



SEVEN PRINCIPLES OF

SOUND **ENERGY** POLICY


MACKINAC CENTER
FOR PUBLIC POLICY

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SOUND
ENERGY
POLICY

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THE SEVEN PRINCIPLES

- 1 Energy is an essential aspect of human flourishing.
- 2 All energy sources have an environmental impact.
- 3 In energy production, scale is king.
- 4 Energy must be reliable to be truly effective.
- 5 Changing our energy systems takes time.
- 6 Energy must be affordable to be useful.
- 7 Energy subsidies harm more than they help.

INTRODUCTION

This paper is the second of a two-part series that describes the bedrock principles that should guide the development of energy and environmental policies across the nation. The first paper is titled “Seven Principles of Sound Environmental Policy.” This second report focuses specifically on guiding principles for energy policy. Together, these two papers defend the notion that a stronger reliance on free markets, property rights, personal responsibility and human ingenuity is the best way to both manage our natural environment and provide access to essential energy resources. These principles will help humans flourish while simultaneously improving the quality of the environment that we live in.

This series was inspired by the work of the first president of the Mackinac Center, Larry Reed. In his speech “Seven Principles of Sound Public Policy,” he described a set of general principles that should guide the development of effective public policy. The principles in this paper mirror Larry’s, but are specifically focused on energy policy. They provide policymakers with basic tools to help them recognize and craft policies that ensure energy supplies are abundant, affordable and reliable.

ONE.

Energy is an essential aspect of
human flourishing.

Energy is at the core of our economic well-being. It powers our lives, provides us instantaneous heat in the winter and cools us in the summer. It cooks our food, transports us and the products we use daily around the globe; it powers the technologies that inform us, entertain us, heal us, and so much more. In fact, abundant, reliable and low-cost energy was a, if not the, key reason humanity pulled itself out of the near-Hobbesian state of existence — “solitary, poor, nasty, brutish, and short” — that generations of our ancestors endured prior to the industrial revolution. Without this energy, the vast majority of humanity would likely return to a life of poverty, disease and want.

Some argue that issues like climate change, deforestation, or plastic pollution prove that contemporary lifestyles and free markets, all powered by our growing demand for energy, have allowed humanity to flourish at the expense

of our planet. However, even a cursory look at the lives we lead, and the rapidly improving state of our natural environment demonstrates something quite different. Our impacts on the natural environment and our wasteful use of energy resources, especially during the early stages of the industrial revolution and into the 20th Century, were based in ignorance and very different attitudes to the environment, not in a failure of free markets. Today, we're growing our knowledge and learning how to do far more, far more efficiently and far more cleanly.

Two.

All energy sources have an environmental impact.

We cannot escape the fact that all of our activities impact our natural environment. There are intrinsic tradeoffs to every energy policy we may pursue.

Burning coal to produce energy emits carbon dioxide and other pollutants into the atmosphere. Natural gas also emits carbon dioxide, as well as fugitive methane emissions from leaks in pipelines and drill sites. Hydroelectric energy sources can impede the natural flow of rivers and displace both humans and wildlife. Nuclear energy produces radioactive waste that must be recycled or safely stored.

But energy sources like wind and solar also have their share of negative environmental impacts. Both require an immense supply of raw materials and supporting infrastructure. We can't build them without mining, shipping, manufacturing and building, all of which consumes enormous amounts of


energy and land. They both also have significant impacts on wildlife. We do no favors for the natural environment if a wind farm, producing so-called green energy, contributes to the extinction of endangered bat and bird species.

Futhermore, the former Soviet bloc countries proved that government oversight does not entail a pristine environment. Open, transparent and competitive markets are our most effective means of meeting our energy needs and ensuring a constant push for more efficient and clean energy sources.

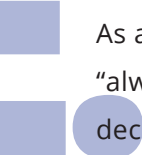
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THREE

In energy production, scale is king.



Most people can't even begin to comprehend the size of the energy system that we rely on to power our lives. We produce enough energy to power 380 million homes in the U.S. and we consume trillions of kilowatt hours of electricity each year. That amount of energy takes a lot of resources and a lot of generating power.



As a result, we have relied on massive, baseload — or “always on” — generation facilities for the past several decades. Now, smaller, localized grids and distributed generation, which produces electricity near to or where it will be consumed, are being championed. This type of energy advocacy is based in the thinking that a more diversified electricity grid will be more stable and will have lesser environmental impacts. But, achieving this transformation would require building hundreds of thousands of new generation facilities, meaning scale

remains a substantial challenge. We can't forget that 330 million Americans need a steady supply of affordable electricity to power their lives.


Mark Mills of the Manhattan Institute described the massive scale of rare earth minerals, metals and other supplies that we would need to switch our current electric grid over to renewable energy and the batteries we'd need to back them up. He noted that, to meet the goals of the Paris agreement, the world would need to mine as much as 1,000% more rare earth minerals. To meet the growing battery demand just for electric vehicles, we would need to expand mining for cobalt and lithium by 20 times today's levels.

