

## Chapter 42. Old King Coal Lives

**Coal reemerged in the 21<sup>st</sup> century** as the largest global source of CO<sub>2</sub> emissions. Climate stabilization is implausible if coal emissions are not phased out.

The best plan seldom appears out of thin air. Trial and error, live and learn, be open-minded, whether building a rocket or an energy policy. A few anecdotes help to illustrate.

George Polk, a young British entrepreneur, invited me to give a global warming talk in London in the spring of 2007. I was still an uncomfortable public speaker. Let's just say I was awkward and hesitant. Afterward George politely offered to pay for speaking lessons, but I had no time.

I could write better than I could speak. On the plane ride home, I wrote a 2-pager that I titled *Old King Coal*. In it I argued that the West must urgently stop building coal-fired power plants and work with developing countries to help them achieve needed energy without carbon emissions. I sent it to a list of people who had contacted me by e-mail about climate change.

A moratorium on coal-fired power plants “should be the rallying issue for young people” I wrote. “It seems to me that young people, especially, should be doing whatever is necessary to block construction of dirty (no CCS) coal-fired power plants.” CCS is carbon capture and storage.

With verbiage like that, I could not reject a request from a student – a member of a student-run arm of the Sierra Club – to join a march on the state capital to “ReEnergize Iowa.” In the public square in Des Moines on 5 August 2007, I read a hand-written one-page summary of a 3-page “[stewardship declaration](#),”<sup>1</sup> which I put on [my just-created website](#).

The bottom line was a suggestion that citizens ask political candidates to support three actions: (1) moratorium on construction of coal-fired power plants that lack carbon capture and storage, (2) gradually rising price on carbon emissions, (3) incentives for energy and carbon efficiencies. The *Des Moines Register*, I am told, did a good job of summarizing what I said.

**During the ReEnergize Iowa march**, I was buttonholed by a woman who described plans for a new coal-fired power plant in Marshalltown. Would I come back to fight it, to testify before the Utilities Board? I preferred to work on science, but it's hard to reject a face-to-face request.

The power plant would make electricity for a factory to make ethanol from corn – a bad idea for the planet, for young people, and for taxpayers subsidizing the project. Ethanol production was framed as a way to reduce CO<sub>2</sub> emissions, but actually it increased overall emissions. The project made sense only for people who made money from it – at taxpayers' expense.

My written testimony had to be prepared in a Q&A format. Great. I was sure that it would be easy to describe the climate problem in a way the public could understand. I prepared a 59-page [expert report](#).<sup>2</sup> A persuasive explanation – I thought. It should help the Utility Board and public understand the climate threat.

The *Marshall County Sun* quoted me as: “The economics-versus-environment issue is a false one. The cheapest source of energy is energy efficiency, and if power plants made more money by helping us be efficient (rather than making more money when they sell us more energy), you can bet they would find a lot of ways to do it.” When asked why he felt compelled to speak as a

private citizen, Hansen replied, “I have grandchildren who will inherit what we leave them. I see a train wreck coming down the road if we don’t get off the business-as-usual path.”

“No one is interested in ruining the environment,” said Marshalltown Mayor Beach. “If coal is as bad as the opponents say it is, we would all have three legs and two heads. Reason must prevail here.” Many good-paying jobs were associated with the ethanol and power plants.

**“Reason” and Mayor Beach prevailed.** The Utility Board approved the power plant by 2-1 vote. If that weren’t enough, weather on the day of testimony, 17 January 2008, was awful, with freezing rain. I rushed from the hearing to drive to Iowa City, where I was to give a seminar.

Driving as fast as I dared, I came upon an unexpected stop sign, braked only a bit, but went into a slide, sideways and backward, down the highway, for what seemed like forever, my heart pounding. Luckily, there was no traffic in the oncoming lane and my car stayed on the road. After that adrenalin rush, I proceeded more slowly and was only slightly late for my talk.

