

Local Lessons for Global Policy

As one Colorado town's experience proves, rather than focusing on carbon offsets, the most effective strategy will target the benefits of a healthy, sustainable energy economy.

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LET'S SAY YOU WERE JUST ELECTED PRESIDENT and you wanted to aggressively address global climate change, revitalize the U.S. economy and put the United States on solid ground for the 21st century. What would you do?

You might pursue policies that promise to reduce the largest amount of climate-altering greenhouse gases (GHG) at the lowest price, like market-based cap-and-trade systems or even voluntary schemes. While you might not win a Nobel Peace Prize for this strategy, you'd certainly be in good company. And you might just be making a big mistake.

Along with policymakers worldwide, the city of Fort Collins, Colo., has been struggling with these challenges for more than a decade. Although conducted on a micro scale, our experience may offer insights for why the goal of mitigating climate change must be approached differently than a narrower target of, say, reducing acid rain. It sheds light on why "biggest-bang-for-the-buck" investments in GHG reductions are doing little to contribute to the big picture climate change-mitigation goals, like slowing the number of new coal-fired power plants being built in the United States and China.

Instead, the most effective way to address climate change might be through policies focused on making the vision of a sustainable energy economy a reality.

Wise Investing in Fort Collins?

A city of 130,000, Fort Collins is about an hour north of Denver. Its 144-year history is full of acts of heroic pragmatism, with electricity and energy figuring prominently.

In 1887, just five years after Edison opened his first for-profit electric power station in New York City, the Fort Collins Light, Heat and Power Co. was formed. A decade later, Fort Collins began electric

trolley service, one of the first such systems for a small town. By 1935, the town's residents had municipalized the electric utility, granting the city council the same basic authority a public utilities commission has to set rates and policies. In the 1960s, we started undergrounding our power lines — giving us a beautiful skyline and a reliable infrastructure that has attracted high-tech businesses.

By the mid-1990s, we began recognizing the connection between climate change and our town's reliance on electricity from GHG-emitting coal plants. But energy demands kept increasing, resulting in talk of a new coal-fired power plant — and more polluting emissions.

Rising to the challenge, in 1996 the Fort Collins City Council created a voluntary wind power program. About 2 percent of the city signed up — a strong response and a step that did help reduce our carbon footprint. The problem is that in an electricity grid with no local storage, wind power does virtually nothing to reduce our need for a new centralized power plant to supply peak demand. That's because the wind resource here is strongest in the winter and nearly nonexistent on still summer days when the need to power air conditioners is the greatest.

But citizens remained eager to do what they could to address climate change. In 2000, Fort Collins joined 14 other U.S. cities in the federal Climate Wise program. Through Climate Wise, more than 70 local businesses are reducing their carbon footprints while improving their bottom lines.

In 2003, the city council took another step toward reducing our GHG emissions. The citizen advisory panel, of which I am a member, crafted and the city council adopted an energy policy requiring that 15 percent of our electricity come from renewable energy sources by 2017, and increasing electric rates by 1 percent to fund the effort. The policy instructed our municipal utility to find the most renewable energy at the lowest price, including purchasing renewable energy credits, or RECs, to meet our targets.

So here we are in early 2008 reviewing our policy. We've spent \$2.26 million, mostly to purchase RECs that have reduced our



Fort Collins citizens have been perplexed to learn that although local projects, like this wind turbine owned by the city, reduce the city's use of fossil fuels, they do virtually nothing to reduce its need for local or regional baseload generation.



New Belgium Brewing Co. is among many Fort Collins businesses that have embraced low-carbon initiatives. In addition to buying wind power since 1998, the brewery reuses heat for the brewing process, conserves water, recycles resources extensively and has incorporated daylighting and other green building techniques.

carbon dioxide emissions by more than 66,000 tons, all at the lowest cost. So is our community celebrating our pioneering energy policy and fiscal prudence? Not even close.

The need for baseload generation continues to grow. Those in the community who had hoped to avoid the need for a new centralized coal-fired plant are angered when told that our RECs are not making our airshed cleaner. They are further perplexed when they learn that even local wind and photovoltaic (PV) projects, while reducing our use of fossil fuels, do virtually nothing to reduce our need for local or regional baseload generation (power sources that run continually).

We're funding new jobs elsewhere. Business leaders who see opportunity in the new energy economy are upset to learn that money collected from commercial ratepayers is leaving our community to fuel business in other states.

Consumers are footing the bill. Consumer and low-income-housing advocates ask why we are increasing the cost of living of the people least able to afford it.



Energy figures prominently in the history of Fort Collins, Colo. Once a 20-megawatt coal-fired power plant, this building (above) now is home to Colorado State University's Engines and Energy Conversion Lab and clean-energy businesses like Envirofit International, InteGrid and Solix Biofuels.

Our policy did exactly what it was supposed to, and yet it had failed to give any group here what they wanted.

Finding Lessons in Global Policies

We hadn't gotten it right — but maybe someone else had. After all, the Kyoto Protocol participants and others have well-established climate change-mitigation policies.

