

Iowa Roots: Speaking Truth to Power

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I was lucky to be born in Iowa. The nature of my childhood and later education at the State University of Iowa, odd as it seems, have relevance to fundamental political matters that I hope Iowans will think about. I will argue that Iowa could alter our nation's course on energy and climate, matters of monumental importance to our children and indeed to all life on Earth.

I was born in 1941 in a small farmhouse in western Iowa, the fifth of seven children. My father was an itinerant tenant farmer, moving from one farm to another, sharing crops with the owner.

By 1945 small farms were disappearing. My father took a job as bartender and we moved a small house to a lot in Denison Iowa. Our life then seems hard by today's standards. There were three bedrooms for nine of us. Even after we got a septic system the toilet was in the cellar, which required going outdoors. The only sink was in the kitchen, which was also the dining room. Washing up was done in turn, quickly. Our parents quarreled vehemently when our mother took a job as a waitress. I shrank in fear from our father's angry voice.

Yet it was a good life to grow up in small town Iowa in a time of rising expectations. Today's young people face a harder situation, with diminishing opportunities. That hurts deeply because, as I will explain, it is unnecessary, a result of tragic political machinations for which we adults must accept responsibility.

Politics back then was simpler. My father shouted "give 'em Hell, Harry!" and slapped the table while listening to President Truman on the radio. My father called the Republican Party "the rich man's party." But shortly before my parents divorced he took me to listen to General Eisenhower speaking from the back of a train, as he came through Denison on a whistle-stop campaign trip in 1952. My father decided that he "liked Ike", so he voted Republican.

Politicians were more honest regarding fundamental situations. Truman was blunt, with courage to remove war-hero MacArthur, thus maintaining civilian control of policy. Eisenhower warned us about the rising military-industrial complex. Below I contrast this with today's situation.

It was easier in those days for young people to get ahead. I had a paper route from 3rd grade and by high school was the distributor of the Omaha World Herald for Denison (competing with the Des Moines Register for customers). From such a job I could save enough for college, where costs were within reach of all. Costs today have exploded. With our federal government in cahoots with banks, many college students look forward to decades of debt, not a better life.

My good fortune was to go to the University of Iowa. Professor James Van Allen was building instruments in the basement of the physics building, including the one on the first U.S. satellite, which discovered Earth's radiation belts. In an exciting research environment Prof. Van Allen taught us how science works. The only "authority" was the rigorous objectivity of science.

Prof. Van Allen did not shirk from speaking truth to power and the public. When microwave ovens were introduced and fear of microwave radiation began to spread, Prof. Van Allen offered to sit on a microwave oven while it cooked his dinner. He helped quell irrational fear.

Prof. Van Allen told me about new data on the planet Venus. It led me to study why Venus was so hot and to propose an instrument for a mission to Venus after I joined NASA. The extreme heat on Venus turned out to be caused by the large amount of CO₂ in the planet's atmosphere.

CO₂ was known to be increasing rapidly on Earth, because of our burning of fossil fuels – coal, oil and gas. What would it mean for life on our planet? I formed a small team at the NASA Goddard Institute for Space Studies to study the problem.

We showed that Earth was warming by the amount expected due to the CO₂ increase. Later we showed that Earth was out of energy balance: Earth is absorbing more energy from the sun than it is radiating to space as heat. This confirms the most fundamental physics, as it is the added CO₂ that reduces heat radiation to space. The conclusion is based on data, not models.

One implication: more warming is “in the pipeline”, without additional increase of atmospheric CO₂. In turn, it follows that CO₂ emissions must be reduced rapidly or young people in coming decades will face unacceptable consequences: continually retreating shorelines, shifting climate zones with extermination of many species, increasing occurrence of climate extremes with widespread disruption to food and water supplies, more severe droughts and heat waves, more damaging forest fires, stronger storms, and greater flooding.

Implications for energy policy are crystal clear. Most remaining fossil fuels must be left in the ground, unless the CO₂ is captured and buried. There is no serious scientific debate about this.