My Iowa experience was sobering. Local job creation overruled concern about climate. My “persuasive” report was not persuasive at all. A coal executive attacked my report for my use of an insensitive metaphor – I compared coal trains to death trains – for which I had to [apologize](#).<sup>3</sup>

Times were tough in Iowa. Big time agriculture had taken over most family farms. Jobs in manufacturing were lost, in part because of poorly conceived international trade agreements. Wages in packing plants fell, as owners were allowed to exploit immigrant labor.

Local politics rule, it seems. Does that mean citizen efforts cannot affect global climate? Not at all. Success in stabilizing climate depends upon action at the local level, at least in a democracy.

**Deb Arnason contacted me in 2007.** She was trying to stop construction of a big pulverized coal power plant in the Everglades. I provided a statement that concluded: “Such a coal plant would be an extremely foolish investment. It is clear that, during the next few decades, we will need to ‘bull-doze’ all coal-fired power plants that do not capture and sequester CO<sub>2</sub>.”

Deb claims that her reading of the statement at a Public Service Commission hearing helped in their opposition to the Florida power plant. However, her group won the case because of their numbers and persistence and the demonstrable effects of coal on local air and water pollution, with a bit of support from the global climate issue. Citizen action is hard, but it can work.

Deb introduced me to Beth Henry of North Carolina. Could I please accept an invitation from Jim Warren, Director of NC WARN (North Carolina Waste Awareness & Reduction Network)? They wanted me to give climate talks in Charlotte and Raleigh-Durham, North Carolina.

**Jim Warren is a gentle man,** but fierce in his resolve to move the Carolinas and the U.S. to a future of renewable energy and energy efficiency. He asked me to give a talk on the climate impact of fossil fuels. Mike Nicklas would follow with a talk on efficiency and renewables.

Warren wanted to pressure Duke Energy, so he was delighted to see Jim Rogers, CEO of Duke Energy, in the audience. Before we went on stage, Warren noted that there may be questions about nuclear power, which he opposed. But he said I should feel free to give my own opinion.

Indeed, I was asked about nuclear power: should it be part of the energy solution? I did not have a strong opinion. I gave a rambling answer. I said that CO<sub>2</sub> produced by nuclear power, including construction and mining activities, was as low or lower than renewables, but there were issues about nuclear waste, potential for radiation release, and rising construction costs of nuclear power plants. Jim Warren seemed happy with my response.

Jim Warren wanted me to pressure Duke Energy to go all-in on all-renewables and close nuclear, coal, and gas power plants. It was not clear that Warren had a realistic understanding of the magnitude of future electricity needs. On the other hand, Rogers was planning to replace a dirty, inefficient coal-fired power plant with a new more energy efficient coal-fired power plant. It was not clear that Rogers understood the urgency of the climate matter.

**Rogers' and Warren's evaluations of the energy story** were a Grand Canyon apart. Surely, the truth was not that uncertain. The situation cried out for a workshop: bring in top experts in the disparate fields needed to understand the energy-climate problem and brainstorm on an energy pathway. I wanted to do that, but first we had to finish the Target CO<sub>2</sub> paper.

By March 2008 a complete draft of the Target paper was ready. Jim Warren and Beth Henry encouraged me to send and publicize a letter bashing Duke's continuing plans to build new coal plants. Instead, I wanted to use the sugar and stick approach: praise Rogers as a respected captain of industry who could help inspire and inform the public and persuade politicians about actions needed to stabilize climate – but I would also remind him of potential liability lawsuits against carbon polluters now that the gravity of the climate situation was clear and present.

I sent the [letter to Rogers](#) on 25 March 2008 proposing a one-day workshop at Columbia University with top experts in energy efficiency, renewable energy, carbon capture, and nuclear power. With no response from Rogers after six days, I published the letter in a communication ([Mr. Rogers and Darth Vader](#))<sup>4</sup> on my Columbia website – a few thousand people, including some media, had signed up to receive the communications – and Jim Warren sent out a press release titled “Climate Expert Says Energy Chiefs Have Stolen Big Tobacco's Playbook.”

