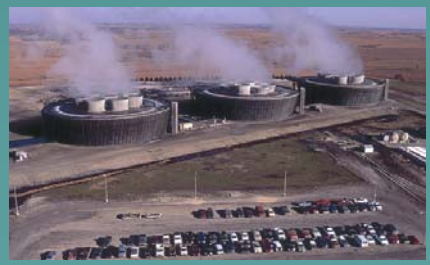



2004 Kansas Energy Plan

State Energy Resources Coordination Council

SERCC Goals

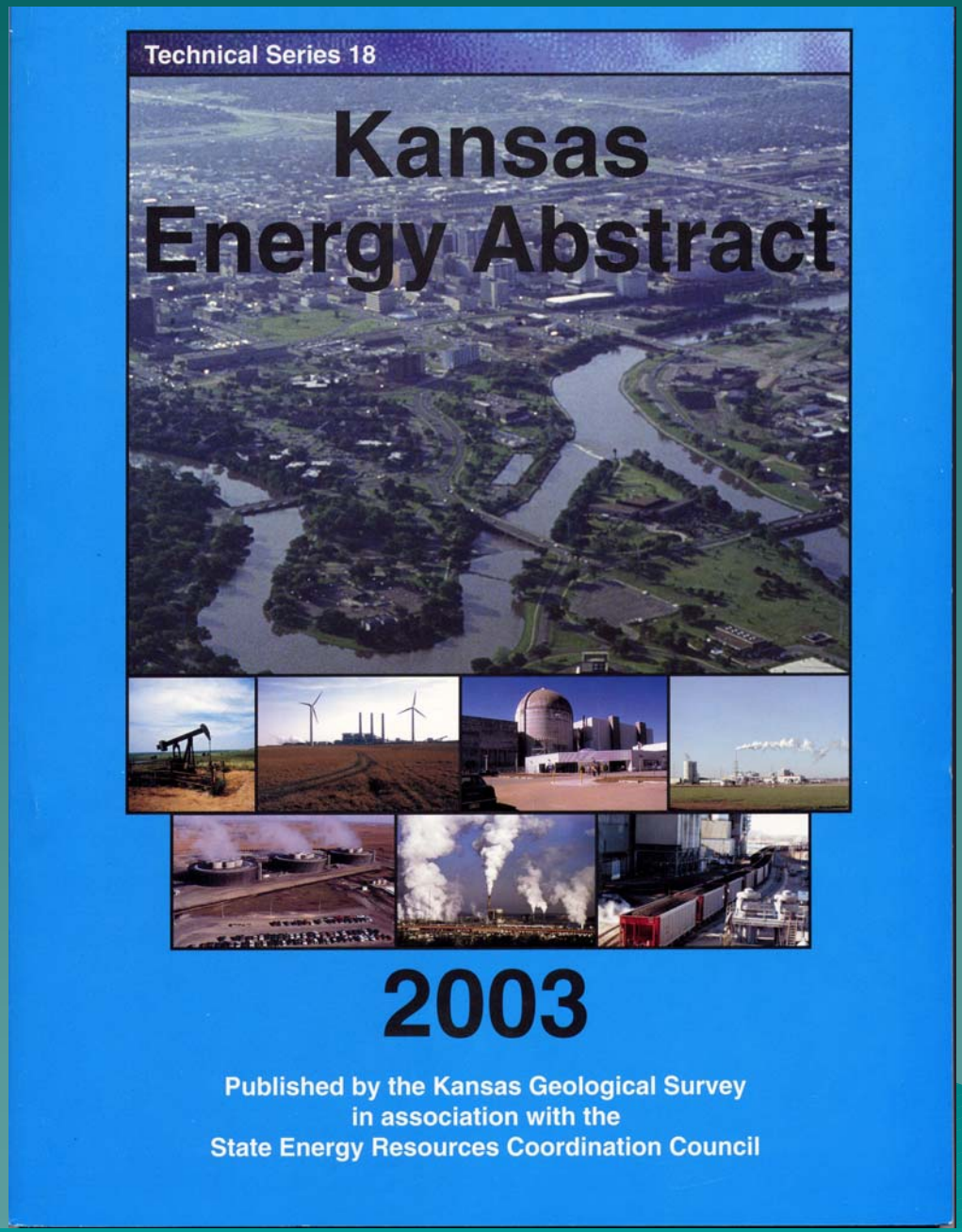
- Energy self-reliance
- Restore Kansas energy exports
- Low-cost, reliable, sustainable energy

SERCC

Self-reliance in energy:

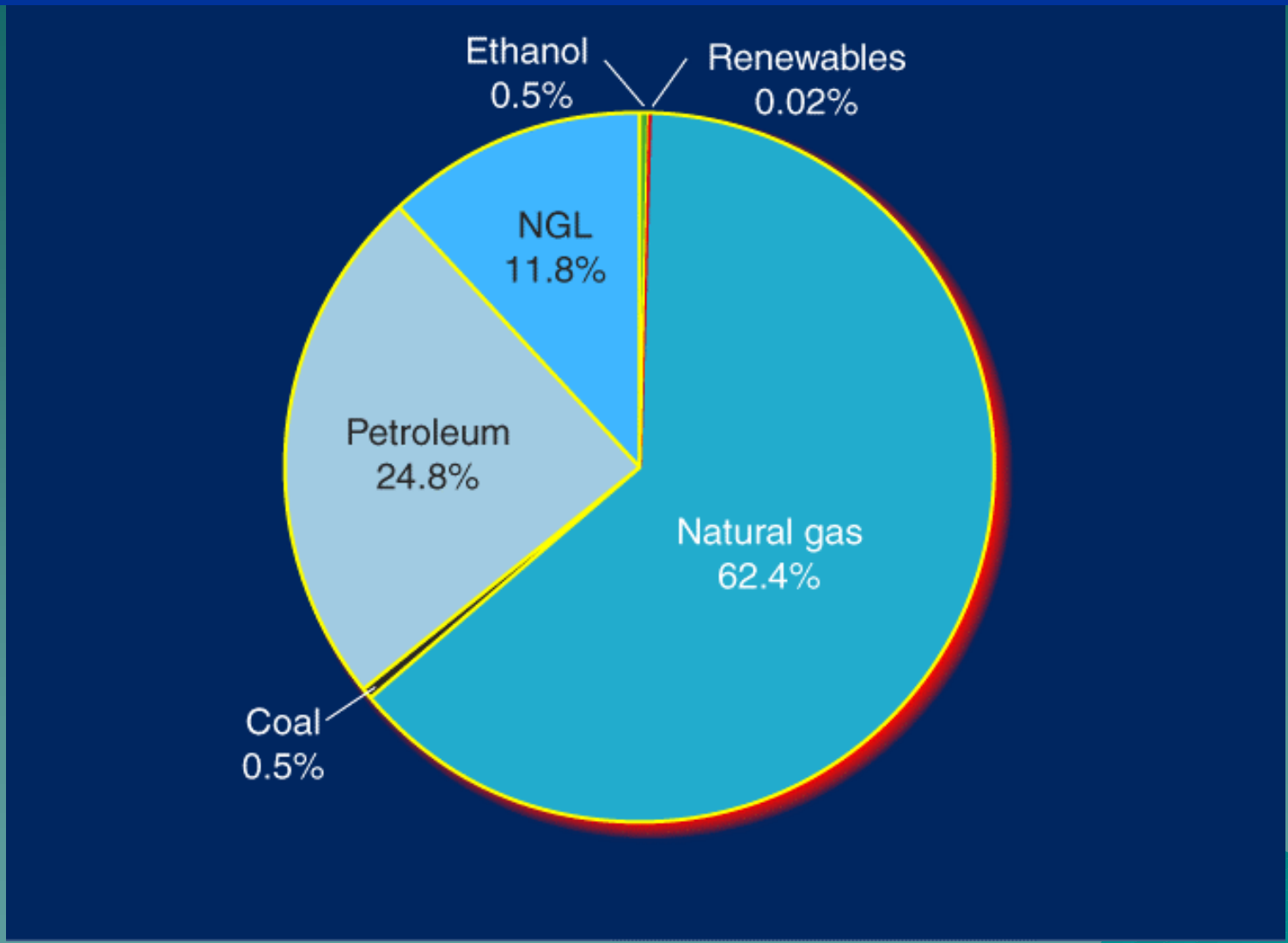
- Extend the life of existing energy sources (oil and gas fields)
- Increased conservation and efficiency
- Develop new energy sources (e.g. wind, ethanol, coalbed methane)