Remarkably, scientific analysis also shows that the policies needed to achieve fossil fuel phasedown would also address problems such as underemployment and growing income disparities. Why are such policies not pursued, if they are in the best interests of the public?

I learned why when I worked for the government. I was repeatedly warned not to connect the dots in the climate problem all the way to policy implications. End steps must be left to “policy-makers” and, it turns out, to special interests. NASA did not want to annoy the powers that be.

Scientists are trained to analyze complex problems and connect all the dots. If we fail to tell the whole story clearly, if we shirk speaking truth to power, we fail our children and grandchildren.

The truth is that present energy and climate policies of the United States and the United Nations are dishonest and tragic.

Out of one side of their mouths our leaders profess to understand that we have a planet in peril and that we must rapidly phase down CO₂ emissions. At the same time they encourage pursuit of almost every fossil fuel that can be found, while knowing that such policies make achievement of climate goals impossible.

The fundamental reason that fossil fuel emissions continue to increase is that they appear to the consumer to provide the cheapest energy. This apparent cheapness is a mirage. Why? (1) We subsidize fossil fuels directly, and indirectly by protecting supply lines. (2) Impacts of air and water pollution are borne by the public; e.g., if your child gets asthma, you pay the costs, not the fossil fuel company. (3) Costs of climate catastrophes are borne by the victims and taxpayers.

We should make the price of fossil fuels honest by collecting a gradually rising carbon fee from fossil fuel companies. It is easy to collect, at domestic mines and ports of entry. 100% of the collected money should be given to the public, an equal amount to each legal resident, distributed electronically to bank accounts or debit cards. Not one dime to the government.

The person doing better than average in limiting his “carbon footprint” will make money. He will have an incentive to reduce fossil fuel use via future purchases. Entrepreneurs will have an incentive to develop no-carbon products. Businesses will be able to plan energy investments.

Detailed economic studies show that a carbon fee of \$10 per ton of CO₂, increasing \$10 each year, will reduce U.S. CO₂ emissions 33% in 10 years. That is 12 times more than the amount of carbon in the oil that would be carried by the Keystone XL pipeline.

While a tax would depress the economy, a fee with 100% of the money distributed to the public spurs the economy. After 10 years national employment increases 2.1 million jobs! The simple explanation is that honest pricing of energy makes the economy more efficient.

I should explain why I say that our governments' policies are "dishonest and tragic." They are dishonest because they pretend that policies that try to "cap" emissions could actually phase down emissions rapidly, for example the "cap-and-trade" of the Kyoto Protocol or Democratic bills in Congress. These amount to tax increases, they depress the economy, and they reduce emissions very little. And what "cap" would India accept – three times that of the U.S.? This is why governments allow all fossil fuel development, fracking, deep-ocean and Arctic drilling, mountaintop removal – because they know that their carbon policies are ineffectual.

Why tragic? Because policies that would actually work, fee-and-dividend in particular, do not cost the economy anything. They would spur the economy, create jobs, and modernize our infrastructure as we move to clean energies and energy efficiency.

Is it possible that Iowa, perhaps in cooperation with one or more neighboring states, such as Nebraska, Minnesota or Wisconsin, could help avert the tragedy? I believe it is conceivable that Midwest common sense could affect national and international policies by providing an example. A regional carbon fee cannot rise too high without disadvantaging local industry, because states do not have the practical ability to impose border tax adjustments. However, up to a reasonable level the net effect of a carbon fee would be beneficial, if the proceeds went to the public.

There is a conservative tendency in the Midwest. But conservatives are not the enemy of the planet. Historically conservatives have been the environments best friend. Conservation and creation care should be in the blood of conservatives.

A political divide has developed because conservatives fear that liberals will use the climate issue to increase taxes and government intrusion into their lives. These concerns provide fertile ground for anti-science nut-cases (global warming is a hoax!) to flourish.

Most conservatives I know are thoughtful. They do not want to go down in history as being responsible for blocking effective action to stabilize climate. Gaining their support for a rising revenue-neutral carbon fee, which is in fact a conservative approach, is possible.