Mr. Rogers responded the next day – he was interested! We agreed to meet and make plans for a workshop on one of his next trips to New York. This would be a big-time CEO, compensated at \$28M per year, meeting with an inarticulate climate scientist. Jim Warren and Beth Henry began to worry that Rogers would use the workshop to feign climate concern while continuing to burn coal – Rogers was adept at such “greenwash,” they said.

However, there was plenty of time to get educated about energy and organize the workshop effectively. The Bush/Cheney Administration still had 8-9 months in power. We should complete the workshop, with recommendations, before the next President took office.

**Meanwhile, I was contacted by Eric Svenson, a Vice President of PSE&G**, a huge utility in the Northeast United States, comparable in size to Duke Energy. Ralph Izzo, Chairman and CEO of PSE&G, wanted me to give a climate talk to him and the top 12 PSE&G executives.

On 11 April 2008 I took a local train to Princeton Junction, New Jersey. There waiting was a long, shiny white limousine, longer than any I had seen. It could have carried a baseball team. I sat about halfway back, in case I needed to talk to the driver.

Ralph Izzo was trained as a physicist and did not need to be persuaded about climate change. My talk was mainly on climate science, but we agreed that a “price on carbon” was needed to reduce fossil fuel use and encourage efficiency. Our differences of opinion would emerge later.

Izzo proposed that PSE&G host the workshop. Probably that’s why I was invited to speak. PSE&G wanted to have their oar in the water, to help steer the policy boat.

**Dinner with Mr. Rogers** was on 19 May 2008 at Nello Restaurant on Madison Avenue. High class – I had to guard my table manners. We agreed that the workshop should be in Washington, so Congress people or their staffers could attend. Our discussion was amicable. He would provide contacts at Duke who could help work out details of the workshop.

My views about how we could move to carbon-free electricity were affected by persuasive arguments of Amory Lovins about the untapped potential of energy efficiency. I was also enthusiastic about the possibility of a national high-voltage low-loss (direct current) electric grid to allow more sharing of energy resources among different regions. These views were described in a 14 April 2008 [letter to Nevada Governor Jim Gibbons](#).

The critical issue, however, was the price on carbon – the devil was in the details. My concept of a carbon price turned out to differ from that of Rogers and Izzo as day from night.

**Carbon price? What did that mean?** Fossil fuels are artificially cheap because governments provide subsidies. Taxpayers also pick up the tab for military protection of supply lines. Worse, we let the atmosphere be a cost-free dumping ground for waste products of fossil fuel burning. Fossil fuels also pollute our groundwater, streams, rivers and oceans. Air and water pollution kill thousands of people every day and sickens millions. The public bears the huge health costs.

This is stupid, economists agree. Prices must be honest for an economy to be most efficient and generate the most wealth for everyone. The fossil fuel price should include its costs to society.

The simplest way is a carbon tax – a tax on coal, oil, and gas in proportion to the amount of CO<sub>2</sub> each release. A simple carbon tax is unfair – very regressive – and it won’t work. Low-income people use a large fraction of their money on fuel, while a rich person would hardly notice the tax. Al Gore wanted to add a measly five cents per gallon to the gasoline tax; he was promptly handed his head on a platter – figuratively. French President Emmanuel Macron introduced a fuel tax, and the “yellow vests” promptly handed him his head on a platter.

It was not hard to think of a simple way to make a carbon tax anti-regressive, while also being the fastest way to drive down carbon emissions – but getting it adopted would require knocking down a political favorite that did not fit the problem. It’s amazing how difficult that would be.

**Cap & trade was a rabbit hole** that politicians dived into. Cap & trade is an approach to limit harmful pollutants by placing a market-based price on emissions. Companies must hold permits for their emissions; the permits are bought and sold at prices determined by supply and demand.

Cap & trade had notable successes. The Ronald Reagan Administration pioneered its use to phase out lead from gasoline in the 1980s, and the George H.W. Bush Administration used it to reduce sulfur emissions from power plants. These were specific limited pollutant sources.

The Environmental Defense Fund, a New York-based environmental organization that promoted the use of cap & trade, persuaded Vice President Al Gore that cap & trade was a good approach for global carbon emissions. Under Gore's urging, the 1997 Kyoto Protocol adopted cap & trade as its mechanism to reduce global CO<sub>2</sub> emissions.

