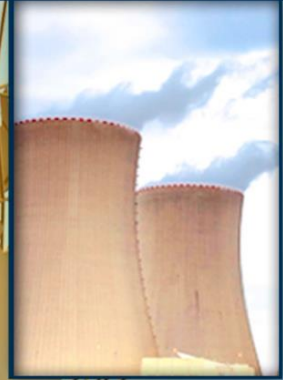




KEVIN BOOK
MANAGING DIRECTOR



AN OVERVIEW OF U.S. ENERGY POLICY, POLITICS AND ECONOMICS

*Saudi Aramco Management
Development Seminar
April 16, 2014*

RISKS AND DISCLOSURES



Risks

Legislative, regulatory and diplomatic agendas are subject to change.

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I hereby certify that the views expressed in this presentation accurately reflect my personal views as of the date of this presentation.

I further certify that no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views contained in this presentation.

By: *Kevin Book*

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AGENDA



- ▼ General Themes
- ▼ An Economic Theory of U.S. Energy Policy
 - Decision-Making on the Supply Side
 - Decision-Making on the Demand Side
- ▼ U.S. Energy Policy in Practice
 - The Transition from Scarcity to Adequacy
 - The Evolution of U.S. Environmental Policy
- ▼ Questions/Discussion

GENERAL THEMES

THEME #1: U.S. ENERGY POLICY IS HIGHLY FRAGMENTED

- ▼ U.S. Energy policies are crafted at the **federal, state and local** levels.
- ▼ In many cases, government **policy responsibilities overlap**.
 - Federal/state overlap: infrastructure permitting, environmental enforcement
 - State/local overlap: project siting, setback and/or access decisions
- ▼ Congress writes federal energy **laws**; agencies implement **regulations**.
- ▼ Different federal government **agencies** play different energy **policy roles**, although a “lead agency” usually coordinates multiple agency efforts for a single project.
- ▼ In general, we divide regulators into two categories:
 - “Enabling” (business-friendly) agencies
 - “Limiting” (safety/security-focused) agencies

Source: ClearView Energy Partners, LLC

GENERAL THEMES

THEME #2: U.S. ENERGY POLICY IS REACTIVE, ESPECIALLY TO SUPPLY SHOCKS

- ▼ 1973 Oil Embargo
 - *1975 Energy Policy and Conservation Act*
- ▼ 1979 Iranian Revolution
 - *1980 Energy Security Act*
- ▼ 1990 Iraqi Invasion of Kuwait, 1991 Gulf War
 - *1992 Energy Policy Act*
- ▼ 2000-1 Power Crisis, 2003 Blackout, 2003 Iraq War
 - *2005 Energy Policy Act*
- ▼ 2005 Hurricanes Katrina and Rita
 - *2007 Energy Independence and Security Act*

Source: ClearView Energy Partners, LLC

GENERAL THEMES

THEME #3: U.S. ENERGY POLICY TENDS TO BE DRIVEN BY REGION AND RESOURCES

- ▼ Local economic factors can influence the national energy policy decisions of Members of Congress in two distinct ways:
 - Production-side resource alignment (“what’s in the ground at home”)
 - End-user economic costs
- ▼ In the Executive Branch, the Presidential appointees who head cabinet and independent agencies serve as “gatekeepers” to many policy decisions.
 - Many of these gatekeepers bring their home-state economic alignments to their jobs.
 - These political appointees also generally share the President’s energy ideology.
- ▼ Although much of U.S. energy policy crosses party lines, some issues tend to be closely linked to political party and/or ideology, including:
 - Drilling for oil and gas in currently off-limits areas (i.e., ANWR)
 - Rolling back or relaxing environmental rules to enable industrial expansion

Source: ClearView Energy Partners, LLC

GENERAL THEMES

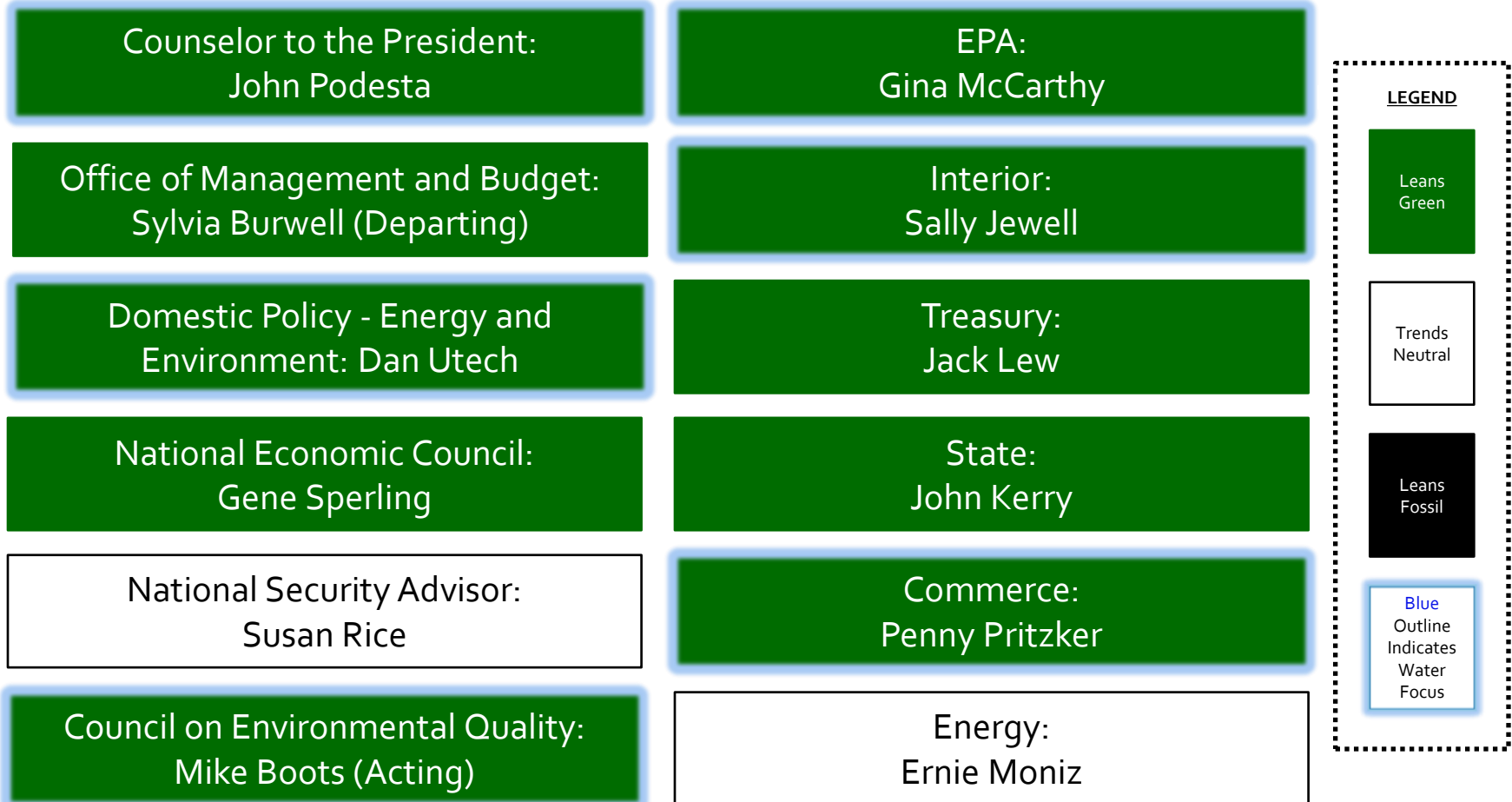
AS A RESULT, U.S. OFTEN CAN BE OUT OF SYNC WITH ENERGY INVESTMENT

	ECONOMIC REALITY	U.S. ENERGY POLICY
Supply	<ul style="list-style-type: none"> • <i>Slow</i>: years or decades for supply to come on-stream • <i>Sticky</i> because of debt service obligations • <i>Long-lived</i>: assets produce for decades 	<ul style="list-style-type: none"> • <i>Short-term</i>: Budget: 1Y; Congress: 2Y; President: 4Y; "future": 10Y • <i>Sticky</i> due to political sentiment governing access • <i>Short-lived</i>: Political value of energy strategy expires at next election
Demand	<ul style="list-style-type: none"> • Long-term link to industrialization and structural efficiency • Short-term link to end-user economic capabilities • Policy-adjusted cost per Btu is ultimate determinant 	<ul style="list-style-type: none"> • Long-term link to infrastructure and standards • Short-term link to monetary and fiscal policy • Cheap energy is a political imperative
Dynamics	<ul style="list-style-type: none"> • <i>Perspective</i>: forward-looking and opportunistic • Fixed cost amortization turns scarcity into profit • Companies choose sovereigns based on economics 	<ul style="list-style-type: none"> • <i>Perspective</i>: backward-looking and defensive • End-user frustration turns scarcity into political disaster • Sovereigns need companies to monetize resources

