolina	0.92	
11	Arkansas	0.91	(#16)
12	Louisiana	0.90	





Renewable Energy Portfolio Standards by State

28 States have a Renewable Energy Portfolio
Standard

Ranging from 8% in Pennsylvania to 33% in
California

States with a RES have a thriving solar
industry

The question: will Arkansas be the last state
to get in the line to have a solar industry?

Arkansas' Energy Portfolio

Arkansas' electricity mix = 50% coal, 31% nuclear, 12% natural gas, 7% renewables, mostly hydro.

What should our electricity mix look like in 10 years? 20 years?