By a decade later it was obvious that the Kyoto Protocol was ineffective. In the decades preceding 1997 CO<sub>2</sub> emissions increased 1.5 percent per year. After the Protocol emissions continued to increase, with an even faster growth rate: 2.5 percent per year.

**A cap approach is unworkable** for a global climate agreement. What is India's emission cap? Indonesia's? What is the cap on each of the 200 nations? Most nations will not sign up to a cap as strict as needed. Their obligation is the prosperity of their people, raising as many people as possible out of poverty. We need an approach with the potential to raise global prosperity, not an approach that asks each nation to sacrifice.

The CO<sub>2</sub> emissions issue needs to be reframed in the simplest possible terms. Global prosperity, which includes the condition of the nest that we all live in, will be maximized if the price of each energy source honestly includes its costs to society. Those energies that damage the nest – and note that climate damage is as great or greater in the developing world as in the mature economies – must be honestly priced. Indeed, climate science shows that the emissions price must rise to a level that phases out fossil fuel emissions over several decades.

The simple, honest and exact approach is for a nation to collect a fee from fossil fuel companies at the source: the domestic mine or port of entry. The fee should be uniform, a single number, in dollars per ton of CO<sub>2</sub>, for coal, oil and gas.

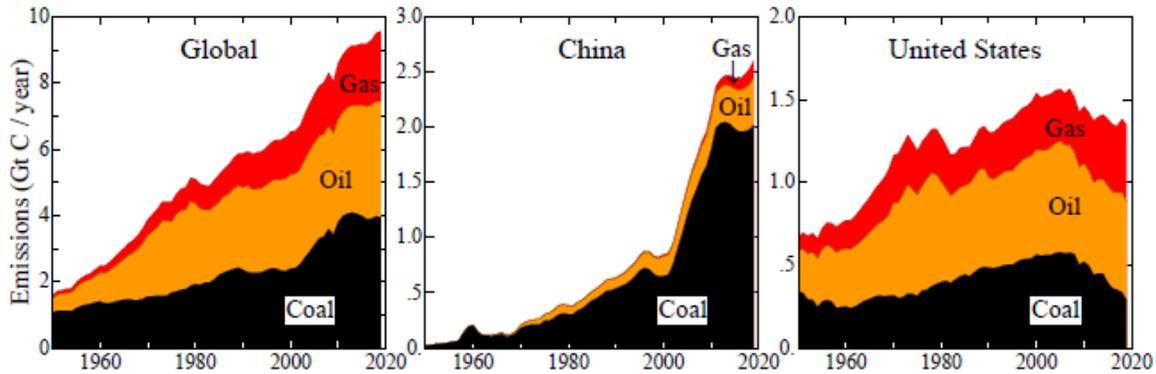
If the money is taken by the government, it becomes a regressive tax. A simple way to avoid that is to distribute the money uniformly to legal residents via a monthly or quarterly electronic deposit to their bank account or debit card. The administrative costs are thus small. All legal residents should be in the Internal Revenue System unless they are hiding from the government.

Fossil fuel companies will raise fuel prices to cover the tax. However, with a uniform dividend – including half a share per child for up to two children per family – most low-income and middle-income people come out ahead. They get more in the dividend than they pay in increased prices.

The fee should rise fast enough to drive down emissions rapidly. A rising fee can be beneficial to the economy as it stimulates innovations in clean energy and energy efficiency. Economic studies in the United States, for example, find that a growth rate of \$10 per ton of CO<sub>2</sub> per year decreases emissions 30 percent in 10 years, while increasing GNP and creating millions of jobs.

I made the fee & dividend proposal at least as early as a [talk](#)<sup>5</sup> that I gave on energy policy on 3 June 2008, but for almost a year I called it “carbon tax & 100% dividend.” The dividend idea almost surely originated with Peter Barnes who wrote a book<sup>6</sup> in 2001 on a “cap & dividend” energy policy, which he widely advocated.