Source: ClearView Energy Partners, LLC

GENERAL THEMES

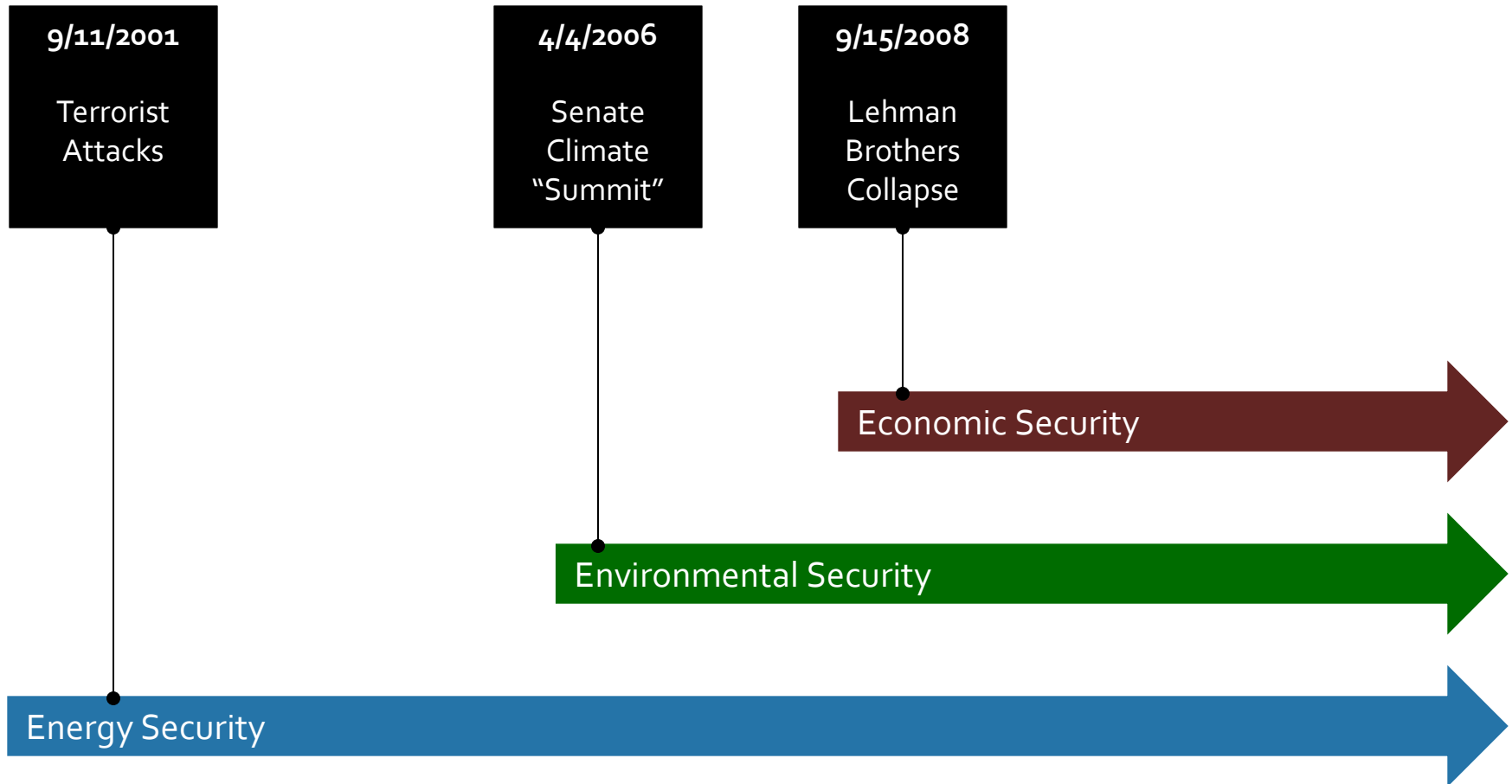
KEY EXECUTIVE BRANCH "GATEKEEPERS" SHAPE ENERGY POLICY