Released
August
2003

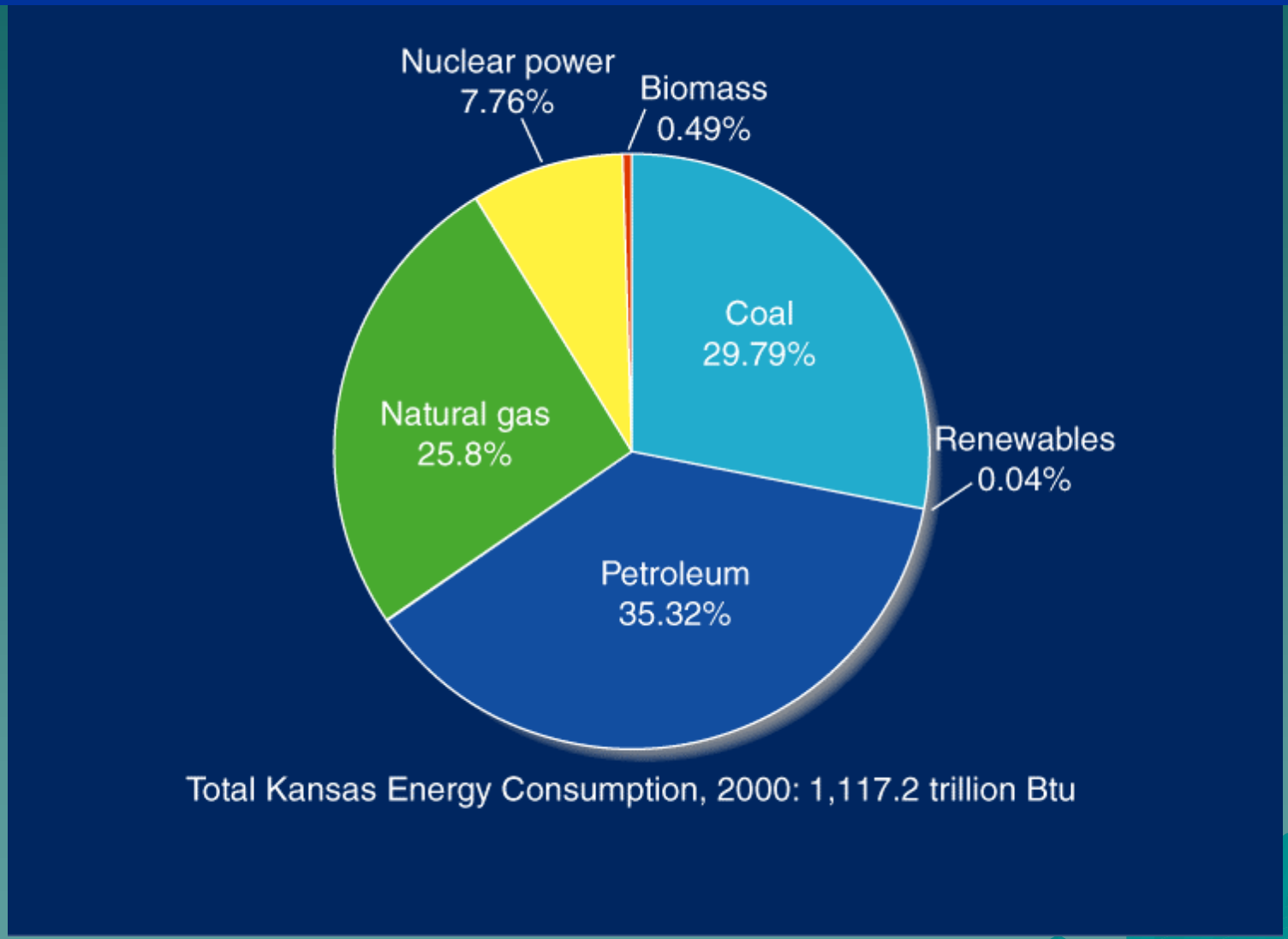


Net Energy Balance in Kansas 1960-2008

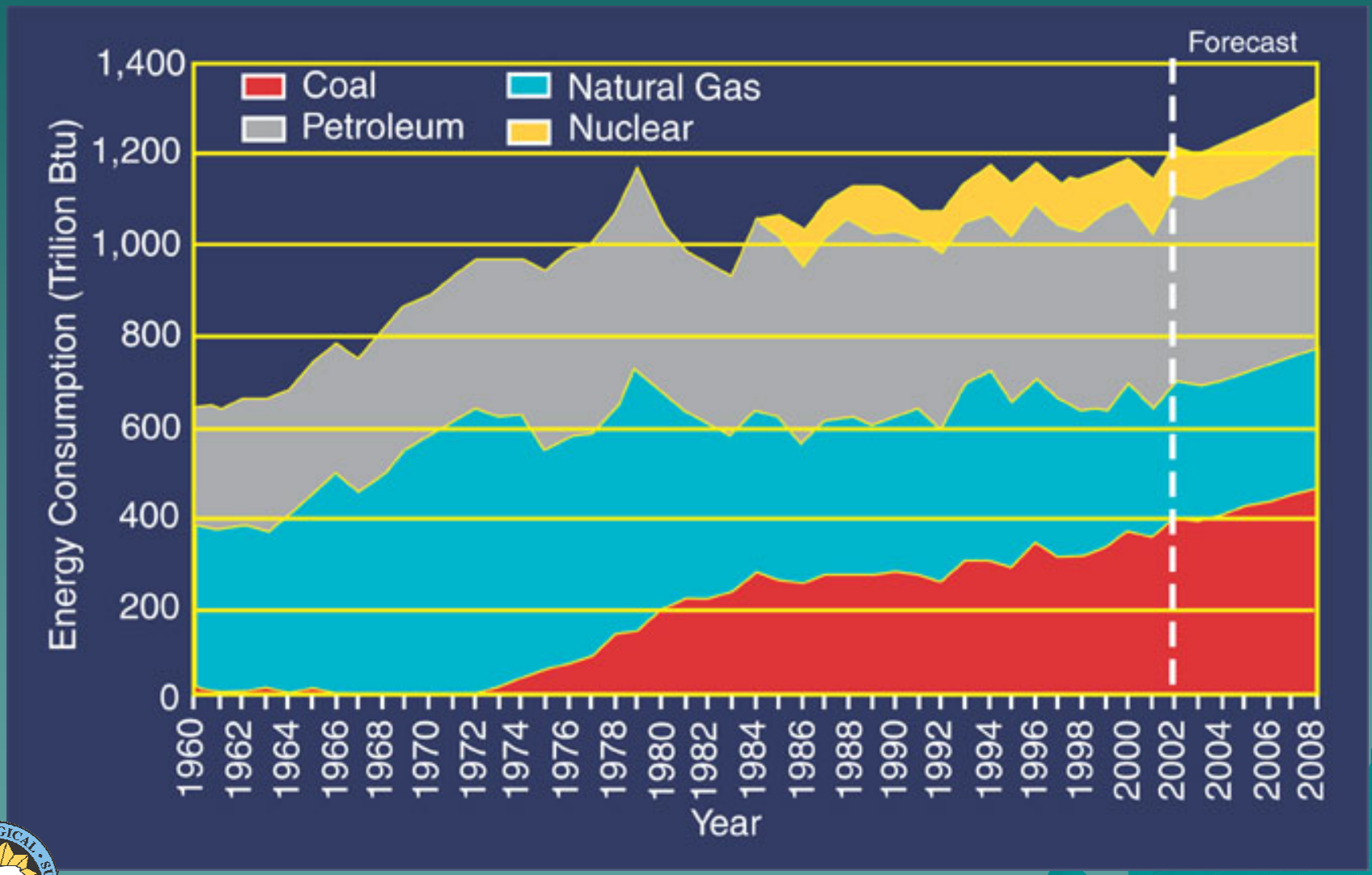
Kansas Primary Energy Production, 2001



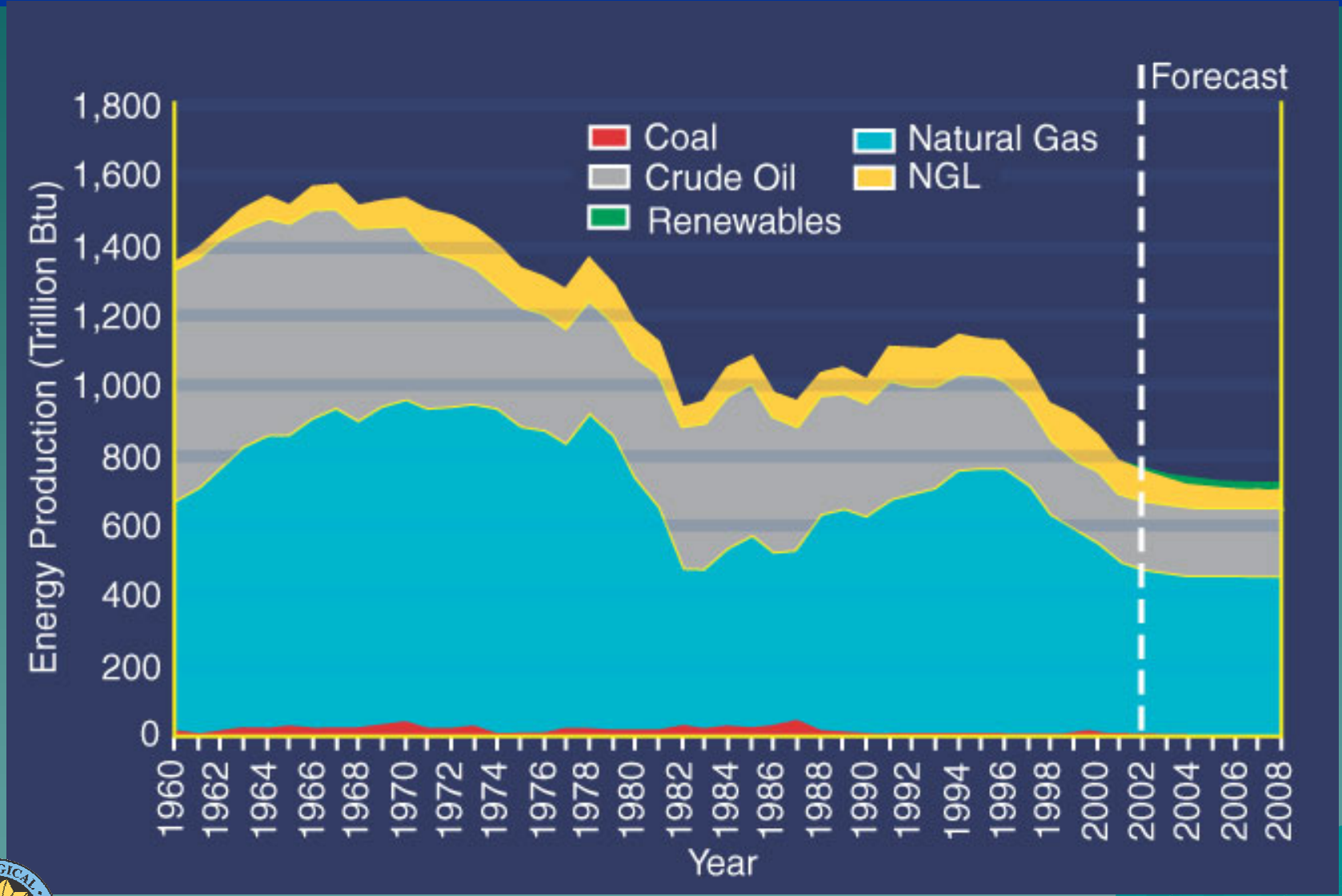
Kansas Primary Energy Consumption by Fuel Source, 2000



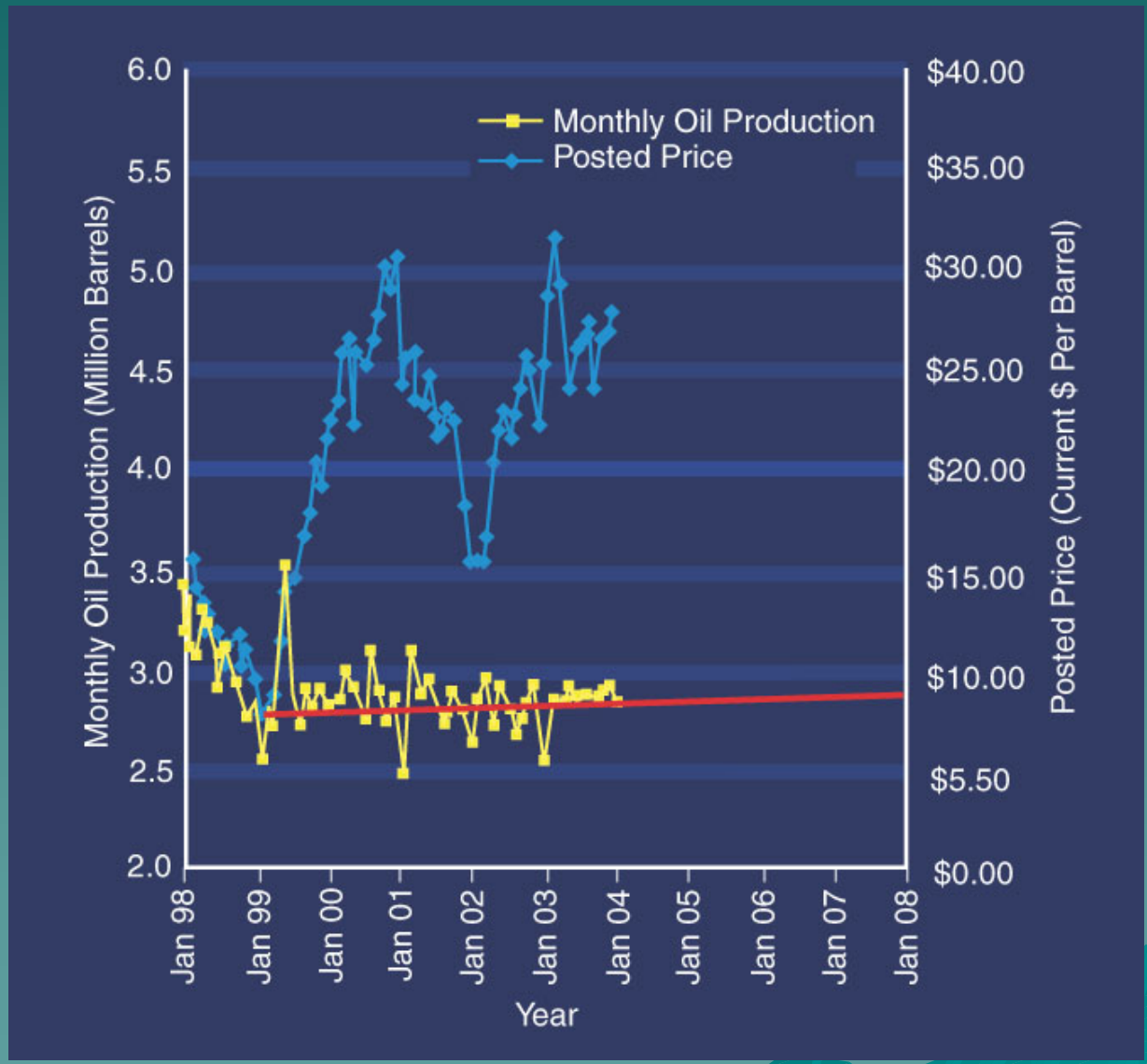
Energy Consumption, 1960–2002 (Projections–2008)



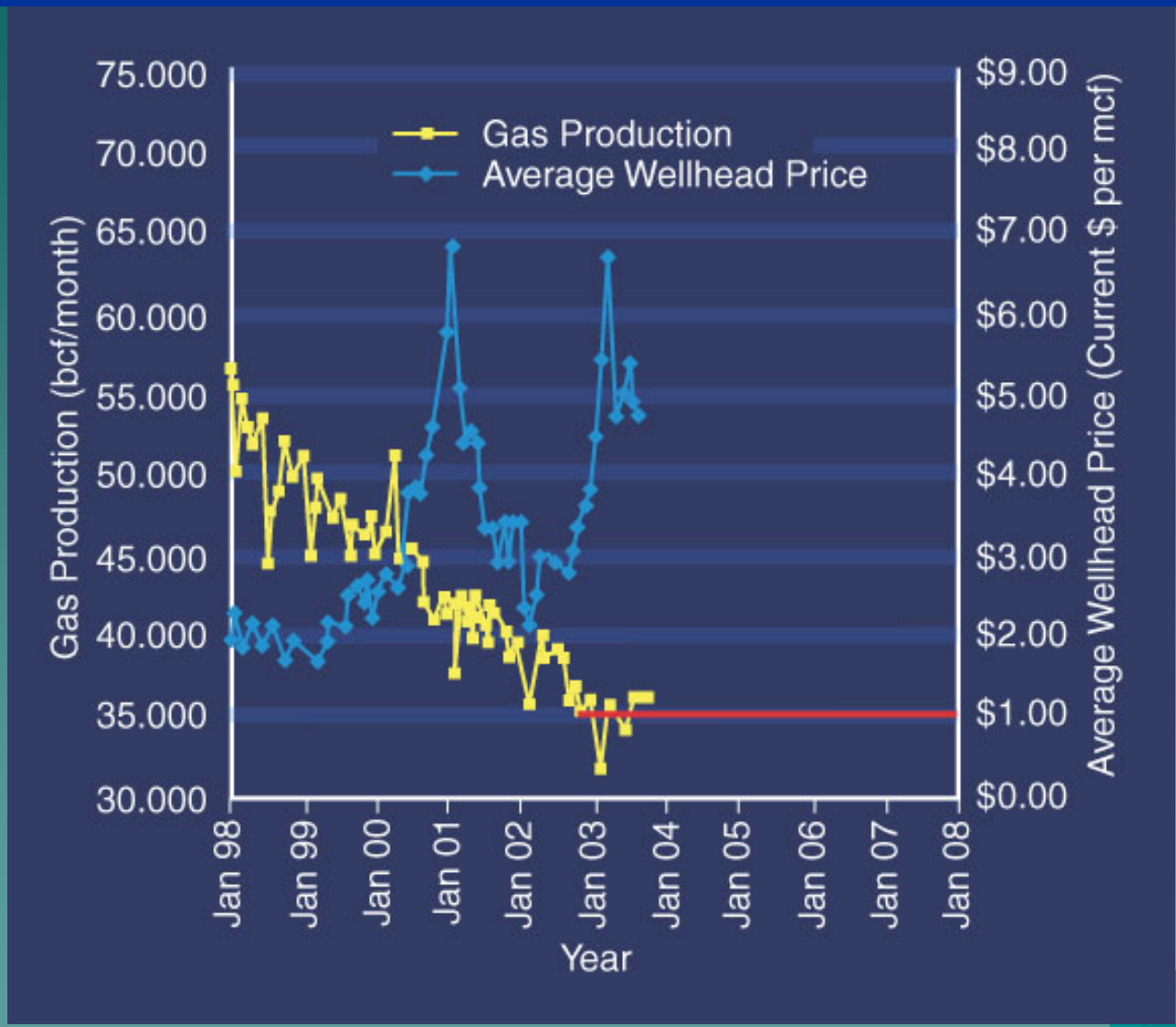
Energy Production, 1960–2002 (Projections– 2008)