**Peter Barnes was in the audience** on 23 June 2008, the 20<sup>th</sup> anniversary of my 1988 testimony, when I had the opportunity to [address](#) the Select Committee on Energy Independence & Global Warming of the United States House of Representatives. After my talk, Peter suggested that we publicly support each other's proposed approaches to a carbon price.



**Fig. 42.1. Fossil fuel CO<sub>2</sub> emissions at time of G8 meeting in 2008; update provided later.**

I declined Peter’s suggestion, because the “cap” approach is fatally flawed for the global climate problem. There is no chance that we can talk down the 200 caps on global nations to the level that is needed to preserve living conditions on our magnificent home planet, our only home.

We must take the global view. An across-the-board – coal, oil, gas – rising carbon fee can be economically beneficial overall, if the carbon fee rises at an appropriate rate. Overall means on average. It will be necessary to address the fact that some nations will be losers and the fact that some nations burned far more than their fair share of the global carbon budget.

A rising carbon fee can be instituted by the economically most powerful nations. Those nation(s) would also employ a border duty on products from countries that do not have an equivalent carbon fee, and they would rebate to their own manufacturers the carbon fee paid on products sent to nonparticipating nations. These border adjustments will encourage almost all nations to join the accord so that they can collect the fee themselves.

**Governments’ stubborn refusal to admit failure** of the Kyoto cap-and-trade approach was driven home to me in 2008 when I made trips to Bonn, London and Tokyo, as described in a [Trip Report](#) that I put on my website. I wrote letters to Chancellor Angela Merkel, Prime Minister Gordon Brown, and Prime Minister Yasuo Fukuda prior to the trips.

The [letter to Merkel](#), and the other two letters, concluded that scientific facts dictate the need for (1) phase out of coal use that does not capture CO<sub>2</sub>, and (2) a rising price on CO<sub>2</sub> emissions. I met with the Environment Minister, Sigmar Gabriel, but failed to persuade him that Germany should have a moratorium on building more coal-fired power plants or that carbon fee & dividend was superior to the European Trading System (ETS). He repeatedly asserted that they would “tighten the carbon cap” in the ETS as much as needed to handle both of these issues.

The UK Minister of the Environment, Phil Woolas, replying for the Prime Minister, was equally immovable. Key phrases in his 2-page response: “For the UK, the starting point...is to recognize the central role of the EU Emissions Trading Scheme (EU ETS), particularly given the EU’s ambition that ‘cap and trade’ should form an integral part of a global climate change deal.”

Given such intransigence – by nations most concerned about climate change – it seemed more promising to communicate with the public. An invitation to give the [keynote talk](#) at a United Nations University symposium on 4 July 2008, coincident with a G8 meeting hosted by Japan, was an opportunity. I wrote a letter to Prime Minister Fukuda similar to those written to Merkel and Brown, but I was determined to release it publicly.

The geophysical data showed that the Kyoto Protocol and the cap & trade schemes were not reducing emissions: on the contrary, emissions were accelerating (Fig. 42.1). Yet the G8, comprising the world's most powerful nations, practically ignored the matter.

On the bus ride from Narita airport to the university I added to the end of my letter: "Prime Minister Fukuda, I would like to thank you for helping make clear to the other leaders of the eight nations the great urgency of the actions needed to address climate change. Might I make one suggestion for an approach you could use in drawing their attention? If the leaders find that the concept of phasing out all emissions from coal, and taking measures to ensure that unconventional fossil fuels are left in the ground or used only with zero-carbon emissions, is too inconvenient, then, in that case, they could instead spend a small amount of time composing a letter to be left for future generations. This letter should explain that the leaders realized their failure to take these actions would cause our descendants to inherit a planet with a warming ocean, disintegrating ice sheets, rising sea level, increasing climate extremes, and vanishing species, but it would have been too much trouble to make changes to our energy systems and to oppose the business interests who insisted on burning every last bit of fossil fuels. By composing this letter, the leaders will at least achieve an accurate view of their place in history."

Young people at the United Nations University arranged a press briefing when I arrived the afternoon before my talk. The next morning, they hand-delivered the letter to the Prime Minister's office; his office accepted the letter only after they learned it was already discussed in major Japanese newspapers.

