The 50 State Index of ENERGY REGULATION

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Energy is an essential part of our daily lives. Whether making the morning coffee, traveling to work, using computers, manufacturing goods, cooking dinner, or watching TV before bed, energy touches nearly every aspect of our lives.

The energy that we consume is primarily generated from oil, natural gas, and coal. But, it also includes nuclear power, hydroelectric dams, wind farms, and solar energy. All of these energy sources are subject to regulations, both federal and state.

Federal regulations on energy are expanding. For instance, the Environmental Protection Agency (EPA) has proposed regulations in June 2014 that, if implemented, would require a 30 percent reduction in carbon dioxide emissions relative to 2005 by 2030. This proposal exemplifies the expanding reach of federal regulations as well as the timeliness and importance of evaluating energy regulations at both the federal and state levels.

The *50 State Index of Energy Regulation* does not incorporate federal regulations because all states must comply with these regulations. It is important to note that equal compliance does not imply equal impact. For instance, the EPA's proposed carbon dioxide regulations will impact states with relatively more coal-fired power plants more than states with relatively fewer coal-fired power plants.

Historically, state energy regulations have focused on utilities, gas stations, motor vehicle fuels, and the level of energy consumption. However, the energy market continues to evolve in remarkable ways, and regulations are changing in response. State regulations now also focus on how electricity can be generated and the types of energy products consumers can use. Even the regulation of utilities has changed. Your local utility likely is no longer "your father's" util-

ity. Seventeen states now separate electricity generation and transmission in order to give residents and industries a choice from whom to purchase power. As a result, regulations increasingly affect independent electricity generators as well.

There are also monumental changes to the regulation of technologies used to produce energy, especially in the area of drilling technologies. Thanks to the hydraulic fracturing (fracking) revolution (the process of injecting pressurized fluids into wells in order to fracture the rocks and extract more oil and natural gas from each well), the price of natural gas has plummeted and the United States, once obsessed with its dependence on the Middle East for energy, is now projected to become the world's top producer of oil by 2015. With that growth, however, this process has come under increased public scrutiny.

Amidst all this change, state regulations are altering the evolutionary path of the energy industry. To evaluate a regulation's impact requires a consistent framework that can distinguish between public policy with a positive effect and policy with a negative one. Any such framework has a specific perspective, and whether the effect is positive or negative will be sensitive to the perspective chosen.

The *50 State Index of Energy Regulation* is not a political perspective. It is not trying to prove whether left wing or right wing arguments are correct. It is indifferent to whether red states or blue states rank higher. Nor does the *Index* adopt the perspective of those who are concerned or not concerned with climate change. As economists, we have adopted a basic economic perspective—economic efficiency—defined as allocating resources to their most productive uses. The effects of policies are evaluated, as objectively as possible, solely from that perspective. Policies that promote economic efficiency receive higher scores, those that reduce economic efficiency receive lower scores. Given the regulatory variation across states, a picture emerges of where in the country the regulatory environment for energy consumption, production, and distribution is relatively more economically efficient.

This economic efficiency approach does not deny that there are other concerns such as pollution or implications for geopolitical strategy and security. Instead, the economic efficiency approach supplies a useful perspective on state energy regulations. It also provides an important contribution to uncovering what data exist for defining and measuring the relative regulatory implications across the states. We welcome efforts to extend the economic efficiency perspective to include other concerns.

The economic efficiency perspective is also indifferent to the source of data. Whether the data come from the U.S. Department of Energy, conservation groups or energy industry organizations is not the defining factor. Data from all three are used in this study. The primary concern is that the data are consistent and reliable across all the states.

Care must be used in interpreting the final rankings. *The 50 State Index of Energy Regulation* is ordinal, meaning only the ranking order has information. The distance between absolute scores does not provide useful interpretation. The use of ordinal measures follows the tradition of many other well-known indices such as the World Bank's *Doing Business*, Transparency International's *Transparency Index*, and the *Wall Street Journal*/Heritage Foundation's *Index of Economic Freedom*.