Source: ClearView Energy Partners, LLC

GENERAL THEMES

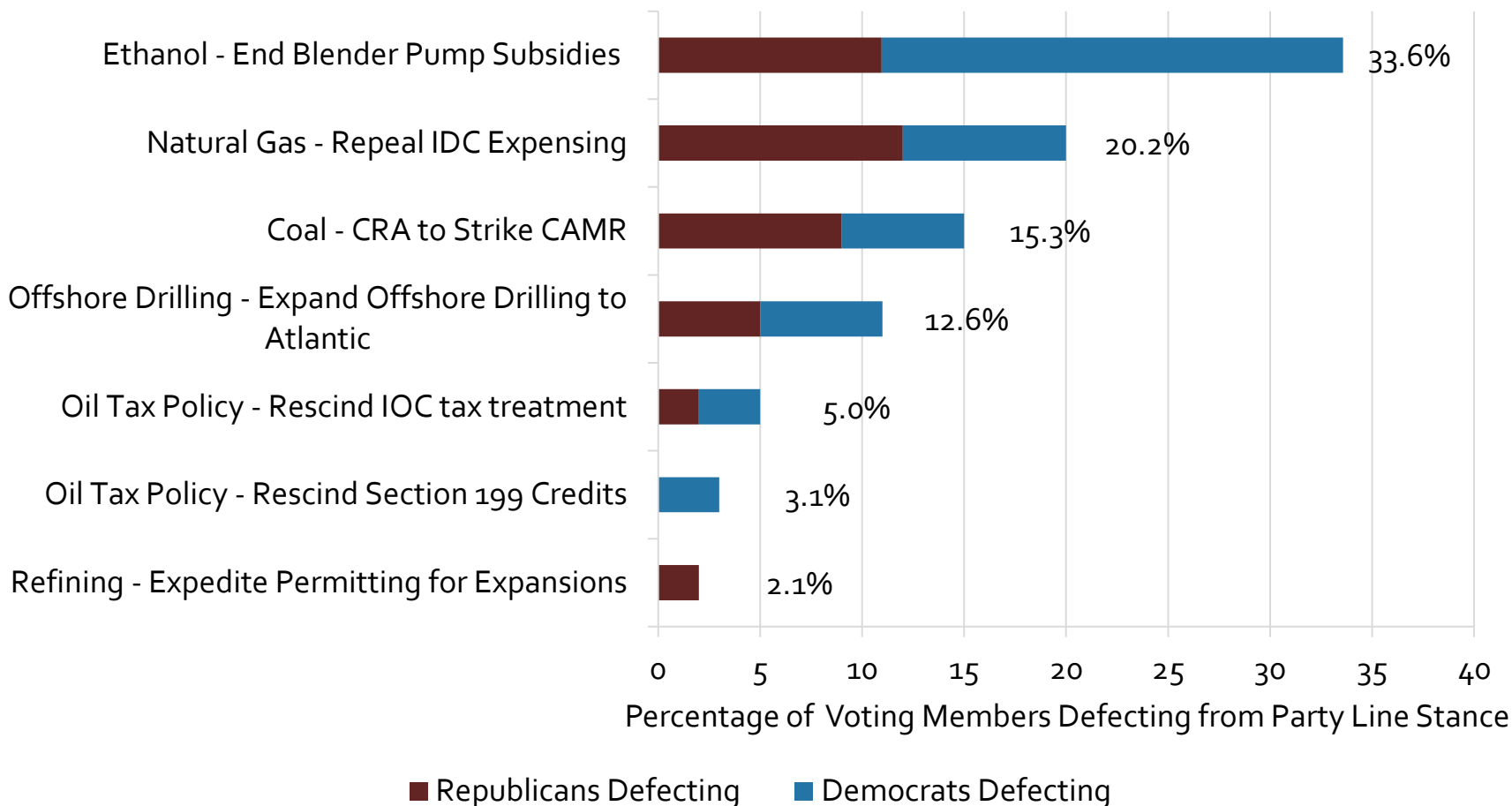
THE PRIMARY DRIVER OF U.S. ENERGY POLICY CHANGES WITH MACRO EVENTS



Source: ClearView Energy Partners, LLC

U.S. ENERGY POLICY TENDS TO BE REGIONAL MORE THAN PARTISAN

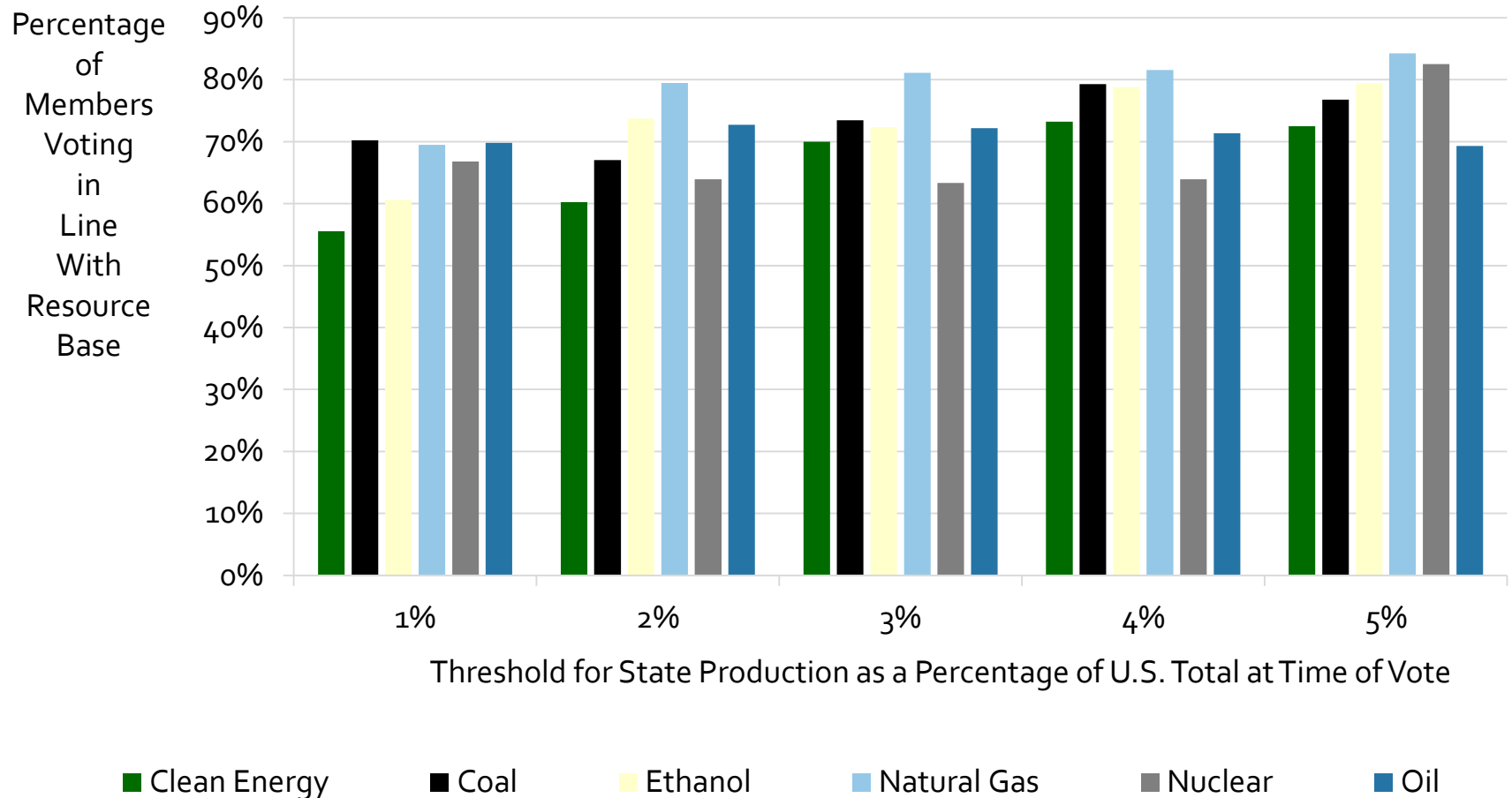
A "DEFECTION INDEX" CAPTURES LIKELY REGIONAL/RESOURCE LINKAGES



Source: ClearView Energy Partners, LLC using Library of Congress data

SUPPLY SIDE: LAWMAKERS VOTE FOR WHAT'S IN THE GROUND AT HOME

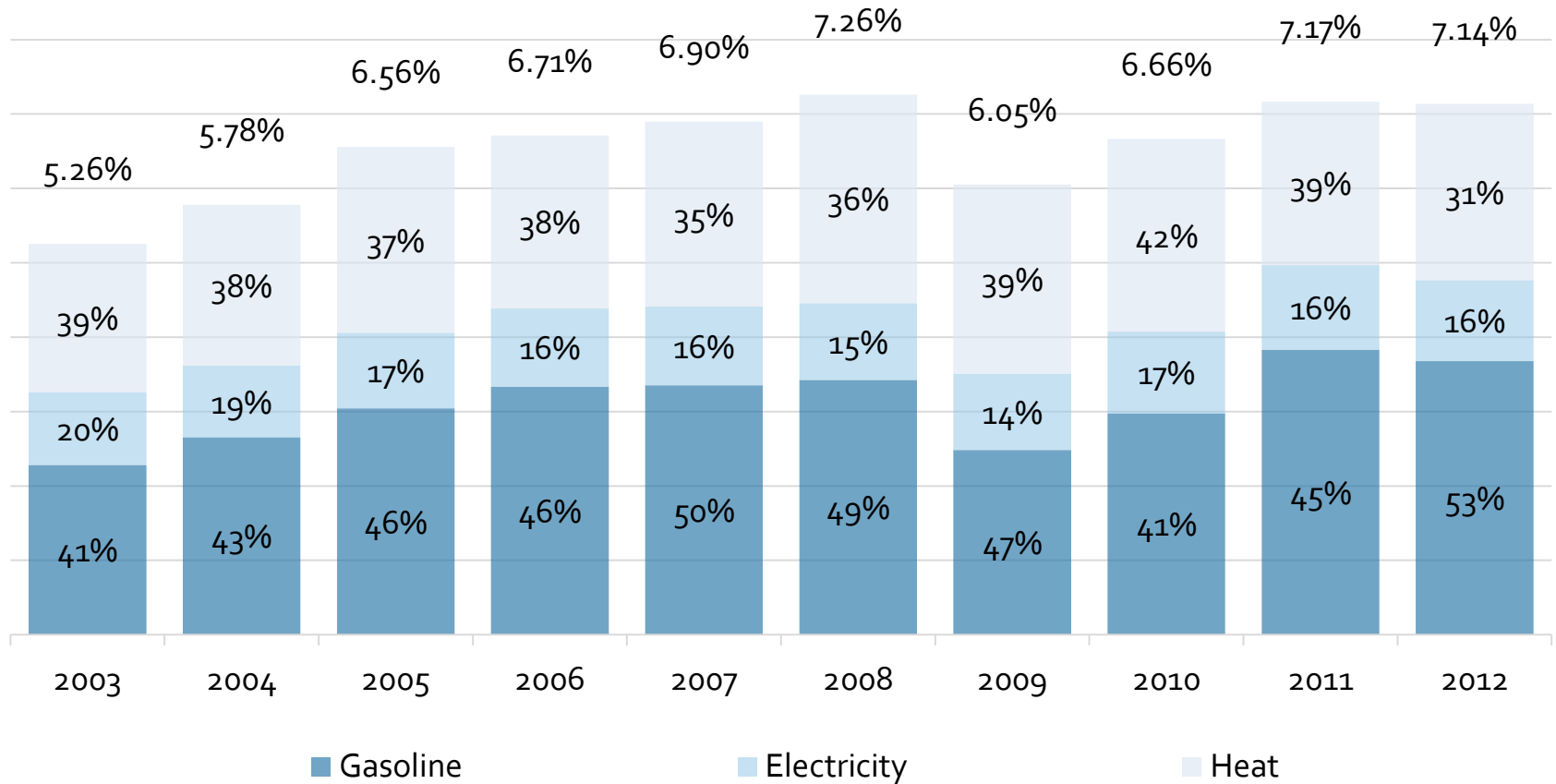
ON AVERAGE, MEMBERS VOTE WITH HOME-STATE RESOURCES 71% OF THE TIME



Source: ClearView Energy Partners, LLC using AWEA, EIA, RFA, SEIA and Library of Congress data

DEMAND SIDE: U.S. VOTERS CARE ABOUT ENERGY "WALLET SHARE"