Citizens must lead, when governments fail. If you keep talking, you never know when you might bump into someone capable of leadership.

**Marshall Saunders** attended one of three talks that I gave 17-18 December 2008 during AGU week in San Francisco, each of which included fee & dividend at the end. Several days later he sent an e-mail asking "Would you consider doing what Mr. Gore did, and train people to give your slideshow ... I think it would be a half day training."

That never happened, but I put my presentation charts on the internet and became a recruiter for an organization Marshall had already started, Citizens Climate Lobby (CCL). CCL is much more effective than my presentations. My input was only to adjusting his objectives for CCL, as he explained in the e-mail below, after I incorrectly described our first meeting.

"Dear Jim, Just for the record, the first CCL Group Start was October 7, 2007. I met you in 2008 very briefly when you received the Nierenberg Prize from Scripps. I made the focus of CCL fee and dividend after you spoke at the Price Carbon Initiative at the Visitor's Center at the Capitol Building with Representative John Larson, Brent Blackwelder and others. That was December 9, 2008. Before that, we were lobbying for cap and trade and offsets even though we didn't understand it and couldn't explain it. Marshall"

[Citizens Climate Lobby](#)<sup>7</sup> is our best hope for getting a price on carbon in a way that can grow rapidly and cause a rapid phasedown of CO<sub>2</sub> emissions. When people ask what is the most useful thing they can do to help stabilize climate, I tell them to join Citizens Climate Lobby.

Marshall Saunders, who died 27 December 2019, was a visionary, and a wonderful, generous person who believed in our democratic system. When we finally make it work, producing a rising carbon fee that phases out fossil fuel emissions, that success will be his memorial.

Carbon fee & dividend provides the foundation for a transparent, ethical pathway to a brighter future for young people and other life on our planet. However, it is only the foundation.

**Carbon fee & dividend must be complemented by energy policies.** A rising carbon fee assures continual growth of downward pressure on carbon emissions, but by itself it would be too slow. Energy policies and regulations are also essential.

Regulations is a bad word, so let me give a couple of examples to reassure you. Consider electronic devices: they should be required to draw negligible power when they are not in use. Consider refrigerators: high efficiency models reduce power usage to a fraction and save a lot of energy and money over their lifetime, but, if there is no regulation, builders are tempted to install cheap inefficient models.

The reason to require efficiency is that all energy sources have an environmental footprint. By wasting energy, we pollute our home planet, everybody's home.

Large scale energy policies are even more important. Why were the G8 leaders not talking about that? The energy needs of emerging economies, such as China and India, were shooting through the roof. Were the implications of this for the home planet not obvious?

On the way home I read a book on energy written by a sailor I had never met, at least he said he was a sailor. Did this sailor have anything useful to say about energy policies? By the time I got home, I realized that the workshop Rogers and Izzo wanted was not what I wanted.

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<sup>1</sup> Hansen, J., [Re-Energize Iowa](#): An Opportunity to Lead the Nation in Stewardship of the Earth and Creation, Des Moines, Iowa, 5 August 2007 Communication, <https://columbia.edu/~jeh1>.

<sup>2</sup> Hansen, James E., Direct written testimony before the Iowa Utilities Board in re: Interstate Power and Light Company, Docket No. GCU-07-1.

<sup>3</sup> Hansen, James, [Averting Our Eyes](#), 28 November 2007 Communication, [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1).

<sup>4</sup> Hansen, J. [Mr. Rogers and Darth Vader](#), 31 March 2008 Communication, [www.columbia.edu/~jeh1](http://www.columbia.edu/~jeh1).

<sup>5</sup> Hansen, J. [Climate Threat to the Planet: Implications for Energy Policy](#), Honolulu, Hawaii, 3 June 2008.

<sup>6</sup> Barnes, P., *Who Owns the Sky: Our Common Assets and the Future of Capitalism*, Island Press, Washington, DC, 2001.

<sup>7</sup> Citizens Climate Lobby: <https://citizensclimatelobby.org/>