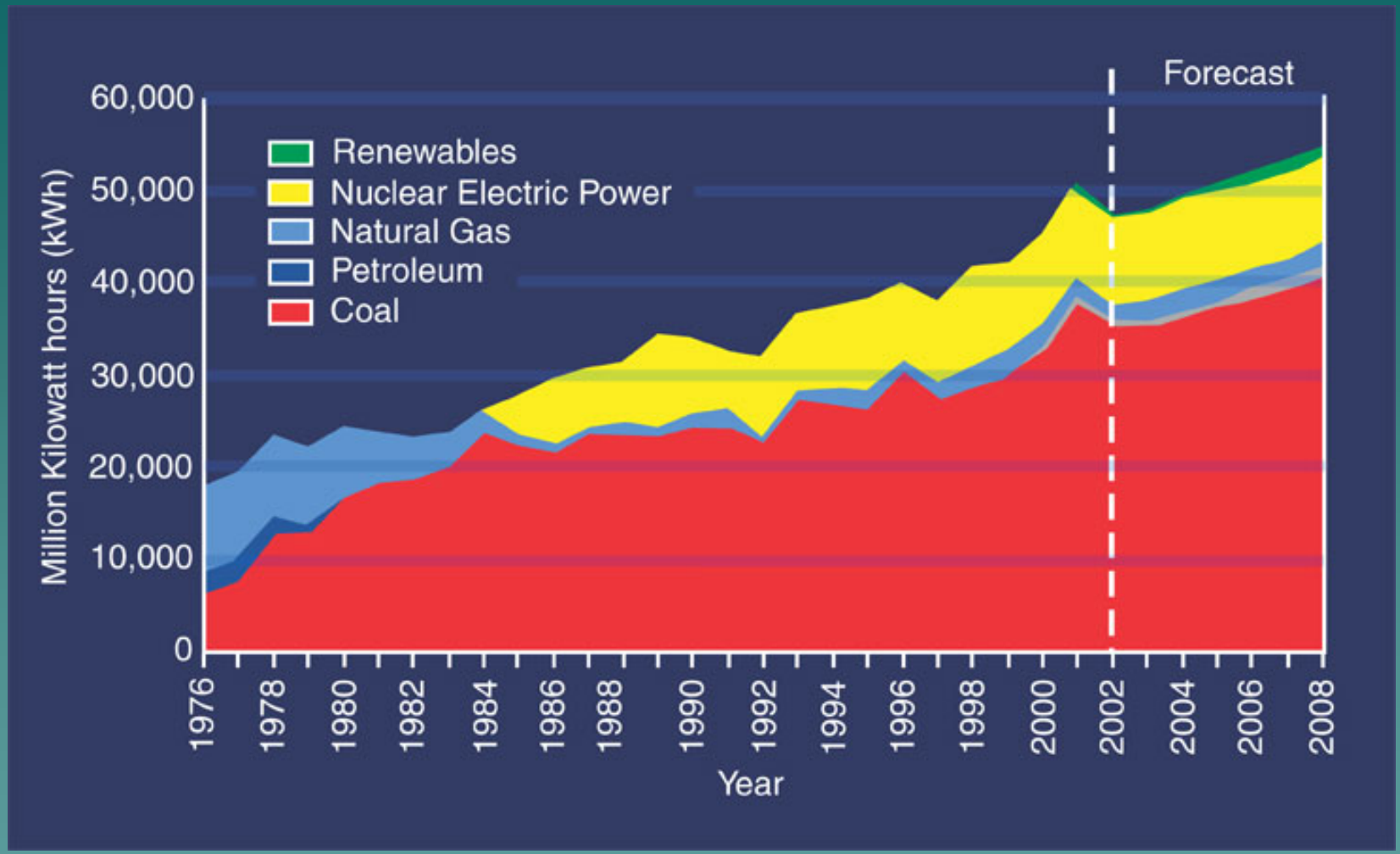
Kansas Monthly Oil Production and Monthly Posted Price



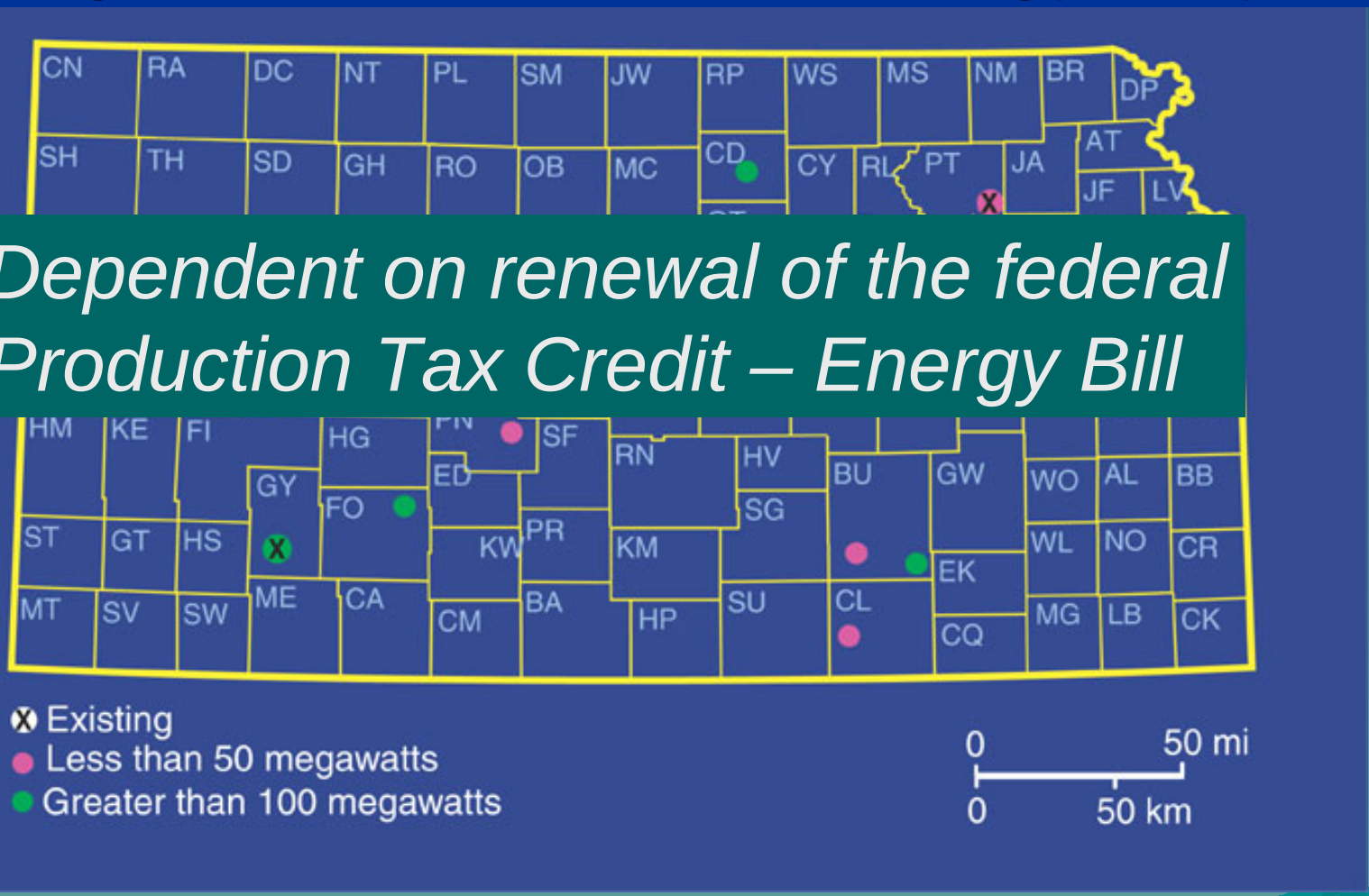
Kansas Monthly Natural Gas Production and Monthly Posted Price, January 1998–January 2003