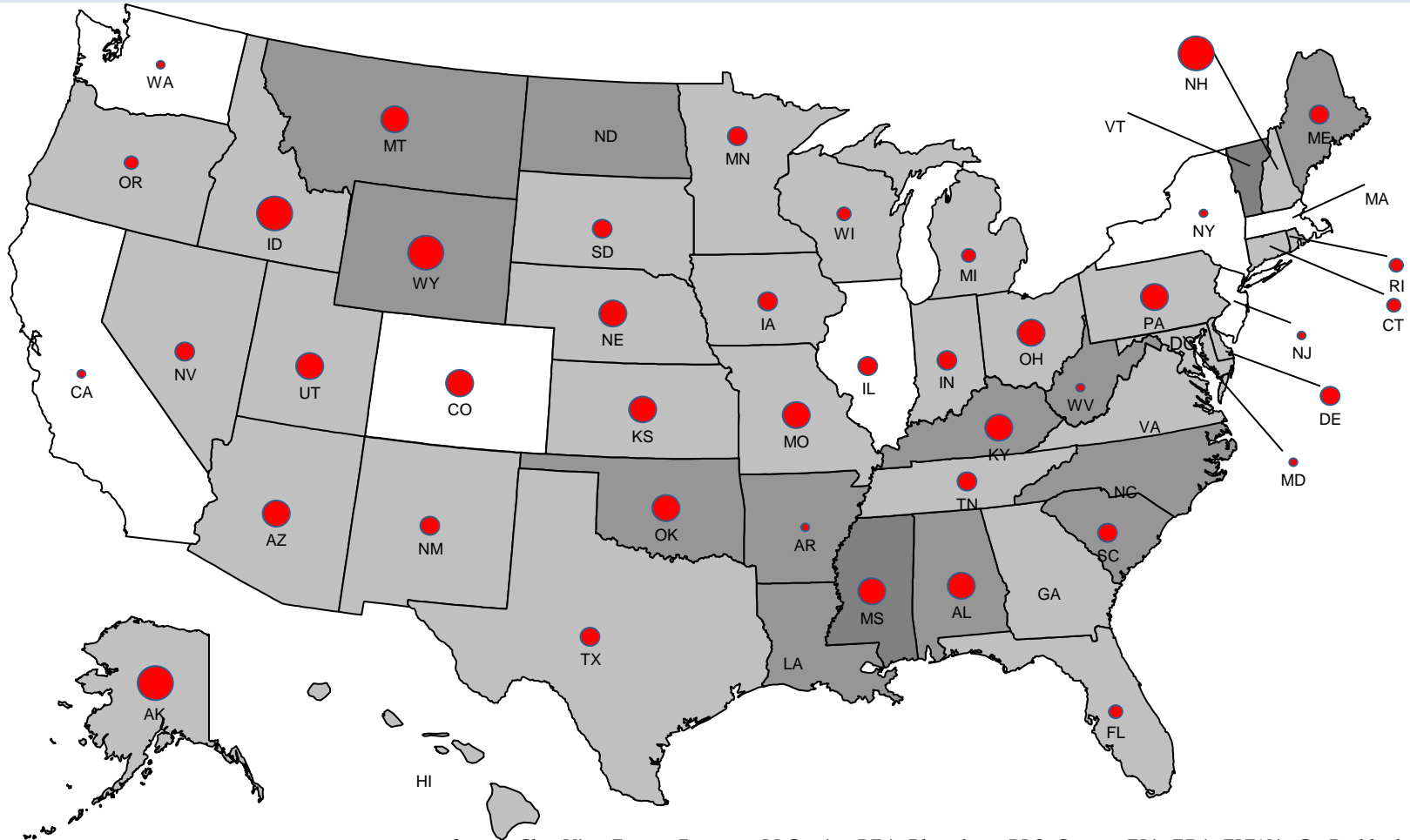
CONSUMER ENERGY LEVERAGE = % OF DPI ON GASOLINE, POWER, HEATING



Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

A FUNDAMENTAL CASE FOR INCREASINGLY PARTISAN ENERGY POLICY?