Evaluating the regulatory environment from an economic efficiency perspective requires asking the right questions. The questions must capture for each state how regulations affect all energy industries and their consumption, production, and distribution decisions. In the end we condense a state's energy industry into seven component indices or sets of questions that form the core of the *Index* scoring and rankings. These core issues are:

1. What are the degrees of retail choice among energy suppliers for consumer, industrial, and commercial customers?
2. How stringent are restrictions on electricity production?
3. Are there restrictions on the transportation and transmission of energy?
4. What green technology subsidies does the state provide and how do these affect economic efficiency?
5. What are the regulations designed to reduce energy consumption including appliance and building code standards, and does the resulting drop in energy use trigger de-coupling or lost revenue recovery?
6. Do producers have flexibility to allow utility prices to fluctuate with market conditions? Can utilities easily adjust prices to reflect the costs of new plants and the rise in wholesale prices? What is the ease of constructing new utility plants?
7. How do regulations affect motor vehicles? How much of the gas price is state taxes? Can station owners offer self-serve pumps? Must refiners include renewable fuels in every gallon of gasoline? Are there idling or emissions standards that must be met? Are the fuel economy standards in a state higher than federal standards?

The answers to the questions come from data. The data in turn create a 10-point scale for each of the seven component indices. A score of 1 means a state's energy regulatory environment is relatively economically efficient (easy to allocate resources to where they are most productive), and 10 means a relatively inefficient economic environment (very difficult to efficiently allocate resources).

A state's overall *50 State Index* score is the simple average of the seven component indices for that state. Comparing the scores for the 50 states generates the ordinal rank. The results from the *Index* are summarized in the table on pages 6-7.

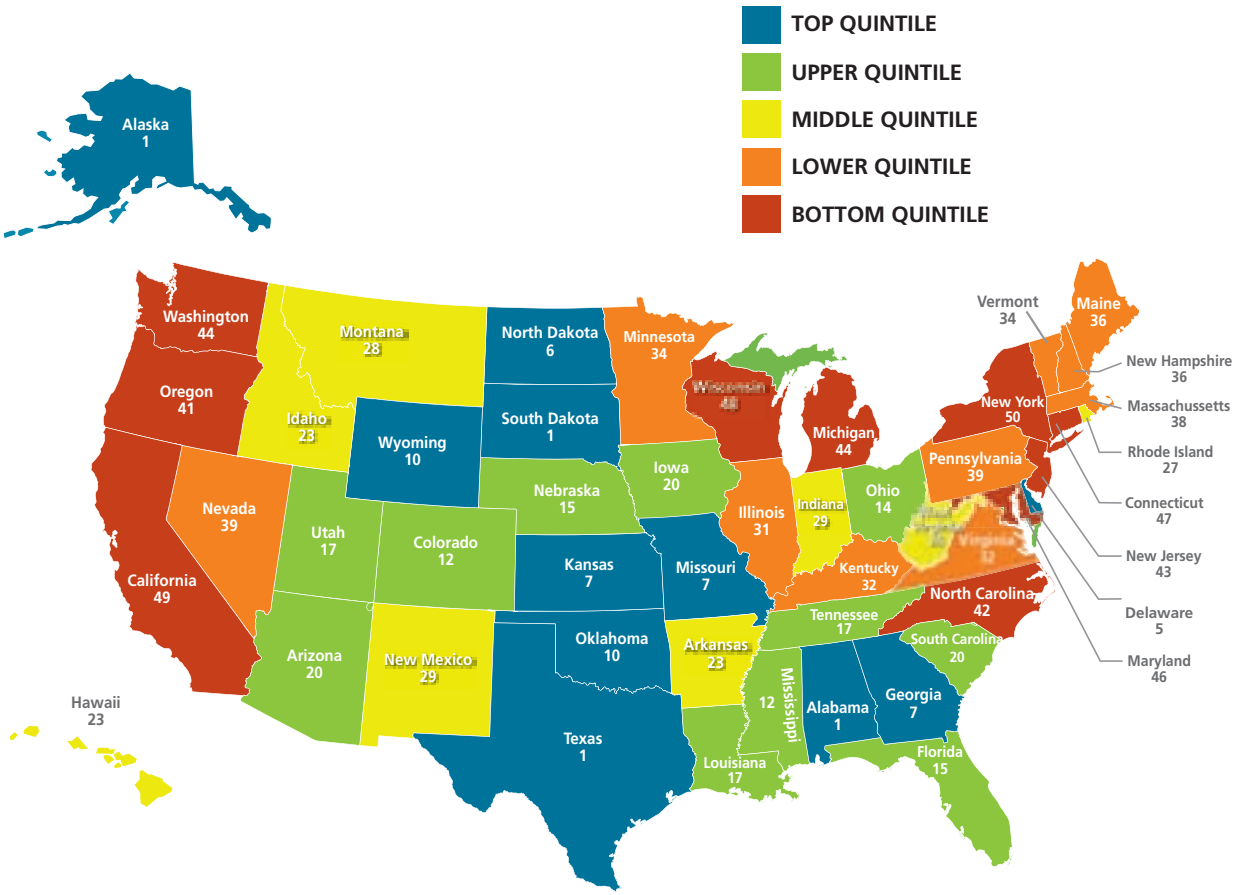
Several patterns emerge from the overall *Index.* First, there is little relationship between whether a state has substantial energy resources like oil, gas, and coal, and whether its regulations are economically efficient. Some big producing states like Texas and Alaska are ranked at the very top, yet California, another major energy producing state, is at the very bottom.