Kansas Electrical Generation, 1960–2008

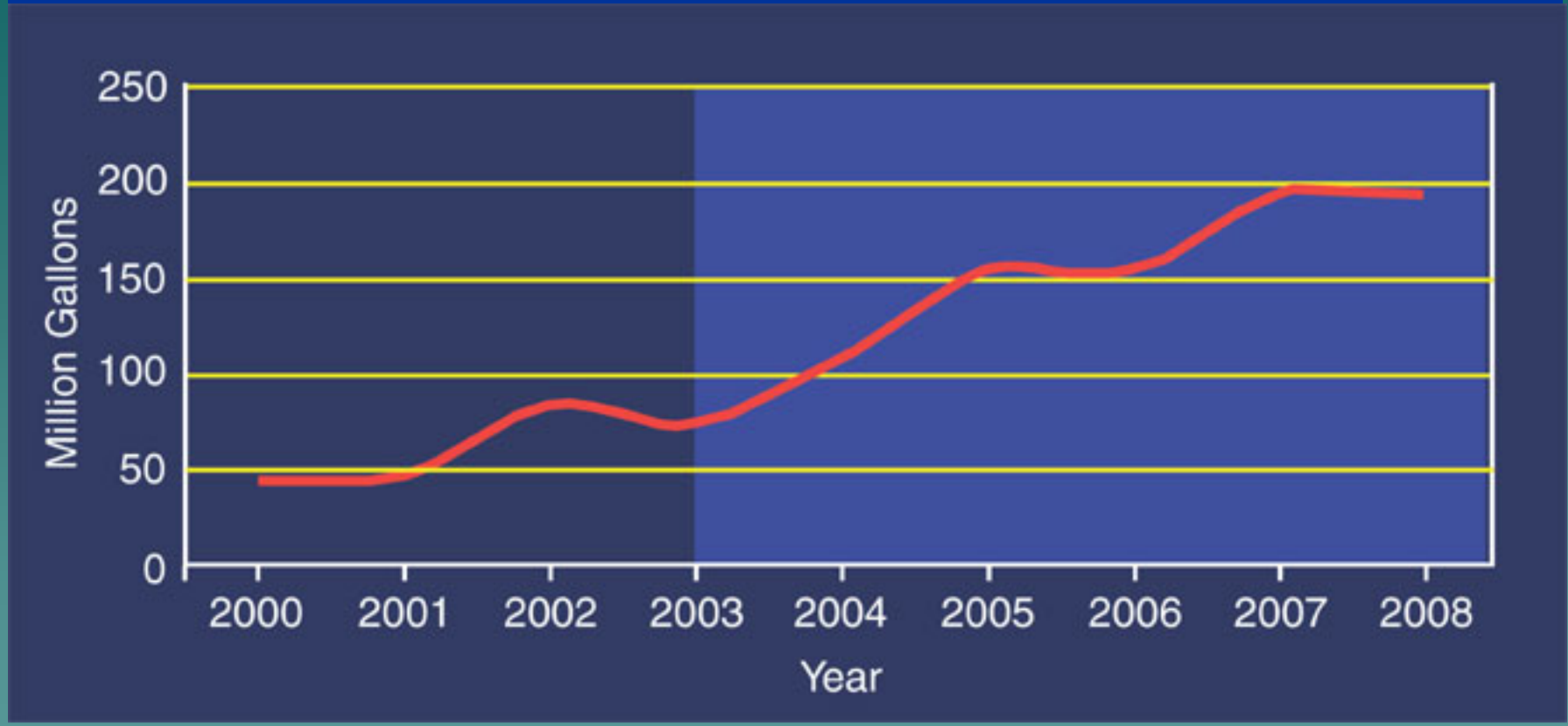


Existing and Planned Wind Energy Projects

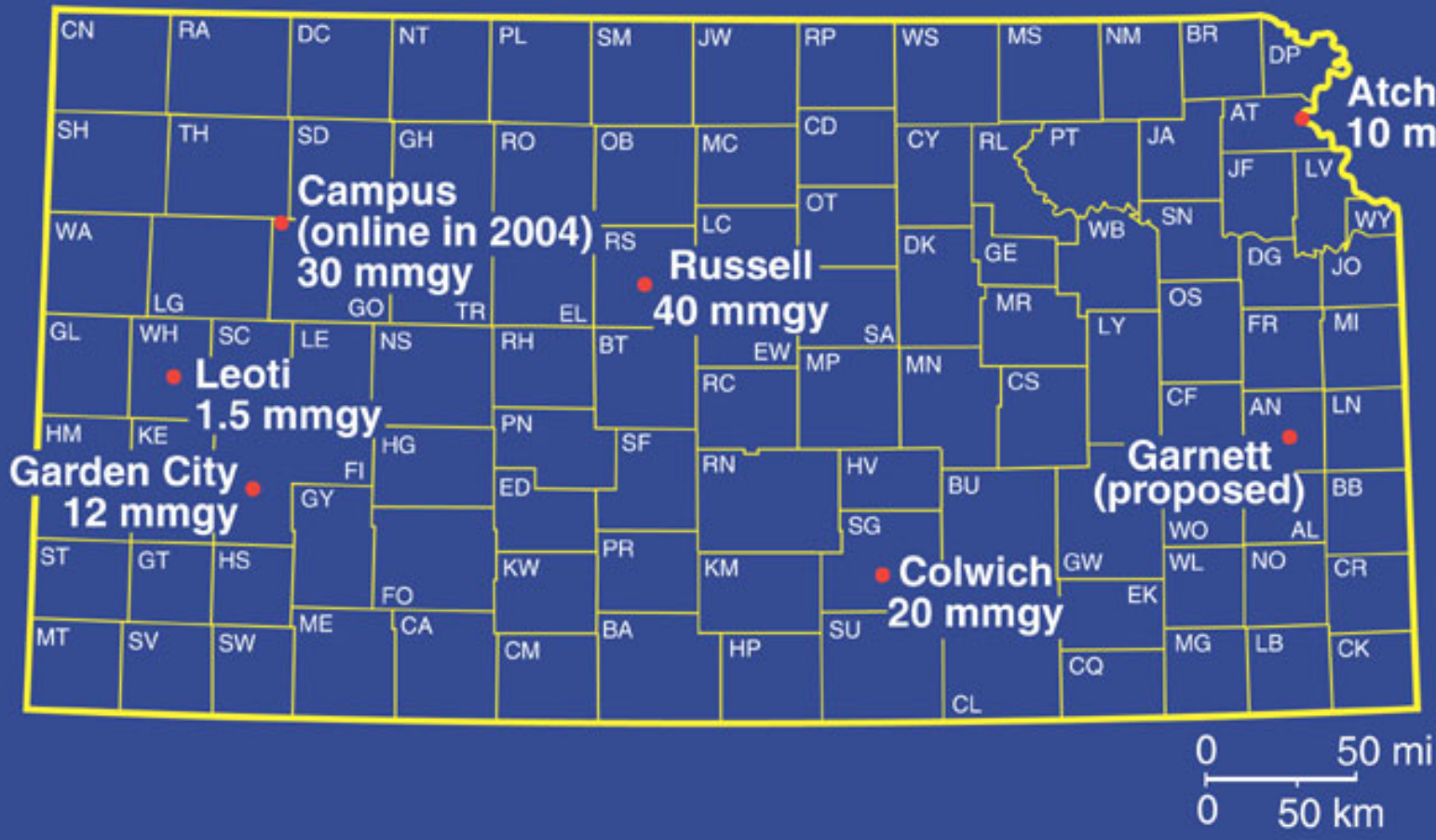


Dependent on renewal of the federal Production Tax Credit – Energy Bill

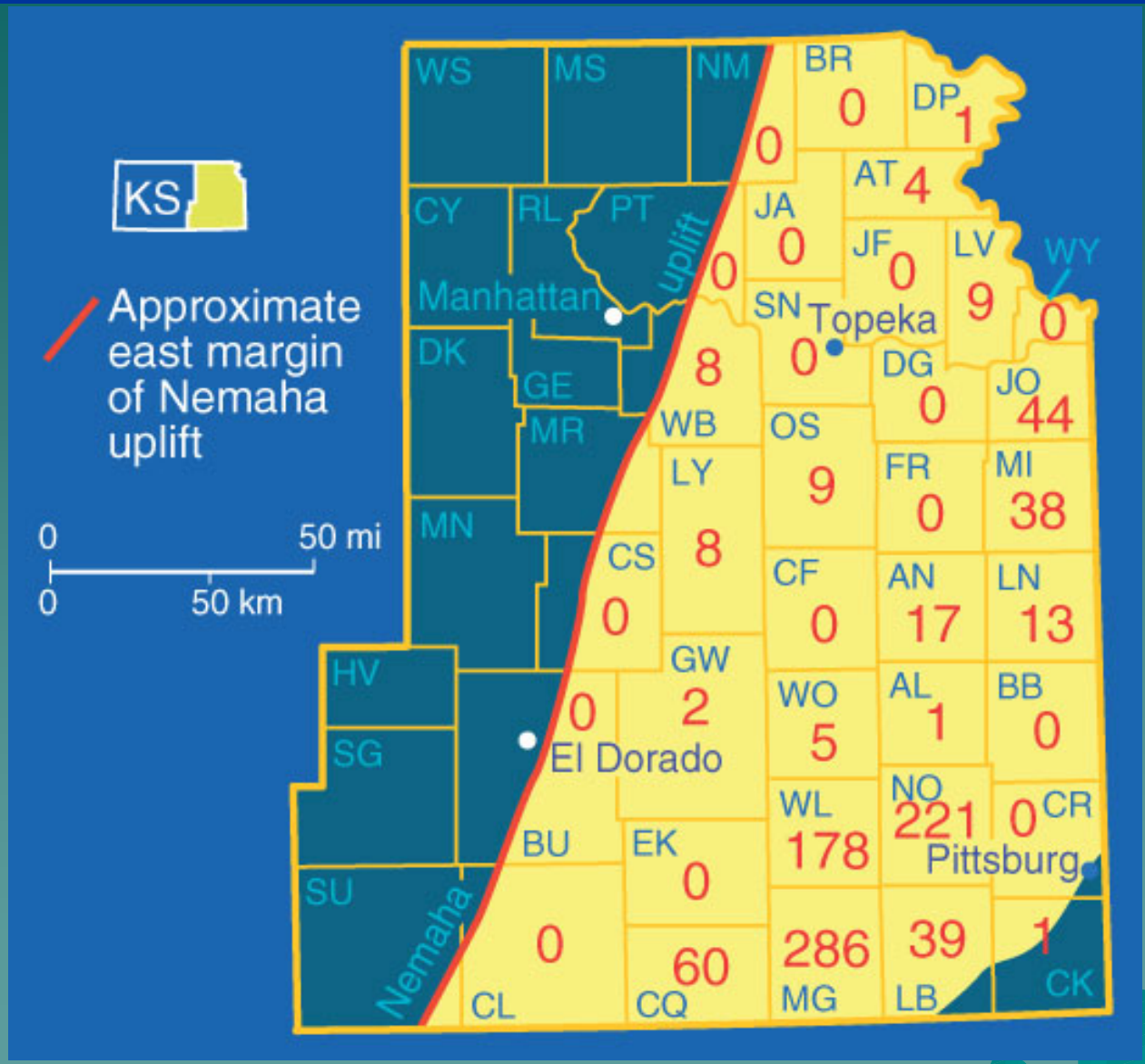
Kansas Ethanol Capacity, 2000–2008



Existing and Proposed Ethanol Plants



Area of Potential Coalbed Methane Development



Kansas Geological Survey

www.kansasenergy.org

Coalbed Methane Production
4-county Area, SE Kansas

Council Activities….

- Transmission Task Force
- Natural Gas Summit
- Wind & Prairie Task Force
- Systems Benefits Charge review

Transmission Task Force

Charge to the Task Force:

- Identify capacities, needs, limitations, and opportunities
- Determine the reliability of the Kansas grid
- Solutions to remove constraints, develop capacity, and ensure reliability

Preliminary Findings

- The Kansas transmission system is reliable and adequate.
- Industrial development has not been hindered by reliability or electric cost concerns.
- Transmission system expansion is governed by processes outside of state control.

Preliminary Findings (continued)

- The process for considering transmission system expansion does not work very well.
- Utility willingness to expand the transmission system is hindered by uncertainty about how and from whom the costs of expansion will be collected.

Next Steps

- Assess long-term transmission reliability.
- Assess available transmission capacity.
- Identify and evaluate pros and cons of various methods of funding transmission system improvements.

Next Steps (continued)

- Identify best-in-class transmission planning processes.
- Determine the transmission components of the SERCC's state energy plan.
- Develop possible regulatory and legislative initiatives.

race for big gas BILLS

A combination of short natural gas supplies and cold weather could mean bloated prices this winter

By Amy Bickel
The Hutchinson News

Natural gas reserves are at an all-time low, and if Kansas residents are faced with a winter like last year's, they can expect to see the ballooning costs added to their heating bills.

The nation's energy consumption is outstripping production. With usage continuing to grow both in residential and industrial sectors – consumers' heating costs are expected to jump.

Even summer gas prices have been higher – a time of year most residents don't think about their energy bills because costs usually are lower. July prices are averaging around $5 a thousand cubic feet, compared to around $2 to $3 a year ago.

"The reason we're so high is, we just about ran dry," said Tim Carr, Kansas Geological Survey's petroleum research section chief. "We got down to 623 billion cubic feet, a record low. That is essentially empty."

The United States uses about 22 to 24 trillion cubic feet of natural gas a year, Carr said. Utilities typically purchase natural gas for storage between April a... November.

But Kansas experienced a colder than n... ter last year, although it is the East Co... demand more than Kansas. New Y... ern states have a higher popu... tion and also had a cold... year.

Now utilities ... storage for th...

Aquil... natu...

Aquila warns of soaring gas bills

...PAGE 10

...prices have ...natural gas ...thy low ...th-

Skyrocketing gas prices affect businesses

By Amy Bickel
The Hutchinson News

With the agriculture economy slipping since the late 1990s, Tom Oxley knows his customers are not keen on increased prices.

So the higher cost of running the six, natural gas-fired furnaces at Haven Steel each day can't be passed on, he said, not if his company wants to be competitive.

"We're not really able to pass o... those costs," said Oxley, the ... pany's general manager. "... tomers are at a point ... unwilling to acce... And we have ...

So th... sprin...

'We're not really able to pass on those costs. Our customers are at a p... where they're ur... accept co... we h...

UTILITIES

Plan now for soaring gas bills

Aquila customers may see 74 percent cost increase starting in August

George Minter, a spokesman with Kansas City, Mo.-based Aquila, said the average monthly payment for Kansas StreamLINE customers would increase from $50 to $87. There are ...ut 3,300 Lawrence customers that ...of the program.

...oing this now so people ...is coming and so they ...ter said.

...ogram allows ... monthly ...usage.

the wholesale price of natural gas had increased significantly, from about $3 per thousand cubic feet at this time last year to about $5 per thousand cubic feet.

Customers who aren't part of the StreamLINE program will face increases in their monthly bills, too, but it is more difficult to predict how large those increases will be, Minter said. He said the increase would depend on how much gas each customer used and the wholesale price of ...act ...$6.28.

...the extra ...anies pass it on ...ers.

...and elevators will see ...eased cost when purchasing

In July, the average Kansas residential customers saw a 36 percent increase in their gas bills compared to July 2002. Minder said those increases likely would become larger with the onset of winter. Wholesale natural gas prices typically increase as colder weather arrives.

"We know that natural gas prices are probably going to go higher than they are today, but we just don't know how much higher," Minter said.

...said Gary LeRock, plant ...f Koch's Dodge City ...nt.

...is an integral part of ...uction, and accord... Web site, the com... than $27 million ...ingredient.

...robably will ...wever, affect... what farm... ...elds.

...tients go ...more," ...et the ...he ...are ...prices ... ...compa... ...ething that ...n the long run."