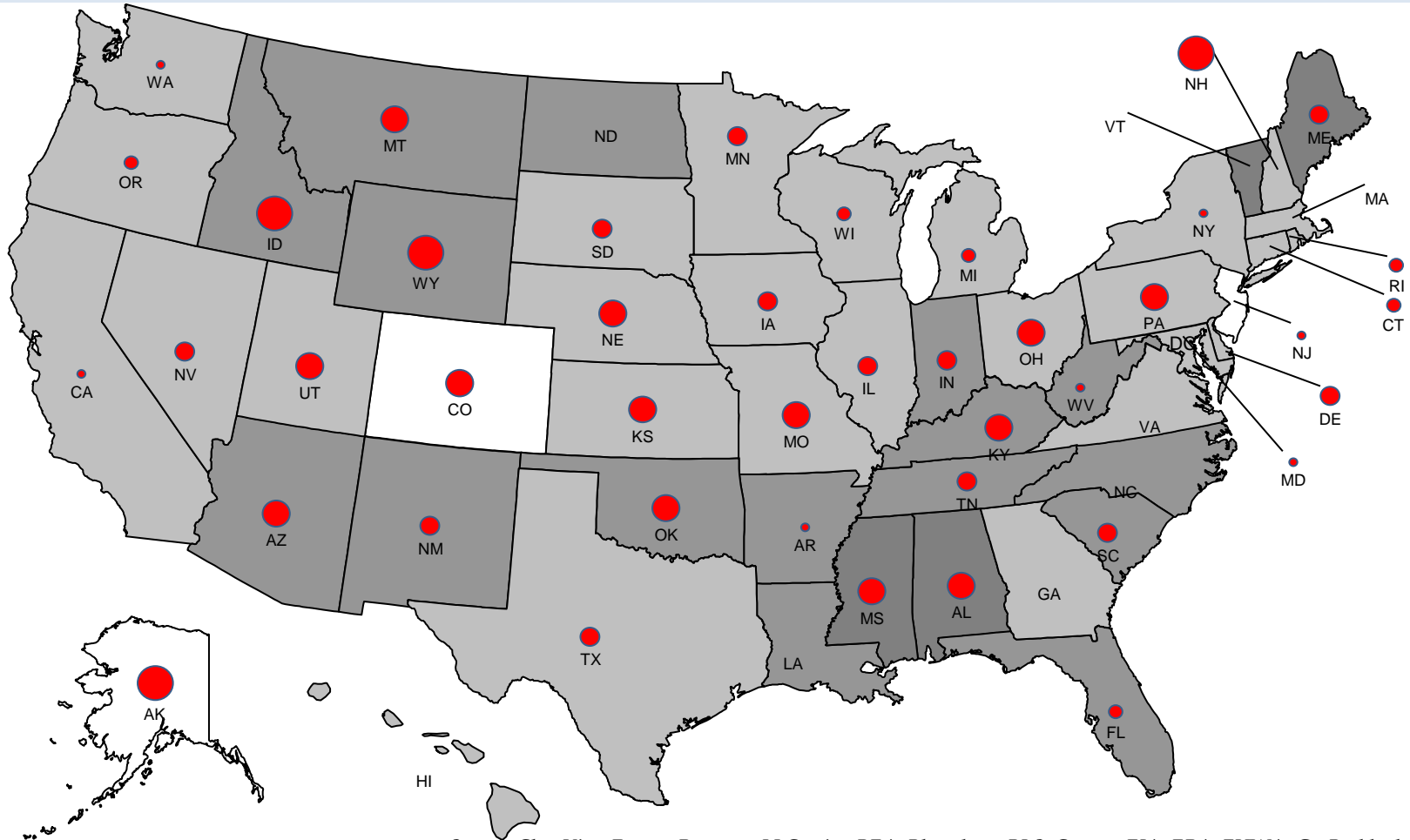
GOP GAINED GROUND IN CONGRESS IN HIGH-COST CONSUMER STATES: 2002



Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

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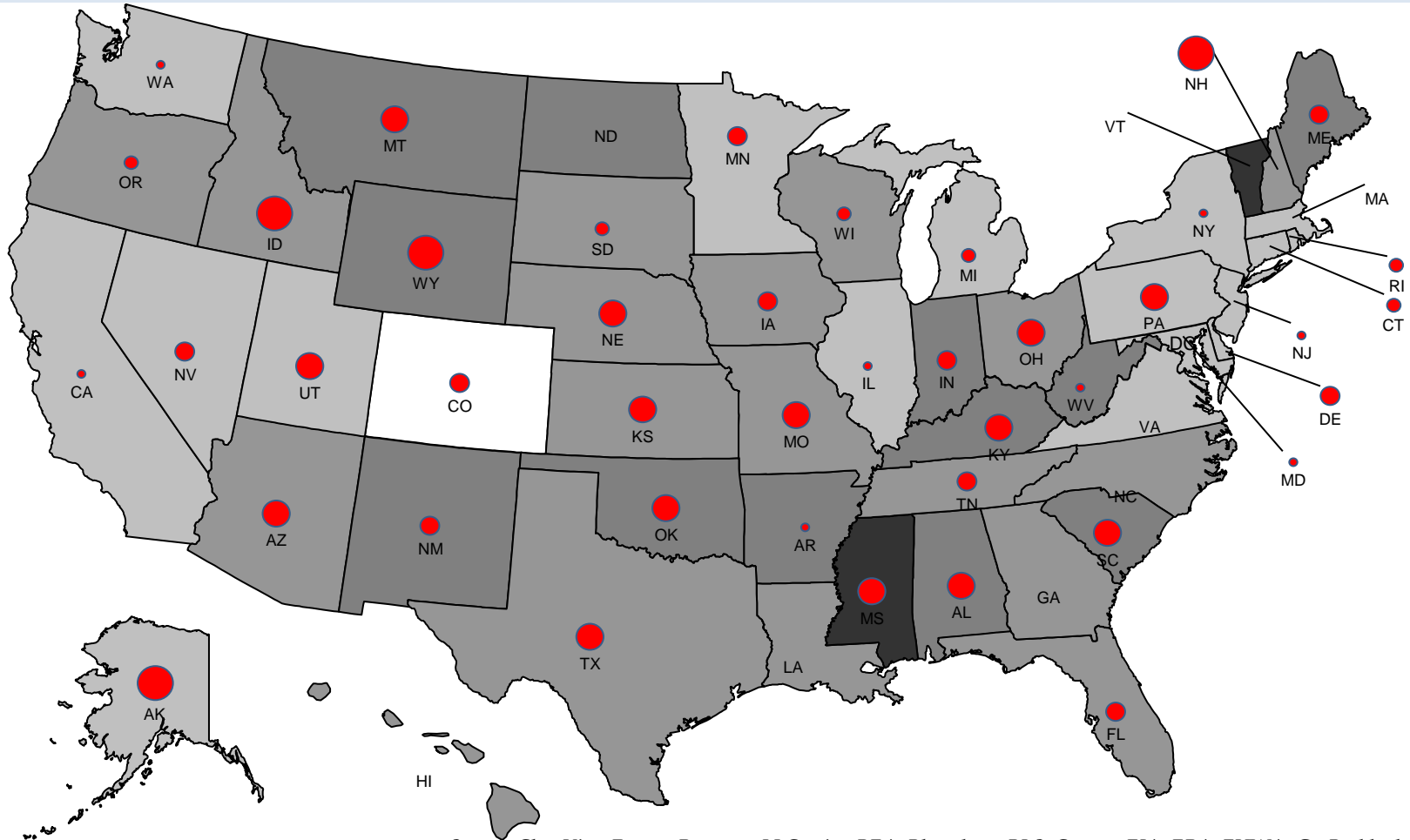
GOP GAINED GROUND IN CONGRESS IN HIGH-COST CONSUMER STATES: 2003



Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

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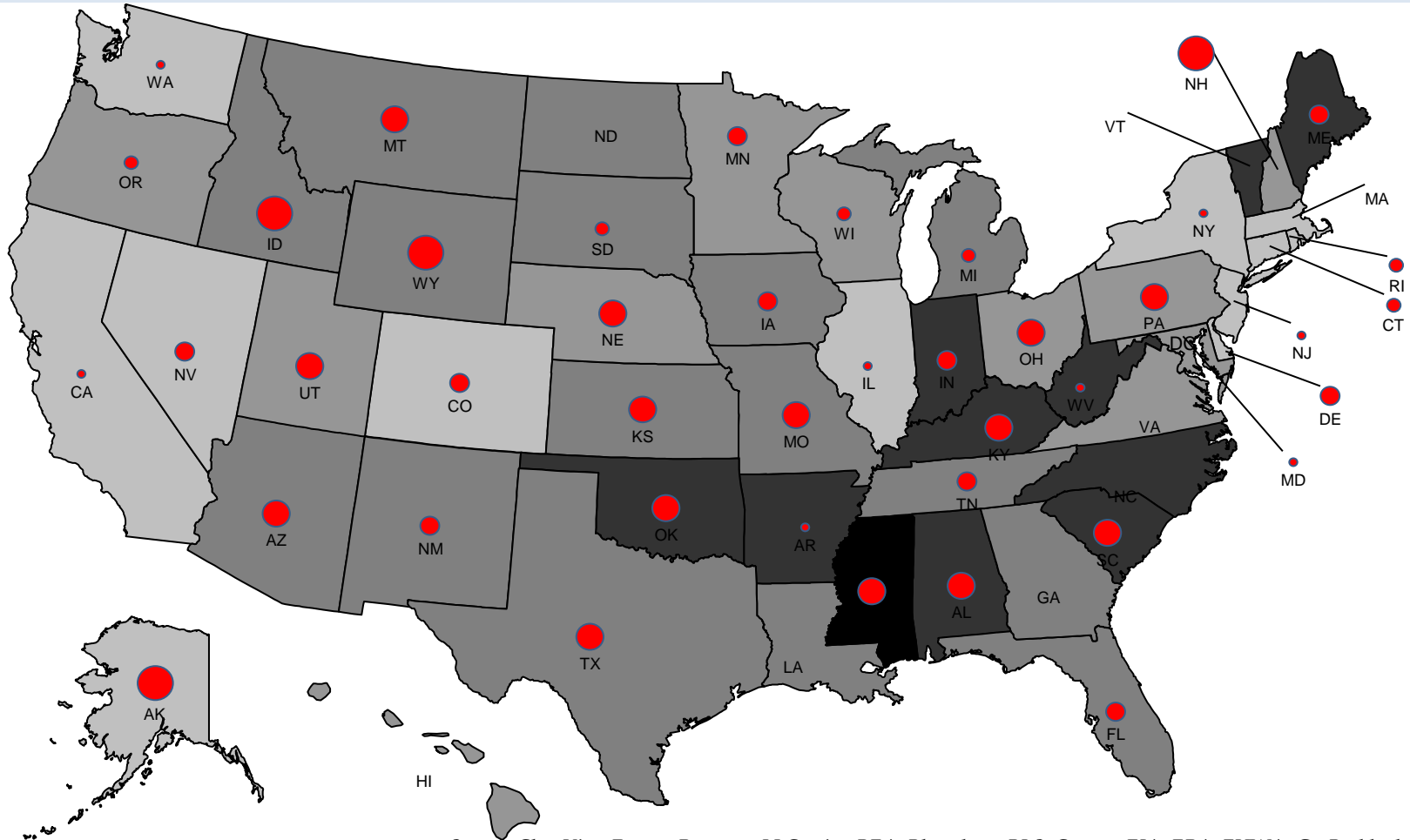
GOP GAINED GROUND IN CONGRESS IN HIGH-COST CONSUMER STATES: 2004



Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

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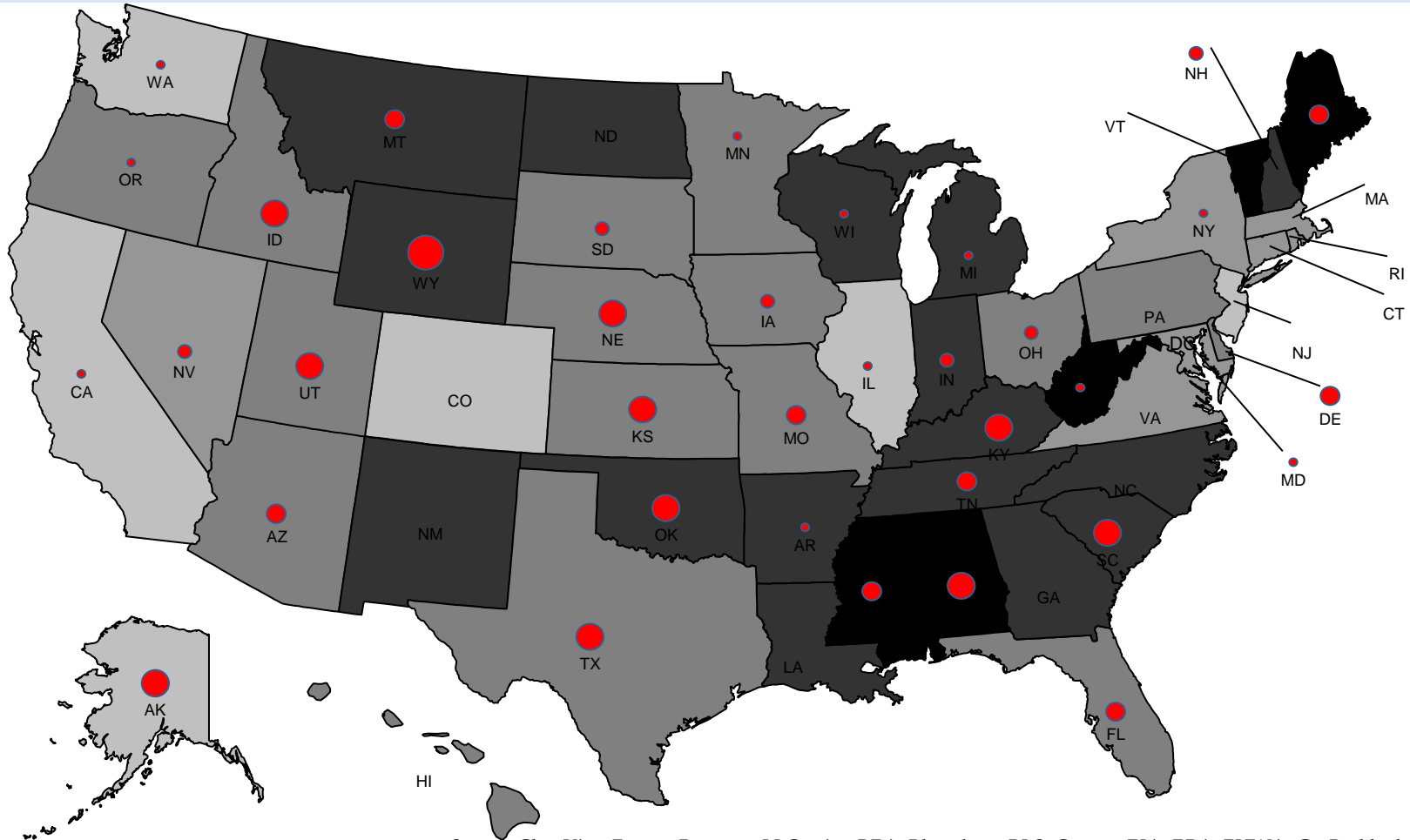
GOP GAINED GROUND IN CONGRESS IN HIGH-COST CONSUMER STATES: 2005



Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

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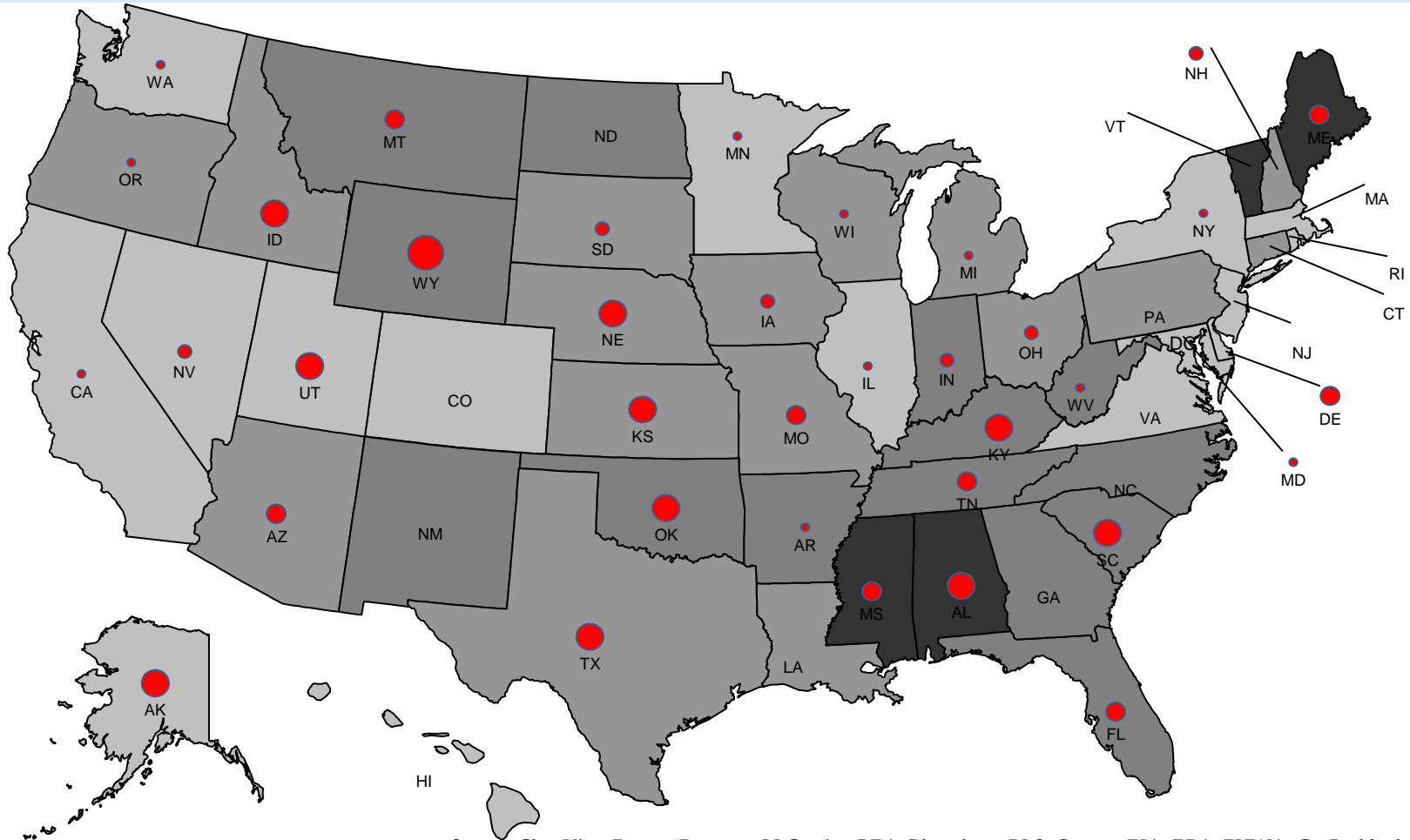
GOP GAINED GROUND IN CONGRESS IN HIGH-COST CONSUMER STATES: 2008



Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

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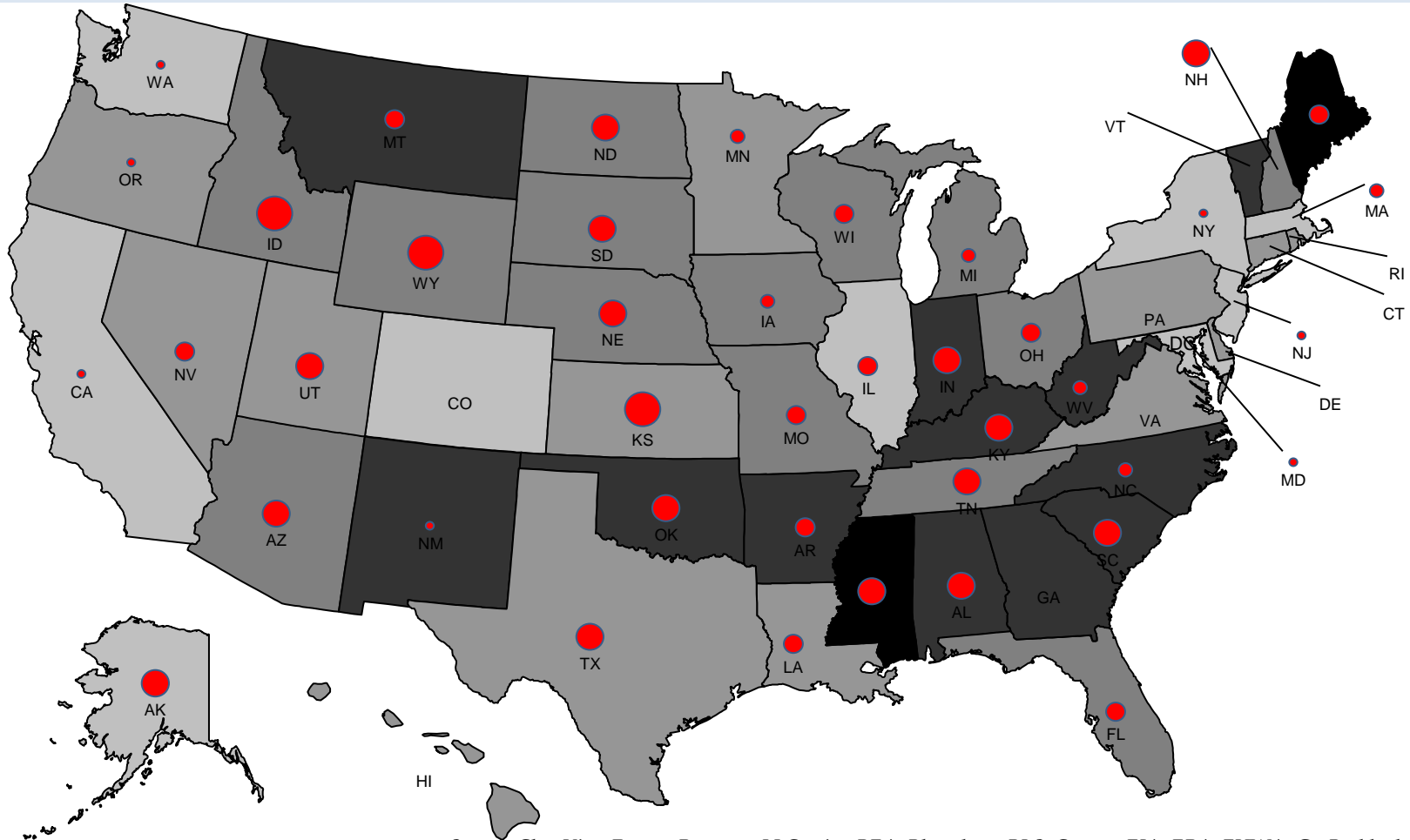
GOP GAINED GROUND IN CONGRESS IN HIGH-COST CONSUMER STATES: 2009



Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

A FUNDAMENTAL CASE FOR INCREASINGLY PARTISAN ENERGY POLICY?