There is, however, a geographical pattern (see color-coded map below). States on the West Coast, in the Northeast, and in the upper Midwest have the most economically inefficient energy regulations. In contrast, states in the South and the heart of the country have regulatory environments more conducive to efficient allocation in production and consumption of energy.

The most interesting relationship is between a state's ranking and its economic growth rate. High ranked states on average grow faster than those ranked low. Moreover, the higher rate of economic growth is associated with faster employment growth. Energy regulation can, therefore, be an important factor in determining the eventual prosperity of a state.

This relationship makes sense. Energy is one of the essential ingredients that drives economic growth in a modern economy. Consequently, states that encourage the efficient production and consumption of energy should be expected to experience faster economic growth than those states that discourage economic efficiency in the energy marketplace. The *50 State Index of Energy Regulation* supports that conclusion.

The Relative Economic Efficiency of State Energy Regulations



The 50 State Index of Energy Regulation

	RANK	AVERAGE SCORE	REGULATIONS AFFECTING RETAIL CHOICE FOR ELECTRICITY	REGULATIONS AFFECTING PRODUCTION OF ELECTRICITY	REGULATIONS AFFECTING TRANSMISSION OF ENERGY
Alabama	**1**	4.29	10.0	1.0	2.0
Alaska	**1**	4.29	10.0	1.0	5.0
South Dakota	**1**	4.29	10.0	3.0	3.0
Texas	**1**	4.29	2.0	2.0	8.0
Delaware	**5**	4.48	6.3	4.0	2.0
North Dakota	**6**	4.57	10.0	3.0	3.0
Georgia	**7**	4.86	10.0	1.0	3.0
Kansas	**7**	4.86	10.0	5.0	6.0
Missouri	**7**	4.86	10.0	2.0	5.0
Oklahoma	**10**	5.00	10.0	4.0	3.0
Wyoming	**10**	5.00	10.0	2.0	5.0
Colorado	**12**	5.14	10.0	5.0	7.0
Mississippi	**12**	5.14	10.0	1.0	6.0
Ohio	**14**	5.24	7.7	3.0	6.0
Florida	**15**	5.29	10.0	2.0	6.0
Nebraska	**15**	5.29	10.0	1.0	2.0
Louisiana	**17**	5.43	10.0	2.0	5.0
Tennessee	**17**	5.43	10.0	1.0	7.0
Utah	**17**	5.43	10.0	4.0	5.0
Arizona	**20**	5.57	10.0	3.0	7.0