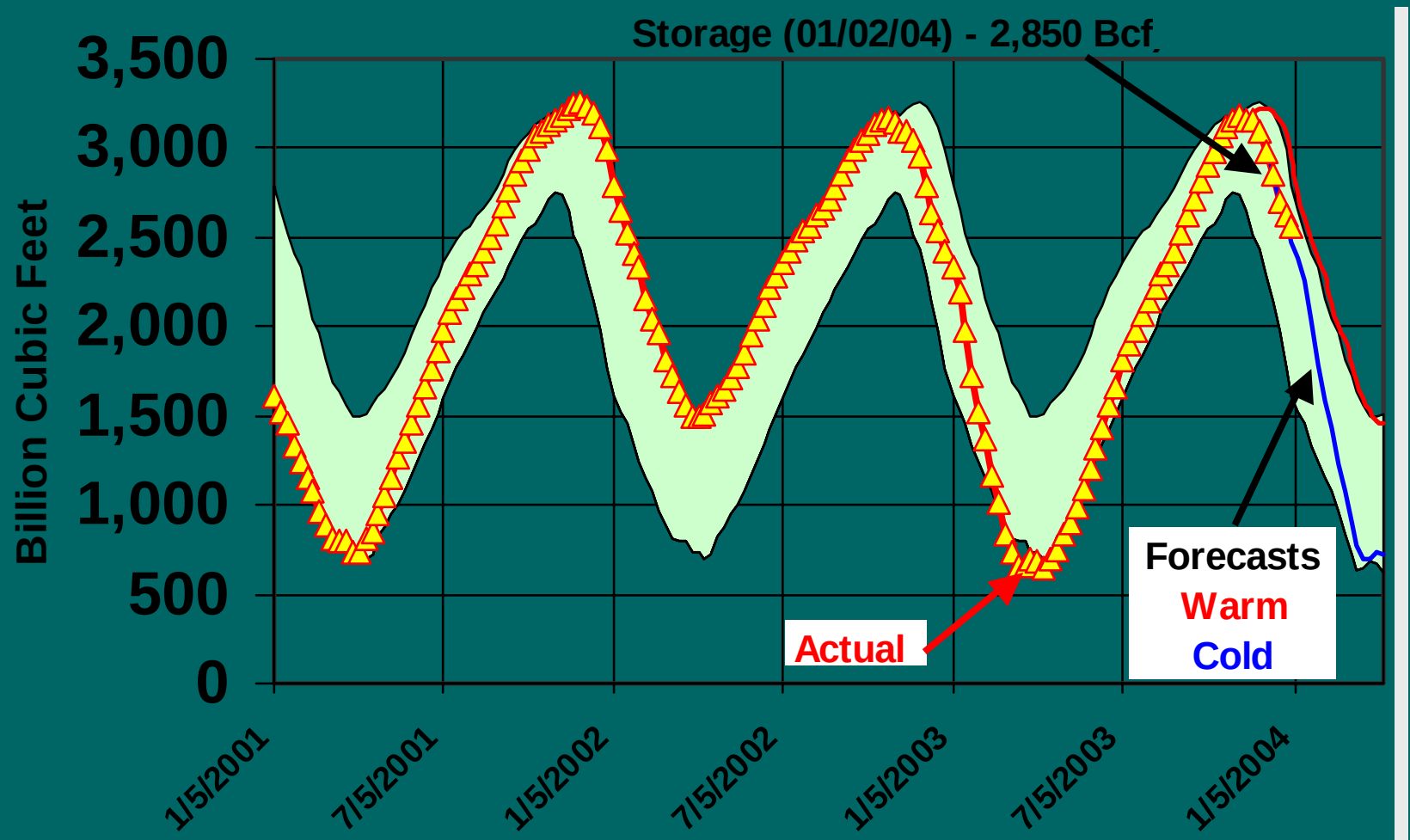
...y, he too hopes the ...e down.

...use about 4,500 thousand ...bic feet a month," he said. "So it is a big concern of ours. It's part of our utility cost overall. Unfortunately, with a commodity like natural gas, it is at the whim of supply and demand."

Reporter Amy Bickel can be reached at abickel@hutchnews.com or at (620) 694-5700, ext. 320.

PLEASE SEE Aquila, PAG...

U.S. Natural Gas Storage



NOTE: Colored Band is Normal Stock Range from previous 4 years

Summit on Natural Gas

Washburn University – October 2, 2003

- Ensure adequate supplies of natural gas this winter
- Mitigate the impact of high prices on consumers and the economy

Summit on Natural Gas
Results

- Short term – increase LIHEAP funds (>$12 M for Kansas)

- Long term – participants had 66 recommendations, some of which were incorporated into 2004 Kansas Energy Plan

Legislative Recommendations

- 1. Amend the K.S.A. 55-1302 definition of “pool” in order to allow unitization of more than one single and separate natural reservoir if the same are in communication so as to constitute a single pressure system.

  Enhances production

- 2. Amend Article 9 of the Uniform Commercial Code to restore a priority creditor status for sellers of oil and gas production when a purchaser is in bankruptcy. Such an amendment would follow the language of the former K.S.A. 84-9-319, which was repealed in 2000.

  No cost to treasury

- 3. Promote exploration for and production of coalbed methane gas by extending the period for severance tax exemption under K.S.A. 79-4217(b)(4) from twenty-four (24) months to forty-eight (48) months or more.

  Enhances natural gas production

Legislative Recommendations

- 4. Increase the price reference points for severance tax exemptions for low-volume gas wells under KSA 79-4717 (b)(1), low-volume oil wells under KSA 79-4917(b)(2), and for utilization of enhanced recovery techniques under KSA 79-4917 (b)(6), in recognition of the cost increases that have occurred since the reference points were established or last revised.

  No cost unless oil and gas prices drop below ref. pt.

- 5. Fund support for SERCC activities through the Kansas Geological Survey at the University of Kansas, at the level of $150,000 for staff and operations, and $100,000 for contract services.

  Governor requested $150,000 for KEC in KCC budget

Energy Council Actions - 1

- 1. Reconsider a proposed systems benefit charge limited to funding an effective state energy program.
- 2. Inventory Kansas energy activities with the intent to improve coordination and cooperation, increase effectiveness, and reduce redundancy.
- 3. Work with existing organizations (e.g., KACEE and KIOGA education foundation) to implement energy education for the general public and K–12 students.
- 4. Continue to support the Transmission Task Force, review activities and conclusions, and make recommendations.

Energy Council Actions - 2

- 5. Review options to meet state energy-policy-planning needs.
- 6. Develop a "roadmap" for Kansas renewable energy development.
- 7. Investigate the state's potential for the **FutureGen** project.

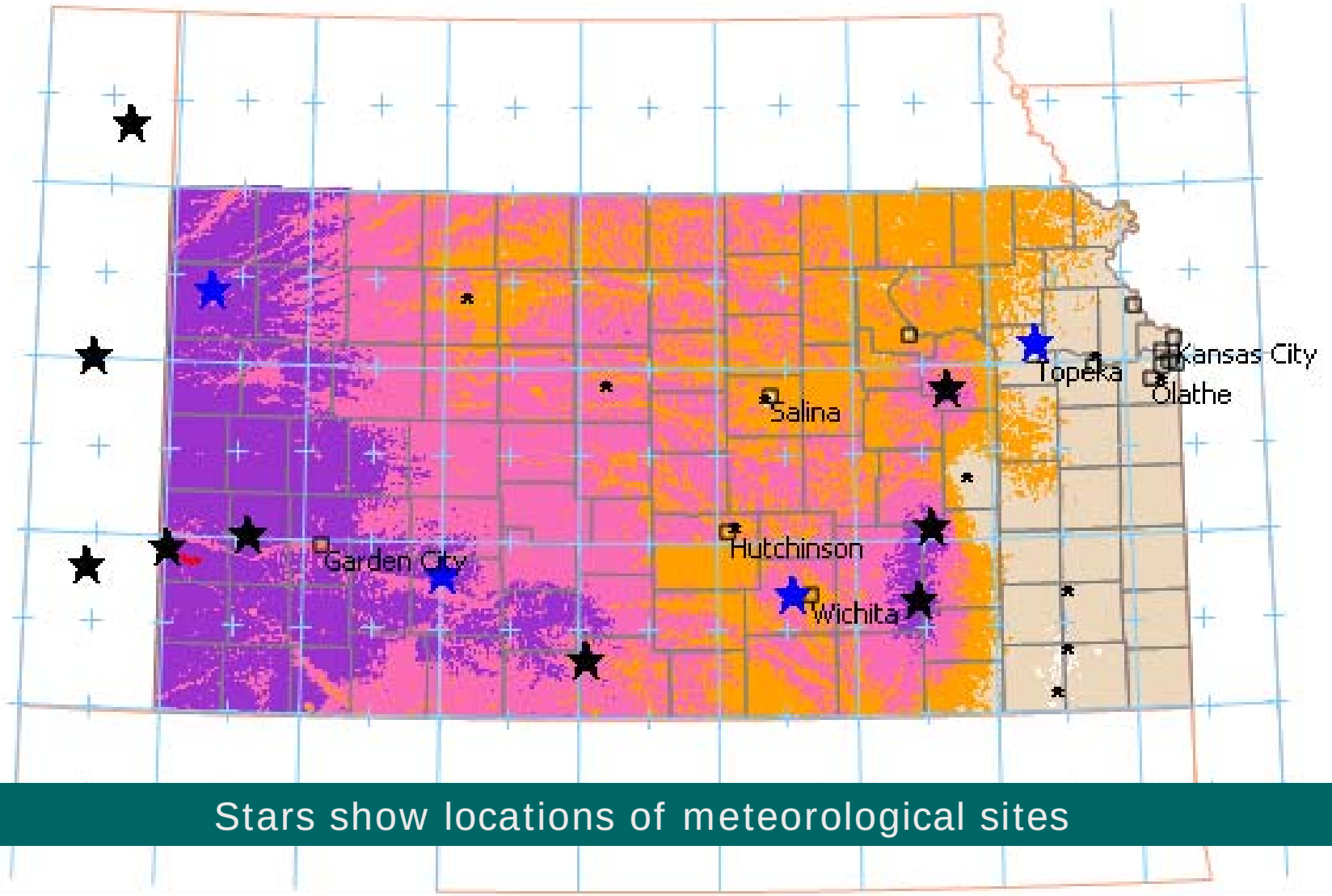
  Working group to be formed
- 8. Develop guidelines for the siting of wind-energy development in Kansas. *Assigned to the SERCC Wind & Prairie Task Force*

Priority Study Items

- Renewable Portfolio Standards (RPS)/Green Tags/Renewable Energy Credits. Recommend a preferred program to SERCC for consideration.

- 2. Review strategies and programs to promote energy conservation and efficiency and develop specific policy recommendations for state energy plan.

Kansas Wind Resources



Stars show locations of meteorological sites

Vote likely on Butler wind farm guidelines

NEW WIND PROJECT

A company wants to build four wind turbines near Augusta. 5B

BY MARK BERRY
Eagle correspondent

EL DORADO — The Butler County Commission is expected to give initial approval Monday to a set of proposed guidelines for companies that want to develop wind farms.

The guidelines would then go on to the county planning commission, which will review them Oct. 7 and recommend whether the County Commission should accept or reject them.

both to new wind farm applications and to
the propos
Windfarm
commissio
Two nea
suits seekir
A third law
sion's denia
Power LLC
build a 6,0
Among t
sions:

permit for each farm.
ld be closer than 1,000
ver and communication
alled underground.
ld need to show plans
deal with erosion,
r quality.
pproved, the company
r to find a buyer for its
her year to start con-

would be considered

Monty Davis/Fil
e nearly 200 wind-powered turbines are
f against the sky near Montezuma, in wes
utler County officials are expected to vote
guidelines for wind farms in their county

Wichita Eagle
9/17/03

Group oppo wind turbin

Banker Sabatini, others worry about ecosystem in Flint Hills

By Fredrick J. Johnson
THE CAPITAL-JOURNAL

The Tallgrass Ranchers are riding into the fight over wind turbines in the Flint Hills.

Capital City Bank chairman and Flint Hills landowner Frank Sabatini said Thursday about 50 people who own property in the hills gathered at Emporia last week to talk about the effect of turbines and wind farms on the landscape. From that meeting came the Tallgrass Ranchers, dedicated to preserving the ecosystem and scenic beauty of the Flint Hills.

The meeting was organized by Sabatini and Bruce Waugh, a lawyer with a Kansas City, Mo., firm who also owns land in the Flint Hills. They said they weren't opposed generally to turbines or wind energy, but that the industry just didn't belong in the tallgrass prairie of the Flint Hills.

The pair planned to attend a Wabaunsee County Planning Commission meeting Thursday night in Alma, where the issue was discussed. The commission has been asked to approve a zoning change that would allow construction of wind farms on land zoned for agricultural use.

Waugh said the 300-foot-tall industrial wind turbines would destroy the landscape and change forever the character of the area.

The Flint Hills represent the last 3 percent to 5 percent of a prairie that once covered several states, Waugh

'The potential is huge'

Ford Co. officials OK wind farm near Spearville

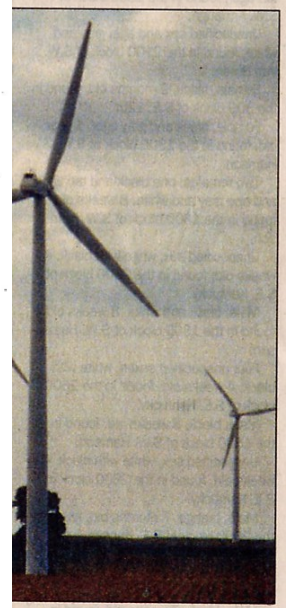
By Tim Vandenack
The Hutchinson News

DODGE CITY – Wind power – and an accompanying economic surge – could be gusting its way into Ford County.

The Ford County Commission on Monday granted enXco, a California-based wind energy company, a conditional-use permit to build a 100- to 200-megawatt wind farm amid the wheat and milo north of Spearville.