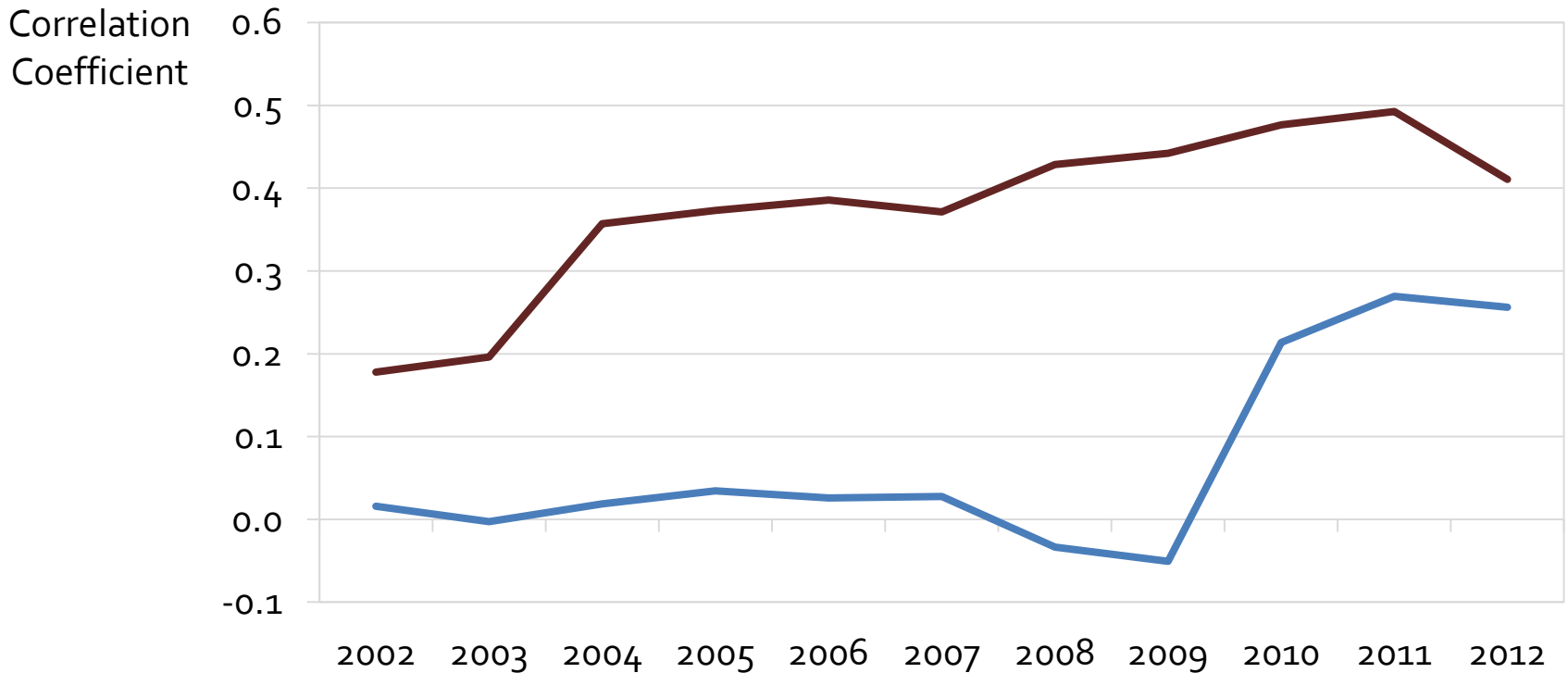
GOP GAINED GROUND IN CONGRESS IN HIGH-COST CONSUMER STATES: 2010



Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

A FUNDAMENTAL CASE FOR INCREASINGLY PARTISAN ENERGY POLICY?

GOP GAINED GROUND IN CONGRESS IN HIGH-COST CONSUMER STATES



- Correlation between % of House Delegation that is Republican and CEL
- Correlation between % of Senate Delegation that is Republican and CEL

Source: ClearView Energy Partners, LLC using BEA, Bloomberg, BLS, Census, EIA, EPA, FHWA, GasBuddy data

THE TRANSITION FROM SCARCITY TO ADEQUACY

REWRITING FOUR DECADES OF SCARCITY PSYCHOLOGY MAY TAKE A FEW YEARS

- ▼ Much of today's U.S. energy policy came from “running out” of energy:
 - The Strategic Petroleum Reserve (SPR)
 - Corporate Average Fuel Economy (CAFE) Standards
 - Federal tax credits for renewable power and alternative fuels and state Renewable Portfolio Standards (RPS) for green power
 - The Renewable Fuel Standard (RFS)
 - Exception: the “green stimulus” spending in the Recovery Act
- ▼ Briefly, energy policy economically aligned with environmental policy:
 - Reduced hydrocarbon consumption $\leftarrow \rightarrow$ carbon emissions avoided
 - The Great Recession broke the link, advances in tight oil production buried it.
- ▼ “Abundance” may not be the right word for it
 - U.S. households are still spending record amounts on energy.
 - The U.S. is still a net importer of crude oil and natural gas.