A rigorously nonpartisan organization, Citizens Climate Lobby, has grown rapidly in the past several years. Their objective is to promote fee-and-dividend. They are unfailingly polite and respectful, but also knowledgeable and determined. They have met with legislators in almost all states. They could be a valuable resource in helping to organize a Midwest climate initiative.

Finally, I point out that, although a gradually rising carbon fee is the essential foundation for a successful policy to rapidly phase down our fossil fuel addiction, there are other requirements. The crucial technical need is abundant affordable carbon-free electricity generation.

Today, except for limited hydroelectric and biomass power plants, there are two options for baseload electricity: fossil fuels and nuclear power. We will not be able to phase out fossil fuel power plants without major contributions from nuclear power.

Most nuclear power plants in operation today are of a 40-50 year-old technology, yet they have saved millions of lives by displacing fossil fuel power plants. Fossil fuel air pollution kills more than 3.7 million people per year globally. Pollution is much less in the U.S. than in China or India, yet thousands of people are killed by it every year in the U.S. In contrast the one major nuclear accident in the U.S., at Three Mile Island, Pennsylvania, may result in the death of 1-2 people, which is undetectable among the 40,000 cancer deaths that will occur from other causes among the Pennsylvania residents exposed to radiation.

Modern nuclear technology has major improvements including passive shutdown in case of emergency and an ability to cool the nuclear fuel without external power. It is also possible to include reactors in the nuclear fleet that “burn” nuclear waste and utilize 99% of the energy in the nuclear fuel, compared with less than 1% in the older technology. Thus the nuclear waste problem can be solved and, if we choose, we can stop mining uranium because we have shown that an inexhaustible amount of nuclear fuel can be sieved from the ocean.

There is an analogy between the nuclear and aircraft industries. At the time of the earliest airplanes, who would have imagined that we would fly huge aircraft with more than 100 people at altitudes of 10 miles without parachutes! If a window broke at that altitude, everyone could die! So we worked on the technology. Now the chance you will lose your life by flying from New York to LA is much smaller than if you drove your car. Yes, there is still danger, especially due to human error, and we must be vigilant and develop control systems to minimize danger.

President Clinton in his State-of-the-Union message in 1993 made the chilling announcement that he was eliminating unnecessary programs such as nuclear power research and development. However, nuclear technology is not disappearing from Earth, on the contrary, and if the U.S. drifts further toward technical mediocrity, leaving nuclear leadership to nations such as Russia, the world will be a more dangerous place. If the United States chooses to focus on being a petro-state, the economic well-being of our children eventually will decline further.

Fortunately, all clean energy technologies would be spurred by the carbon fee-and-dividend approach, providing a broad revival of our technology leadership in many areas, especially clean energies which should all be free to compete rather than specified by politicians. The result would be greatly improved economic well-being for future generations.

It is not always easy to speak truth to power, but all citizens have the opportunity if they choose. I have one minor, easy suggestion for you to consider, and another requiring more effort.

The first concerns “Big Green”, the large ~\$100M per year environmental organizations, which have become one of the biggest obstacles to solving the climate problem. After I joined other scientists in requesting the leaders of Big Green to reconsider their adamant opposition to nuclear power, and was rebuffed, I learned from discussions with them the major reason: they feared losing donor support. Money, it seems, is the language they understand. Thus my suggestion: the next time you receive a donation request, doubtless accompanied with a photo of a cuddly bear or the like, toss it in the waste bin and return a note saying that you will consider a donation in the future, if they objectively evaluate the best interests of young people and nature.

The other suggestion is to donate time to Citizens Climate Lobby. They need people to write letters-to-the-editor and op-eds, and to visit Congress people. The aim is to make the price of energy honest, in a way that spurs our economy, creates good jobs, and enhances the future of young people and nature. To be sure, our democracy has developed flaws, especially the inordinate role of money in Washington, but we still have the opportunity to make it work.