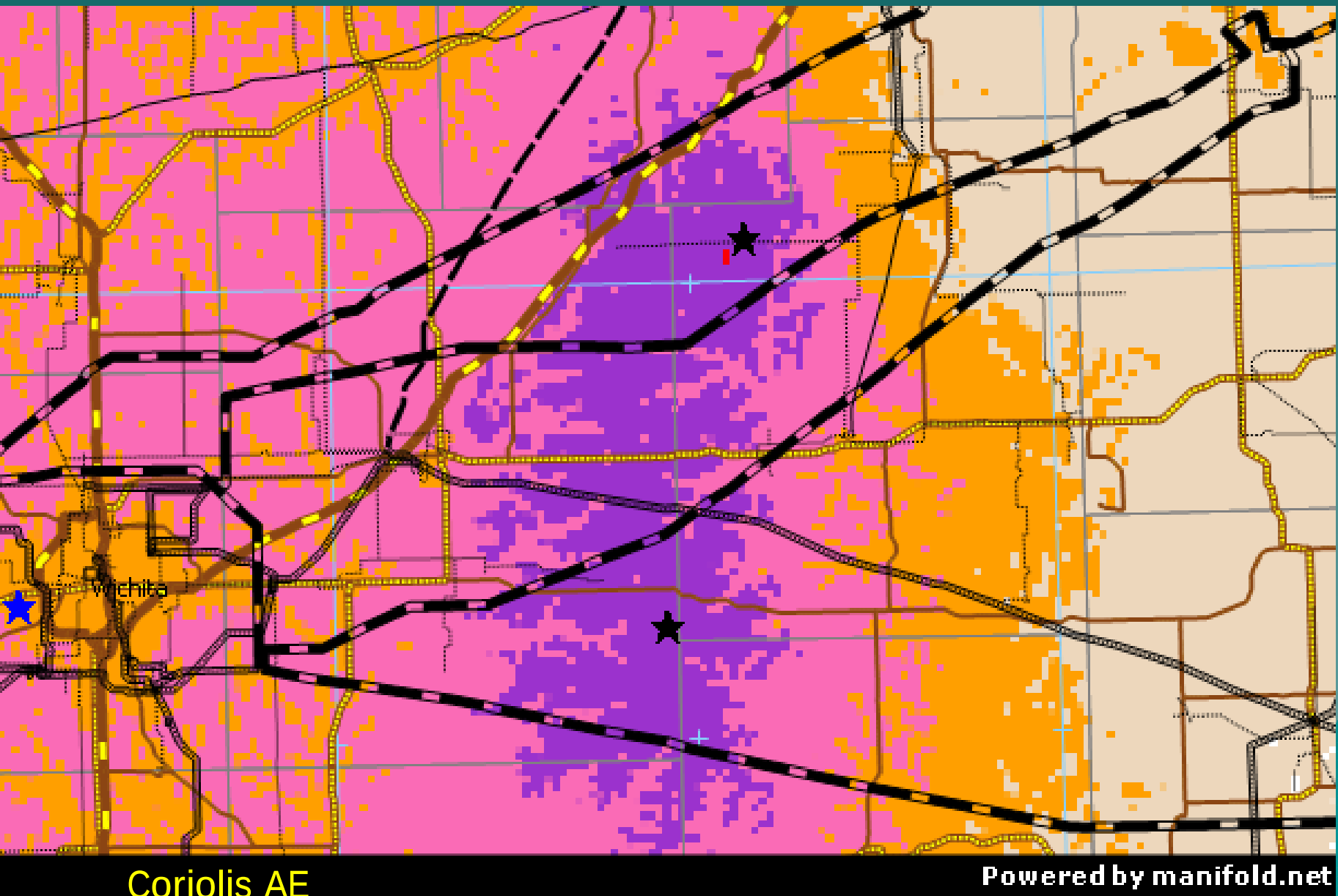
EnXco still has to carry out an engineering study to specify feasibility details of the project, which has a preliminary price tag of $100 million. It also has to line up clients for the power. But Paul White, the company's Midwest project director, said if plans progress as hoped, construction could start by September 2004, and the plant could be completed by year's end.

FRIDAY
SEPTEMBER 19, 2003
THE CAPITAL-JOURNAL



2002 FILE PHOTO/The Associated Press
wners have formed a group to fight
m such as this for the Flint Hills.
nd farm in Wabaunsee County.
).

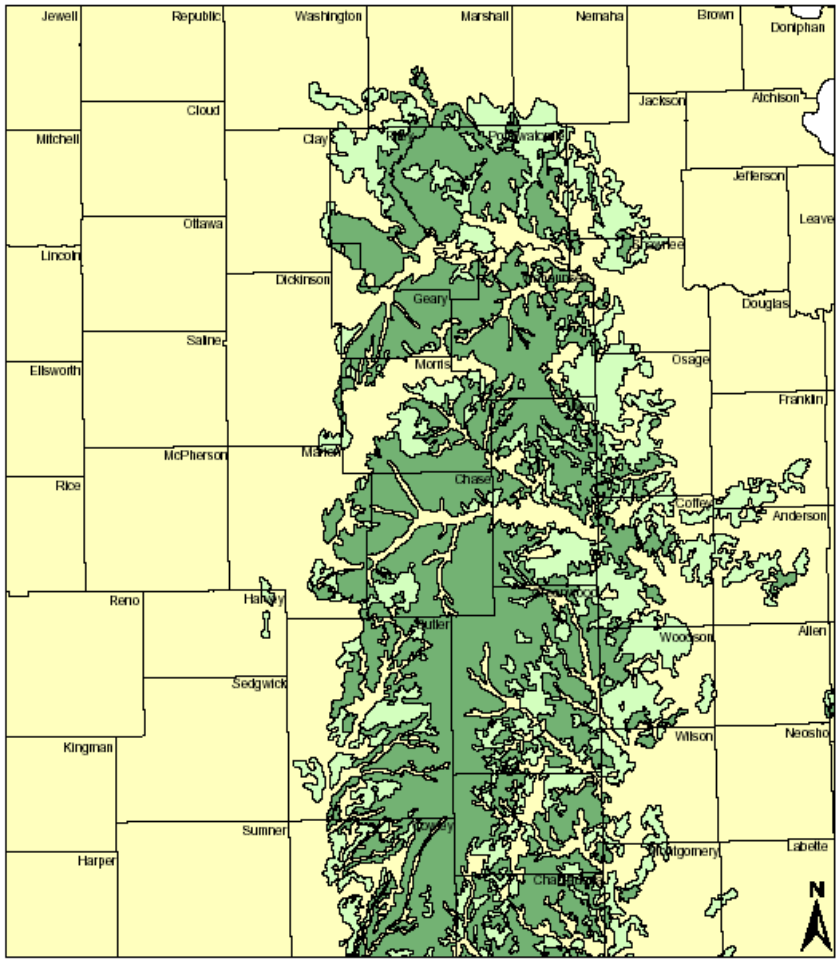
Wind Resources - Southern Flint Hills

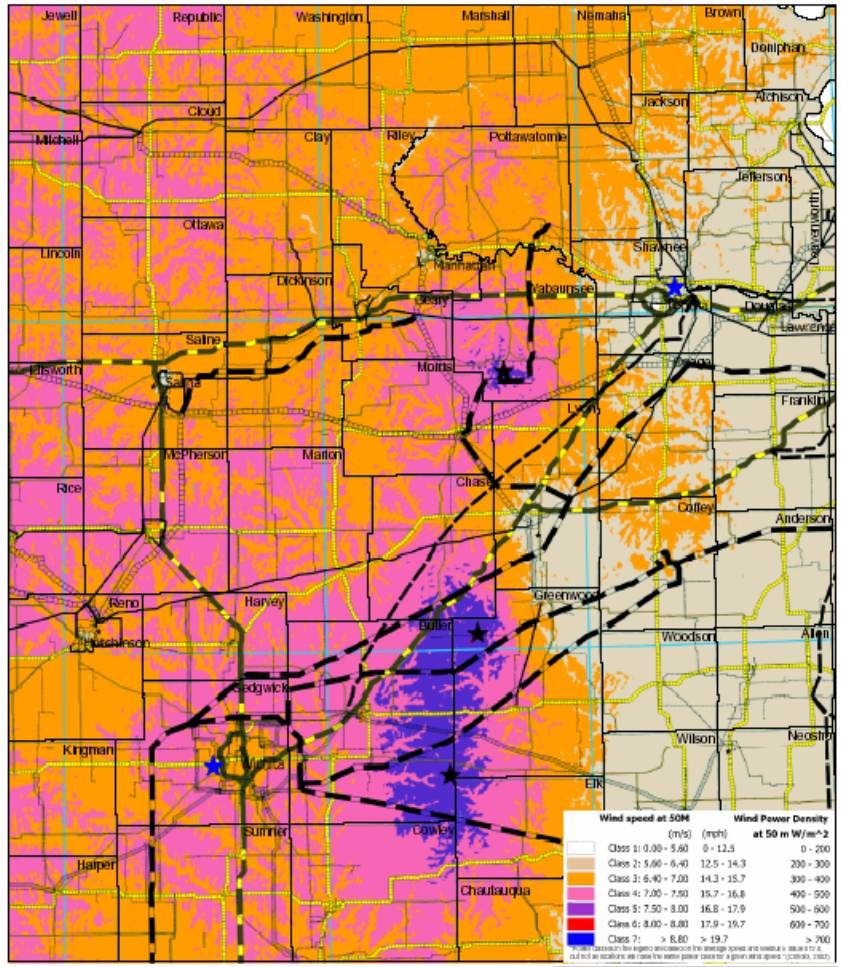


Untilled Areas - the Tallgrass Prairie Ecosystem

Kansas: Wind & Prairie

Wind Resource





Map compilation by the Kansas Geological Survey (KGS), University of Kansas, December, 2003.

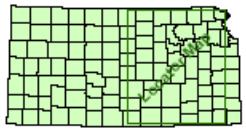
Data sources:
1. Base map (county boundaries) - TIGER 2000, US Census Bureau
2. Untilled areas, The Nature Conservancy
3. Untilled fragments, The Nature Conservancy

"Untilled areas were identified via an interpretation of Landsat Thematic Mapper (TM) satellite imagery. These areas were classified as one of two types: 1) areas with largely intact natural or semi-natural vegetation, and 2) fragmented areas with a concentration of natural community remnants" (The Nature Conservancy, 2003)

0 25 50 Miles

1:1,500,000

Legend
- Counties
- Untilled areas
- Untilled fragments



Map compilation by the Kansas Geological Survey (KGS), University of Kansas, December, 2003.

Data sources:
1. Base map (county boundaries) - TIGER 2000, US Census Bureau
2. Wind resources - Coriolis, 2003

The map frame shows an excerpt from the "Kansas Wind Resource Map" published by Coriolis and the Kansas Corporation Commission. For more information regarding this data, visit the Coriolis web site at http://www.coriolis-ea.com/kswindmap. "The resource estimates have NOT been validated by the National Renewable Energy Laboratory (NREL), or independent meteorologists. All wind energy projects should confirm wind resources by direct measurements in accordance with wind energy industry standards." (Coriolis, 2003)

Legend

Kansas Cities
- KS cities > 25K pop.

Kansas Highways
- State Route
- US Route
- Interstate Route

Meteorological Site
- NWS
- FAA
- USAF

Electric Transmission Lines
Voltage in KW
- 34.50
- 69.00
- 115.00
- 138.00
- 161.00
- 230.00
- 345.00

Citation: Coriolis and Kansas Corporation Commission (KCC), 2003, Kansas Wind Resource Map, Coriolis and KCC.

Wind & Prairie Task Force

Governor's goals to SERCC:

- Preserve the Tallgrass Prairie as a Kansas and national treasure
- Full and aggressive development of alternative energy in Kansas – especially wind energy!

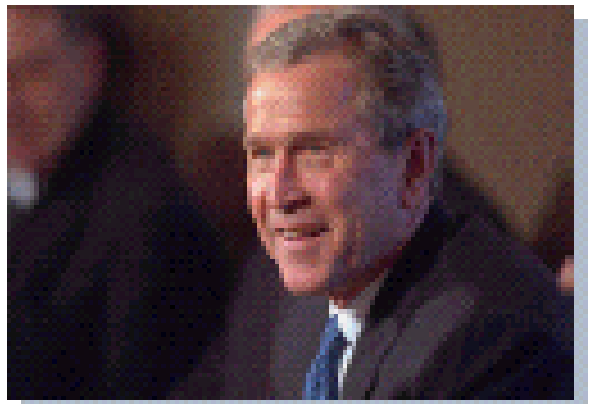
Wind & Prairie Task Force

- Develop principles, guidelines, and tools for local government and stakeholders

- Co-chairs
  - Jerry Karr, farmer, former KS Senator
  - Jerry Lonergan, Kansas Inc.