He noted that a single wind turbine requires 900 tons of steel and 2,500 tons of cement, as well as 45 tons of

unrecyclable plastic. But plans to transform the grid to rely primarily on renewable energy, like the Green New Deal, would require that we build several hundreds of thousands more wind turbines. Mills also points out that plans for solar developments dwarf our plans for wind, but solar uses far more materials than wind. Michael Shellenberger with Environmental Progress agrees. His work has demonstrated that solar has a massive environmental impact: it produces 300 times more waste per kilowatt-hour of electricity than nuclear.

FOUR.

Energy must be reliable to be truly effective.



Imagine you run a small business and have two full-time employees. One is always available to work and supports the business at any hour. You can predict their arrival at the office by the minute and they work tirelessly throughout the day. The other employee shows up only one day out of every three or four — even less at certain times of the year — but rarely on a consistent schedule. They might work a few hours one morning and then leave, then come back the next day for an hour in the afternoon. To avoid production stoppages, you're forced to hire another person — much like the first employee — to fill in when the second employee is unavailable. But this is wasteful when your less reliable employee does show up, because now you're paying three people to do the work that could be accomplished by only two.

In energy terms, fossil fuels and nuclear energy are the first employee. They are there and ready to work whenever energy

is needed, and with improving technologies like fracking, we are finding more and more of them to use and making them more efficient and safe at their job. Renewable energy is the second employee. The wind does not blow and the sun does not shine 24/7. So, when renewables can't meet our energy demand, you still must rely on fossil fuels or nuclear.

Some will point to batteries as a means to make renewables more reliable. But Mark Mills' work also points out that if the largest battery factory on the planet — Tesla's Gigafactory — produced batteries every day for a year, all of those batteries would provide enough electricity to power the country for three minutes. If they produced batteries for 1,000 years, Mills notes they could provide enough electricity to power the country for two days. Clearly, we still have a long way to go before we can trust batteries to do the job that nuclear and fossil fuels do.

FIVE.

Changing our energy systems takes time.

Our energy system simply does not function on the same timeline that other, easily recognizable aspects of our life do. We have all grown accustomed to relatively rapid technological changes and frenzied media cycles. But energy systems operate differently, because the time it takes to simply build an energy generation facility is measured in years. Getting the permits approved and planning the construction can take over a decade.

Once they are built, fossil fuel plants can operate for 40 to 60 years, while nuclear plants can operate for 50 to 70 years. In fact, the Turkey Point nuclear plant, operated by Florida Power and Light has had its operating license extended to 80 years. We often hear about the rapid growth of renewable energy. But we should remember that these options have been available for decades, they are mandated in many states, they receive billions in subsidies, and are promoted

as essential by the media and elected officials. Yet, after all this time, they still only provide only about 7% of the nation's electricity. Furthermore, as we build more, they are beginning to face substantial local resistance from communities who no longer want to live near them.

Our energy system must be planned carefully, and well in advance, to avoid costly adjustments and fixes. We can't dispose of or replace existing generation facilities with new ones overnight. It takes time and a great deal of money to build the latest technologies into our energy infrastructure. Unlike many other sectors of our economy, the energy sector does not change with the latest fads or get immediately disrupted by new inventions.

SIX.

Energy must be affordable to be useful.

This seems obvious, doesn't it? If we choose more expensive, less reliable forms of energy to displace reliable and affordable ones, prices will go up. Sadly, those price increases will do the most harm to those who can least afford to pay the extra costs. While some view this as a sacrifice they'll happily pay in exchange for reducing our reliance on fossil fuels, for others it could force a choice between "heating or eating" — paying for the energy needed to heat their home or buying food.

The competition between fossil fuels, nuclear and renewable energy exists on a spectrum and most of us are still trying to figure out what the best energy options are. Which is the cleanest, safest, most reliable, and most affordable? Or how could I get the best mix of all of those characteristics?

The most efficient way humans have developed to answer questions like this is through the competitive pressures that markets provide. Markets give people the ability to choose what they want themselves at a price they can afford. Individual choices then push companies to provide reliable products and services that their customers actually want instead of something that has been mandated by a government bureaucrat or demanded by a vocal special interest group. Markets have proven to be the single best way we know to create incentives for technological investments and improvements that increase supply, reduce prices and improve safety.

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SEVEN.

Energy subsidies harm more than they help.

No one seriously expects that customers will willingly choose a less reliable and more expensive energy source, especially if they knew that their choice could have environmental impacts that are as problematic as the ones created by a more reliable and more affordable option. But that is exactly what happens when government subsidies and mandates artificially decrease the price of some energy, literally forcing those options into the energy market.

The proper role of governments is to set basic and limited safety and reliability standards and then get out of the way of private businesses who will compete to provide services within the bounds of those regulatory requirements. But heavy-handed legislation that pushes some options out of existence, mandates the use of others, and then forces taxpayers to subsidize politically preferred options is bad policy. Governments have twisted energy markets

to the point where the mechanisms that make markets work — prices, competition, scarcity — can barely function. The result has been rapid increases in energy prices and reduced choices and reliability. Instead of handing out subsidies, the government's approach should be to create a competitive marketplace that features a level playing field, with no special favors for any energy source.

ABOUT THE AUTHOR



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Jason holds a Master of Environmental Design (Environmental Science) degree from the University of Calgary, a Bachelor of Science in Natural Resource Conservation from the University of British Columbia and a Technical Diploma in Renewable Resource Management from Selkirk College. He lives in Midland, Mich., with his wife and three children.



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