Iowa	**20**	5.57	10.0	2.0	5.0
South Carolina	**20**	5.57	10.0	1.0	6.0
Arkansas	**23**	5.71	10.0	1.0	10.0
Hawaii	**23**	5.71	10.0	3.0	4.0
Idaho	**23**	5.71	10.0	1.0	6.0
West Virginia	**26**	5.86	10.0	3.0	4.0
Rhode Island	**27**	6.00	4.0	4.0	5.0
Montana	**28**	6.05	7.3	5.0	3.0
Indiana	**29**	6.14	10.0	3.0	4.0
New Mexico	**29**	6.14	10.0	5.0	4.0
Illinois	**31**	6.19	5.3	6.0	5.0
Kentucky	**32**	6.29	10.0	2.0	6.0
Virginia	**32**	6.29	10.0	3.0	8.0
Minnesota	**34**	6.43	10.0	7.0	7.0
Vermont	**34**	6.43	10.0	3.0	6.0
Maine	**36**	6.48	6.3	9.0	8.0
New Hampshire	**36**	6.48	6.3	5.0	10.0
Massachusetts	**38**	6.52	7.7	5.0	7.0
Nevada	**39**	6.57	10.0	5.0	4.0
Pennsylvania	**39**	6.57	8.0	5.0	6.0
Oregon	**41**	6.62	9.3	3.0	4.0
North Carolina	**42**	6.71	10.0	2.0	6.0
New Jersey	**43**	6.81	5.7	5.0	9.0
Michigan	**44**	6.86	9.0	4.0	7.0
Washington	**44**	6.86	10.0	4.0	8.0
Maryland	**46**	7.10	4.7	5.0	5.0
Connecticut	**47**	7.14	6.0	6.0	7.0
Wisconsin	**48**	7.29	10.0	5.0	8.0
California	**49**	7.71	9.0	7.0	7.0
New York	**50**	7.86	8.0	9.0	8.0

REGULATIONS: SUBSIDIES & NET METERING	REGULATIONS AFFECTING CONSUMPTION OF ENERGY FROM UTILITIES	REGULATIONS AFFECTING PRODUCER FLEXIBILITY	REGULATIONS AFFECTING MOTOR VEHICLES
2.0	5.0	8.0	2.0
7.0	1.0	5.0	1.0
2.0	1.0	7.0	4.0
4.0	5.0	7.0	2.0
4.0	5.0	6.0	4.0
3.0	2.0	8.0	3.0
5.0	7.0	5.0	3.0
3.0	2.0	5.0	3.0
6.0	1.0	8.0	2.0
6.0	4.0	5.0	3.0
5.0	3.0	8.0	2.0
5.0	1.0	5.0	3.0
2.0	4.0	8.0	5.0
5.0	6.0	6.0	3.0
4.0	5.0	5.0	5.0
4.0	5.0	10.0	5.0
5.0	5.0	7.0	4.0
4.0	4.0	10.0	2.0
6.0	5.0	5.0	3.0
5.0	4.0	5.0	5.0
6.0	5.0	7.0	4.0
5.0	6.0	7.0	4.0
5.0	5.0	7.0	2.0
7.0	4.0	7.0	5.0
4.0	6.0	9.0	4.0
3.0	5.0	8.0	8.0
5.0	10.0	8.0	6.0
8.0	7.0	8.0	4.0
4.0	7.0	8.0	7.0
7.0	5.0	8.0	4.0
9.0	8.0	6.0	4.0
8.0	7.0	7.0	4.0
7.0	6.0	6.0	4.0
8.0	4.0	6.0	3.0
8.0	5.0	7.0	6.0
6.0	1.0	8.0	7.0
8.0	7.0	6.0	3.0
9.0	7.0	6.0	4.0
7.0	7.0	9.0	4.0
10.0	5.0	5.0	7.0
10.0	8.0	7.0	5.0
7.0	7.0	9.0	6.0
10.0	6.0	8.0	4.0
7.0	6.0	8.0	7.0
4.0	9.0	8.0	5.0
10.0	9.0	9.0	7.0
8.0	8.0	9.0	6.0
9.0	6.0	7.0	6.0
9.0	8.0	5.0	9.0
10.0	7.0	6.0	7.0

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