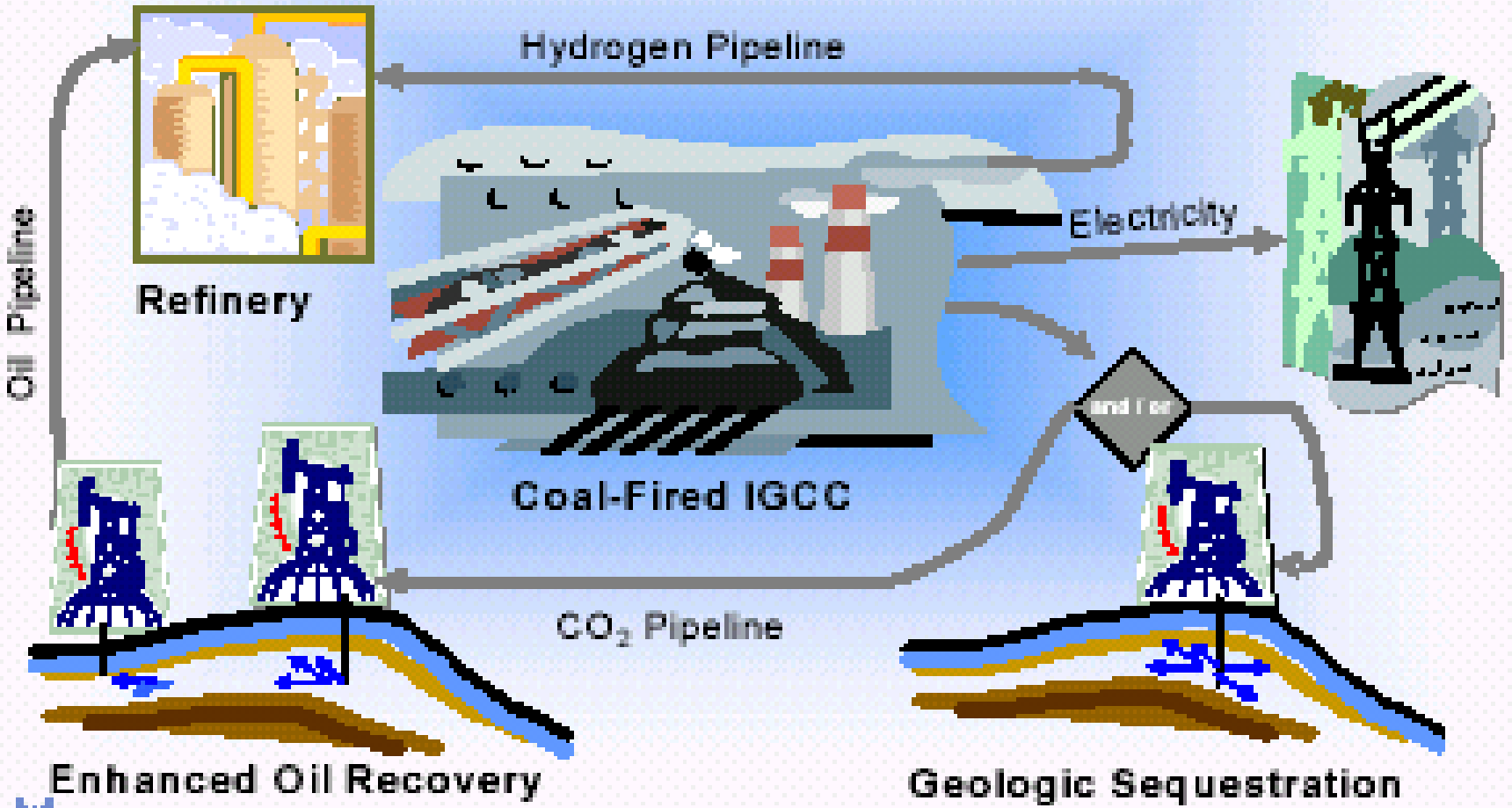
FutureGen: A Presidential Initiative

One billion dollar, 10-year demonstration project to create world's first, coal-based, zero-emission electricity and hydrogen plant



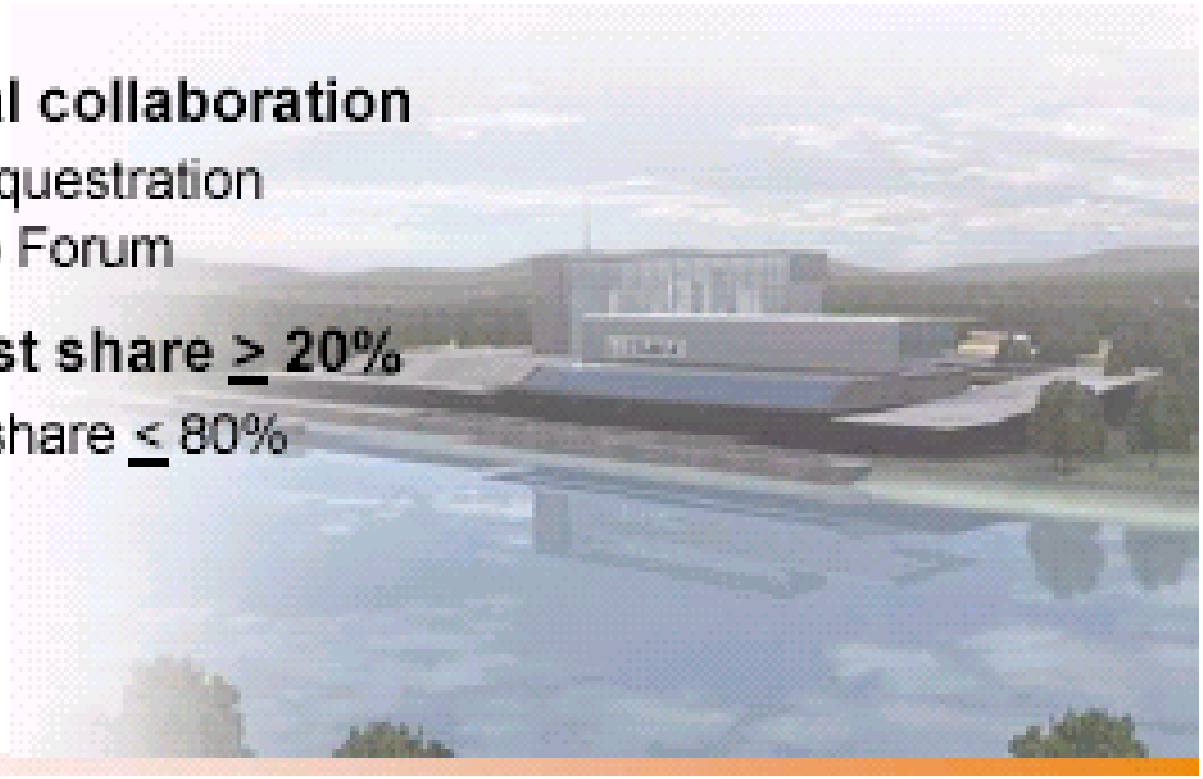
President Bush
February 27, 2003

FutureGen: A "Zero Emissions" Plant



FutureGen: A Global Partnership Effort

- **Broad U.S. participation**
  - DOE contemplates implementation by consortium that owns and produces > 1/3 of coal and 1/5 coal-fueled electricity
- **International collaboration**
  - Carbon Sequestration Leadership Forum
- **Industry cost share ≥ 20%**
  - DOE cost share ≤ 80%

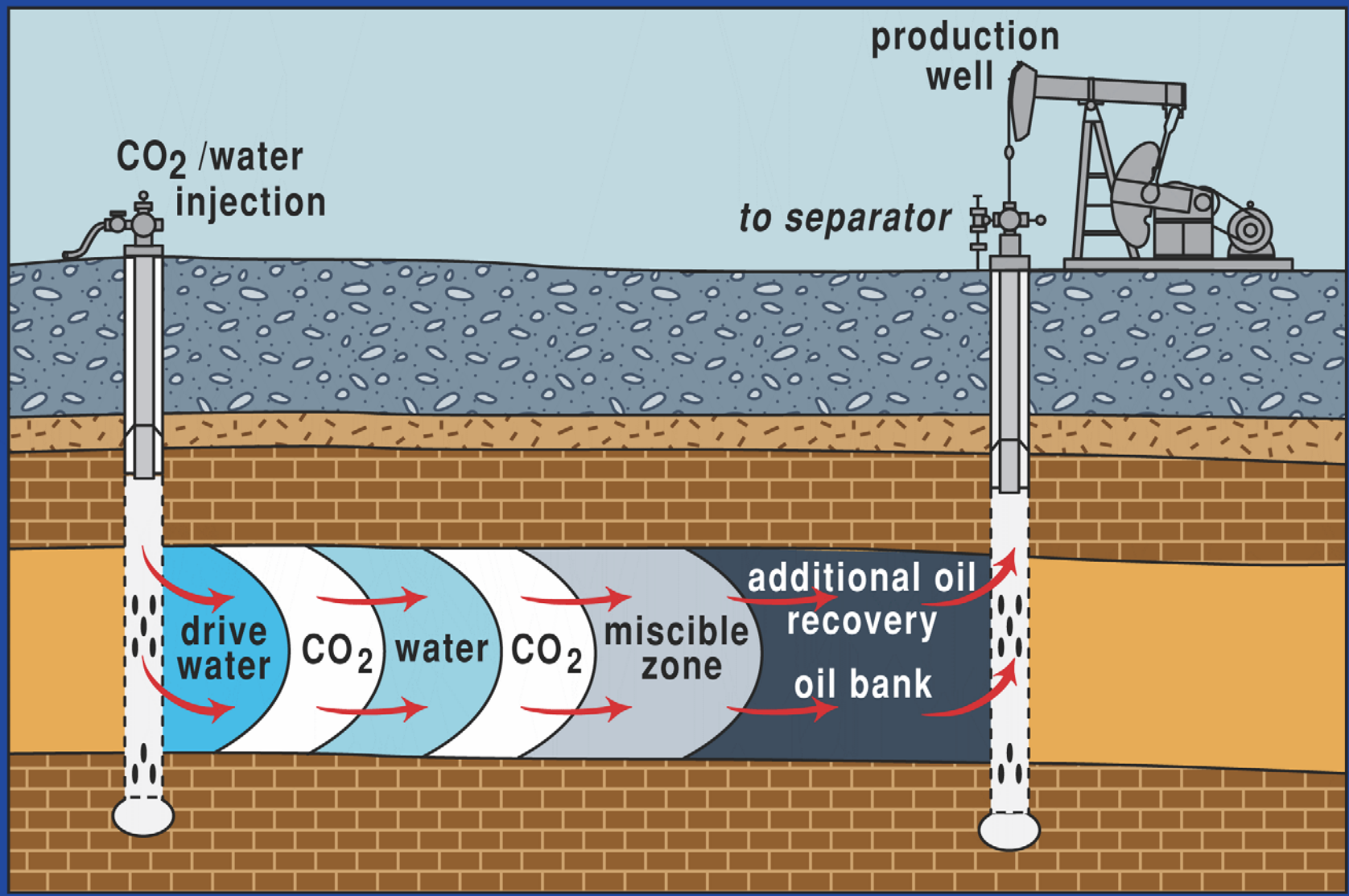


Kansas Oil Production History

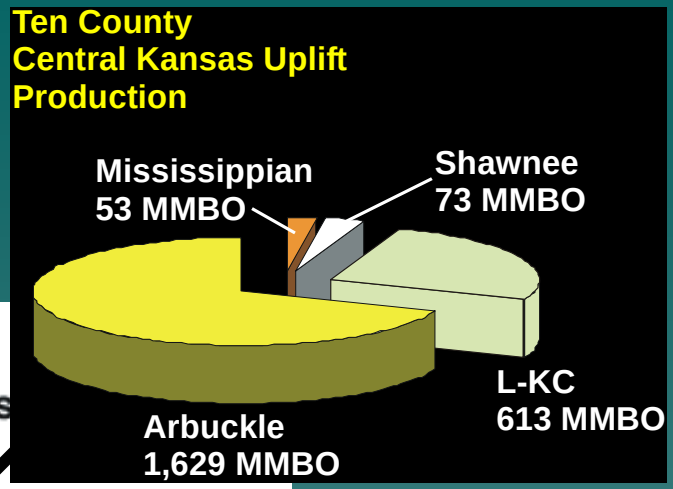
Gorham Oil Field-1928
(Walters, 1991)