Source: ClearView Energy Partners, LLC

THE TRANSITION FROM SCARCITY TO ADEQUACY

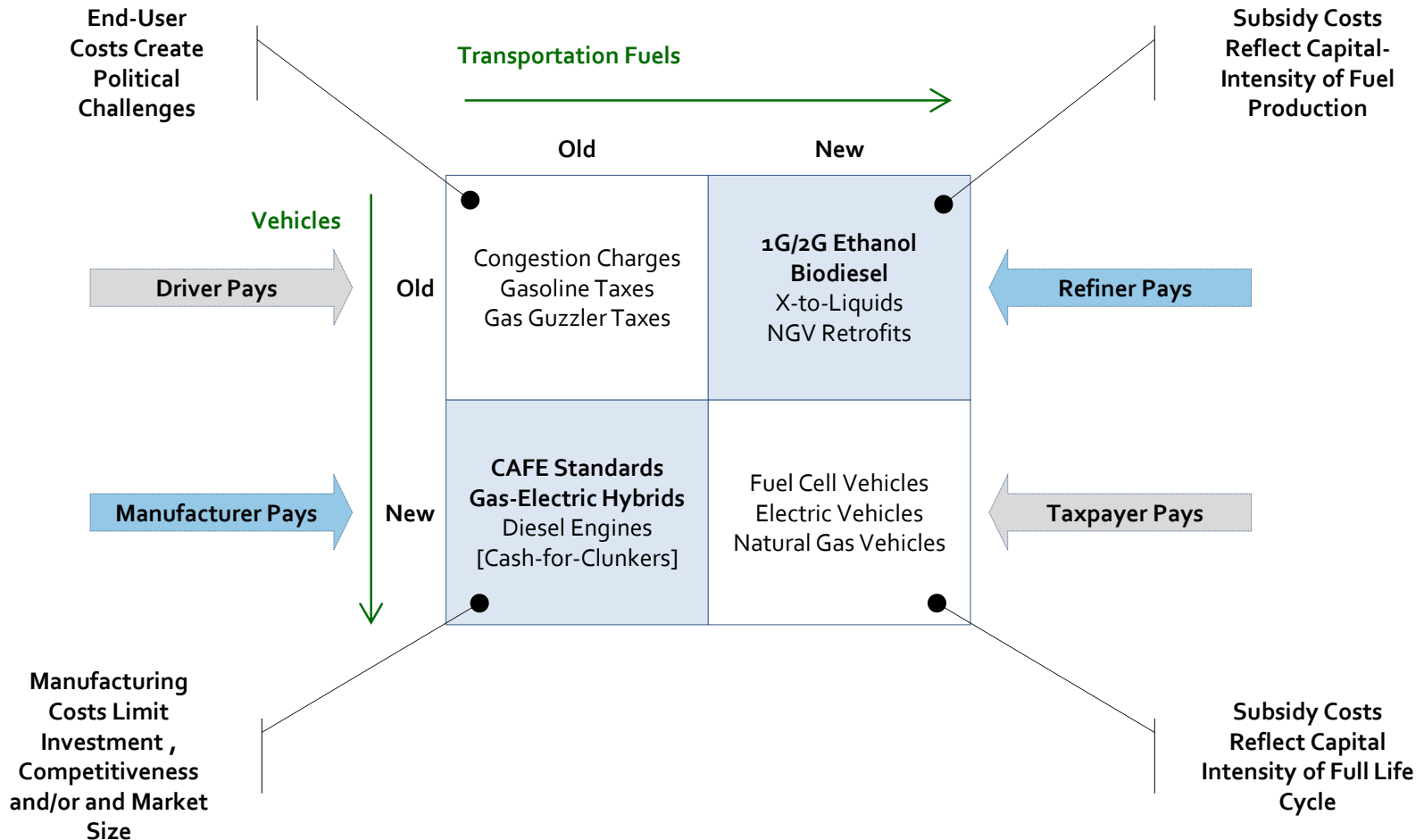
ENERGY SCARCITY IS A POLITICAL EMERGENCY; ENERGY ADEQUACY ISN'T

- ▼ The RFS vs. the gasoline supply
 - Absolute supply mandate vs. percentage-based demand limitation
 - EPA took administrative action after credit prices rose, but it isn't over yet.
- ▼ Soured-up, high-complexity refinery capacity vs. light, tight oil
 - Export limitations create a crude and products slate optimization challenge.
 - Production slowdown is likely to be a **lagging** indicator.
- ▼ Decentralized, net-metered rooftop solar installations vs. the power grid
 - Utilities are concerned about “free-riding” on the grid.
 - Socialized cost increases for regular customers are also a **lagging** indicator.
- ▼ Tight oil production vs. pipeline/other takeaway capacity
 - Resurgence of crude-by-rail has provoked regulatory scrutiny.
 - Shipper preference for rail optionality may be deterring pipeline investment.

Source: ClearView Energy Partners, LLC

THE TRANSITION FROM SCARCITY TO ADEQUACY

TRANSPORTATION POLICY OPTIONS: NEW FUELS, NEW CARS OR BOTH?



Source: ClearView Energy Partners, LLC

THE EVOLUTION OF U.S. ENVIRONMENTAL POLICY

THE “LOW HANGING FRUIT” HAS BEEN PICKED

- ▼ During the first three decades of active U.S. environmental policy, significant gains came at (proportionately) limited financial cost.
- ▼ The U.S. has entered an era of “expensive” air and water policies that provoke increased pushback from industrial stakeholders.
- ▼ Without low-cost natural gas, recent environmental policies and green power installations might have drawn greater end-user resistance.
- ▼ Artful litigation can contribute to binding regulatory outcomes, sometimes as a result of “**sue-and-settle lawsuits.**”
- ▼ Changes in U.S. political campaign law have contributed to the rise of **third-party, single-issue activism.**
- ▼ Environmentalists are increasingly targeting **energy infrastructure** that provides a “door” between resources and global markets.

Source: ClearView Energy Partners, LLC

THE EVOLUTION OF U.S. ENVIRONMENTAL POLICY

N.I.M.B.Y.



(NOT IN MY BACK YARD)

Source: ClearView Energy Partners, LLC

THE EVOLUTION OF U.S. ENVIRONMENTAL POLICY

B.A.N.A.N.A.



(BUILD ABSOLUTELY NOTHING ANYWHERE NEAR ANYTHING)

Source: ClearView Energy Partners, LLC

THE EVOLUTION OF U.S. ENVIRONMENTAL POLICY

N.O.P.E.

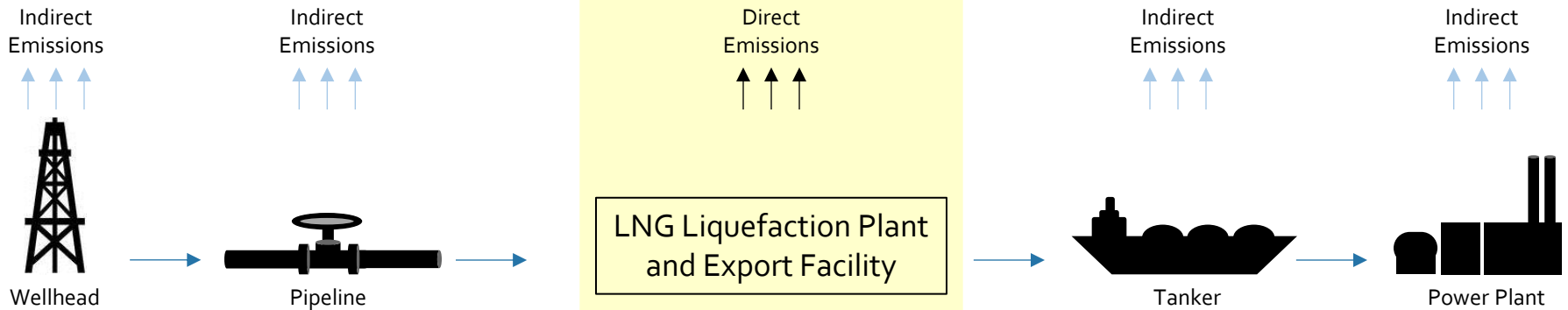


(NOT ON PLANET EARTH)

Source: ClearView Energy Partners, LLC

THE EVOLUTION OF U.S. ENVIRONMENTAL POLICY

THE "LIFECYCLING" OF INFRASTRUCTURE REVIEWS

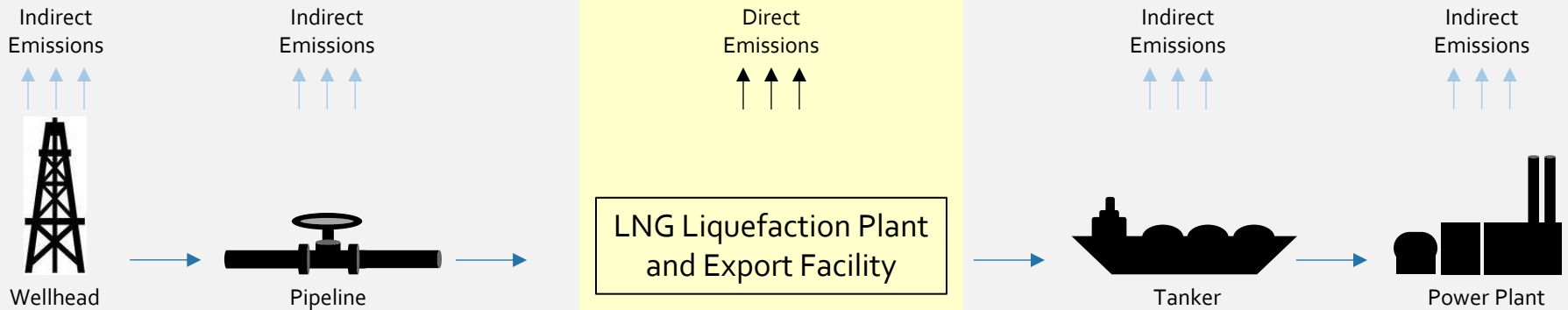


Current U.S. policy only requires federal permitting agencies to consider direct GHG emissions associated with energy infrastructure.

Source: ClearView Energy Partners, LLC

THE EVOLUTION OF U.S. ENVIRONMENTAL POLICY

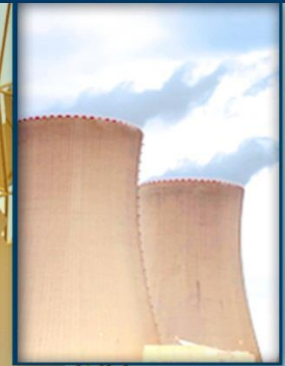
THE “LIFECYCLING” OF INFRASTRUCTURE REVIEWS



The Obama Administration has proposed (but not finalized) guidance that would require federal permitting agencies to consider upstream and downstream environmental impacts when reviewing energy infrastructure. Environmentalists and state permitting agencies are pushing for this change, as well.

In short, permitting agencies may be asked to consider whether infrastructure is a “door” to market without which upstream production (or downstream consumption) would not occur.

Source: ClearView Energy Partners, LLC



QUESTIONS / DISCUSSION