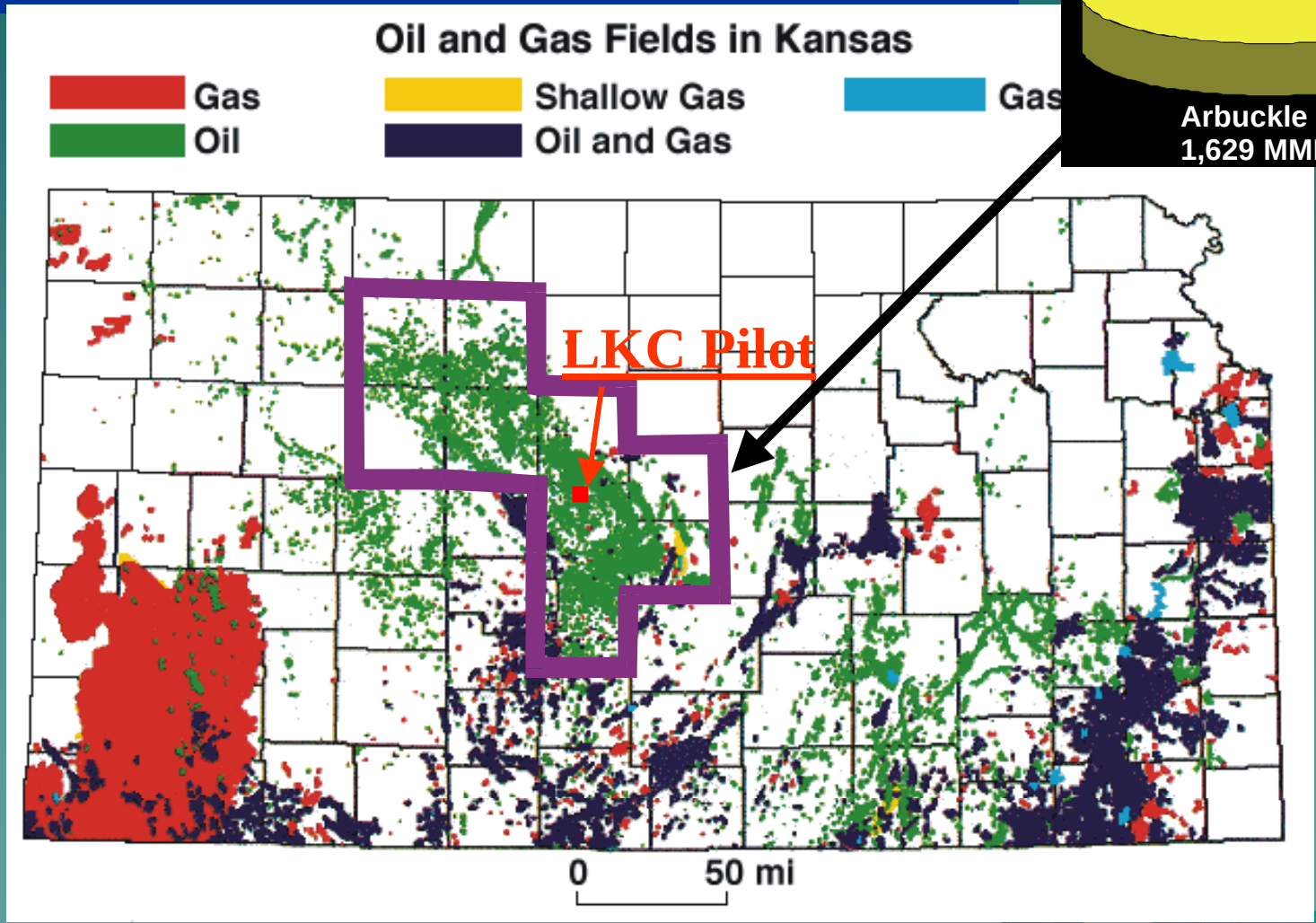
6.6 Billion Barrels to Date

Carbon Dioxide Flooding



Central Kansas Oil Production





Kansas Total

6.6 Billion

Central Kansas Uplift Total

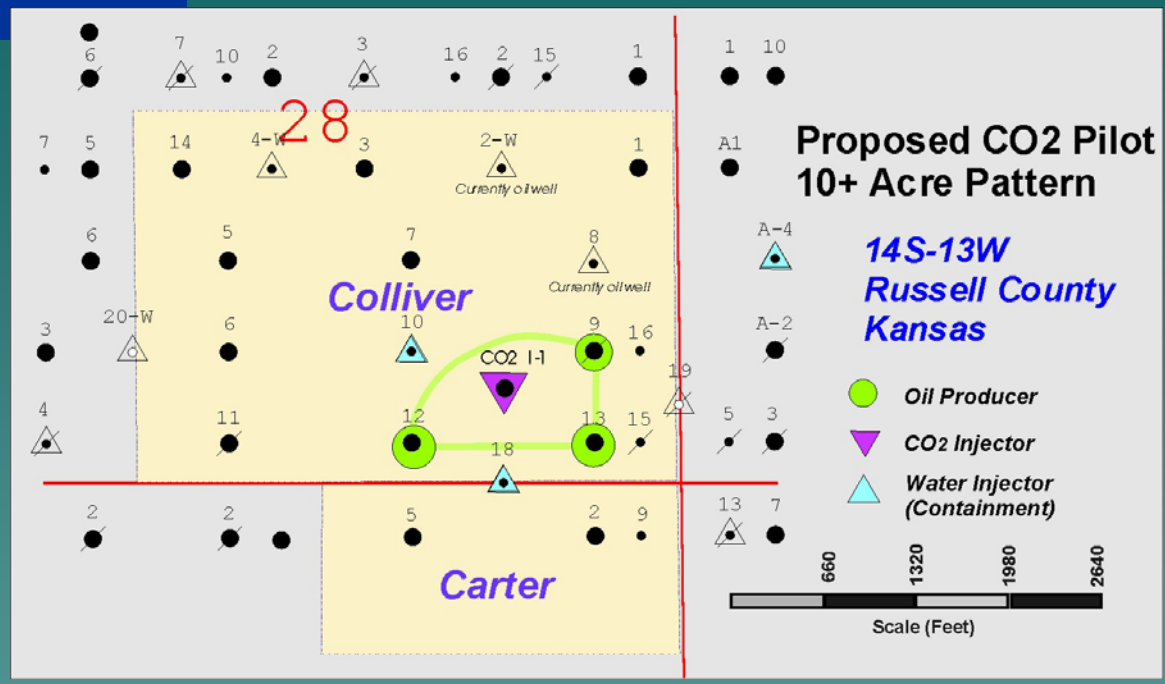
2.4 Billion

CKU Economic CO2 Potential

150-340 Million

10+ Acre Pattern

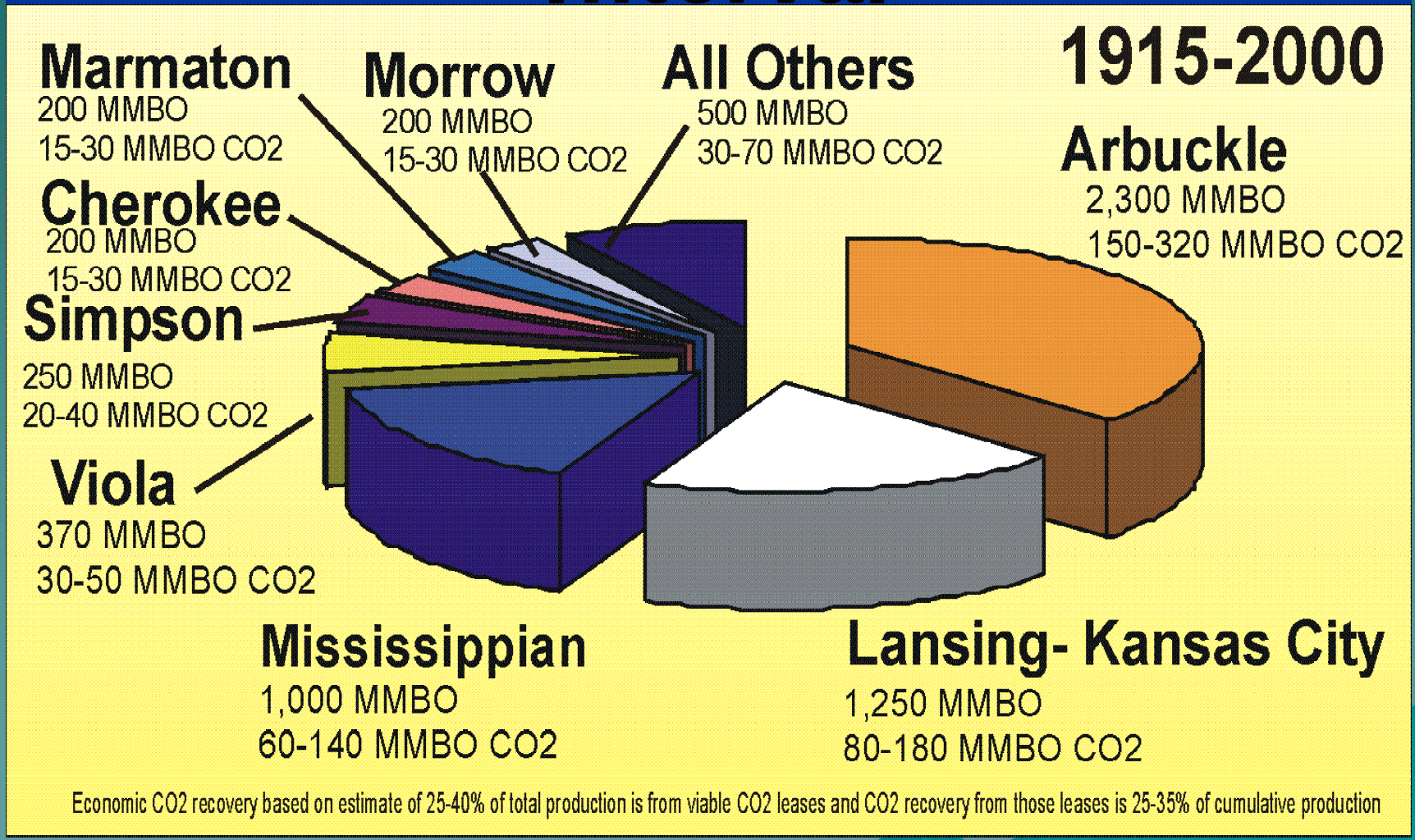
- 10+ acre, four-spot
- 1 CO_2 injector
- 3 Producers
- 2 Containment Water Injectors
- 0.29 BCF CO_2 injected-WAG
- 6 year operating life
- 28,000 BO estimated recovery



Originally CO2 was being trucked 200 miles from Guymon,OK

CO2 now being supplied by USEP ethanol plant only 7 miles away in Russell, KS

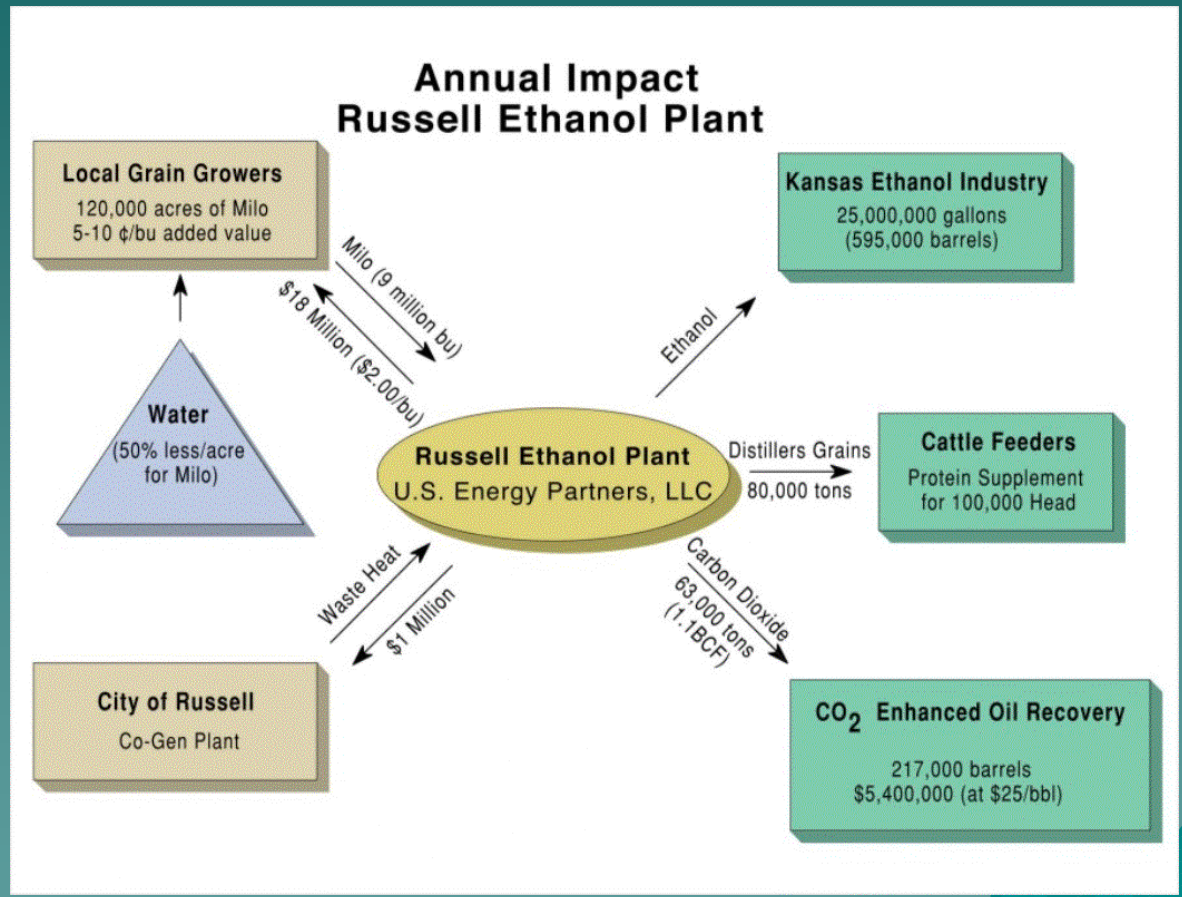
Total Cumulative and CO_2 Potential Oil Production by Interval



Potential CO2 oil based on 25-35% of cumulative production

CO_2 Supply and Sequestration

- **Multiple Goals**
  - Prove viability of process and extend pipeline from Guymon, OK to central KS
  - Perform CO_2 sequestration utilizing CO_2 from ethanol plant and demonstrate linked-systems



State Energy Resources Coordination Council




www.kansasenergy.org

Kansas Geological Survey
University of Kansas




Kansas Energy Atlas

http://neutrino.kgs.ku.edu/website/energy_atlas/

SERCC Web Site

www.kansasenergy.org