The European Environment Agency says the European Union is on track to meet a Kyoto Protocol target of reducing its 1990 carbon dioxide-emission levels 9 percent by 2012. So far, most of this can be attributed to fairly conventional national policies, like public investment in district heating systems, tax incentives for private investment in energy efficiency, and long-term guarantees to purchase renewables at attractive rates. But the EEA expects mechanisms like carbon cap-and-trade variants — both the European-only trading scheme and parts of the Kyoto Protocol flexibility mechanisms — to get the EU the rest of the way.

Many of these new mechanisms are promising, but the results so far are not exactly encouraging.

The first phase of the European Union Greenhouse Gas Emission Trading Scheme (known as EU ETS) commenced in 2005. The scheme was crafted by expert economists and bureaucrats to allow EU member nations to purchase credits from their over-achieving counterparts more cheaply than it would be to invest in carbon-mitigation efforts in their own countries. The emissions cap for this EU-only system is set by the aggregate limits established in the Kyoto Protocol.

Over the course of a few months in late 2006 the price of an EU Allowance Unit (EUA, 1 metric ton of carbon dioxide reduction) fell from 34 euros to less than 10 euros (from \$50 to about \$15). That was mostly because someone didn't predict the falling price of low-carbon natural gas from Russia and created more EUAs than that market needed. The second phase of the EU ETS began early this year, with many of the obvious defects presumably fixed.

If mitigating climate change is the end goal, the trading mechanisms defined in the Kyoto Protocol are not faring much better.

Our experience may offer insights for why the goal of mitigating climate change must be approached differently than a narrower target of, say, reducing acid rain.

One of the sophisticated “flexibility mechanisms” built into Kyoto is the clean development mechanism — basically the “trade” part of a cap-and-trade mechanism, whereby *developed* nations invest in GHG-reduction projects in *developing* nations. The developed nations get the GHG-reduction credits more cheaply than would be possible with a project at home, and the developing nations, it is hoped, gain an improved standard of living.

By the end of 2007, the United Nations Framework Convention on Climate Change database listed 864 registered clean development mechanism projects worldwide (about half in China). These projects totaled about 200 million metric tons per year in equivalent carbon reduction. But only a fraction of these projects actually mitigated the need to build new fossil fuel-fired power plants. More than half the reductions have come from “GHG-destruction projects,” not from energy-generation or energy-efficiency projects. GHG-destruction projects reduce the amount of the most damaging greenhouse gases, like methane, CF₆ and HCF-23, by converting them to less pernicious gases like carbon dioxide. Why GHG-destruction projects? Simple. They are today’s cheapest way to mitigate GHGs, exactly what the clean development mechanism and other market-based GHG-mitigating mechanisms are supposed to do.

Judged by narrowly defined objectives, these programs are working. Yet they fail to address the broad challenge of climate change, because the world continues to build hundreds of new GHG-spewing coal plants.

Targeting Better Goals

The apparently prudent and fiscally responsible approach in practice seems to be neither. After much debate here in Fort Collins, I now believe there are two fundamental flaws:

Flaw No. 1: Overly simplistic investment criteria. By focusing on the biggest GHG-bang for the buck, we wind up making the cheapest short-term investment to solve a long-term problem — without considering how that might help us achieve the end goal of a low-carbon economy.

Without focusing on where you are going, you can’t really know what the “right” investment is. In Fort Collins, our failure to invest for the long term made it hard to know if purchasing RECs is better or worse than investing in our own wind farm, a concentrating solar power plant or energy-efficient low-income housing.

If the ultimate goal is to develop a low-carbon economy, investing in projects and programs that reduce our need to build new coal-fired power plants seems essential. It is when we look for short-term, low-cost GHG-reduction projects that we can lose sight of that overarching goal — here in Fort Collins and globally.

Flaw No. 2: Ignoring “irrational carbon units” — you and me. We can’t overlook the humans who must be mobilized to fix this problem.

When you listen to folks here in Fort Collins talk about energy, they are excited! But typically it’s not about reducing their carbon footprint. No, they are excited about the vision for a healthier, more secure future sparked by alternative energy’s possibilities. As eager as they are to jump in, our town’s energy policy has rationally outsourced their ability to participate in a homegrown

wind or solar project by purchasing RECs from projects sited 300 miles away. And we have relinquished the associated health and economic benefits of those RECs, along with the local electricity supply they represent.

Simply asking how we can reduce our carbon footprint at the lowest cost seems to lead necessarily to investments that do little to reduce the need for new carbon-based power plants and do little to inspire those who ultimately fund these investments. A policy that fails to stir the human soul and imagination is bad policy. It will also fail to generate the public and private investment needed to create a sustainable energy economy.

If we have the wrong question, what is the right question? Again, our micro-level experience in Fort Collins may offer lessons. Here, we have stepped back and asked, what would a successful outcome look like, and what are the next steps for achieving it?

We want a vibrant economy and community with a minimal contribution to climate change. How to get there is our challenge, but here’s the approach some of us are thinking about.

Climate change is a whole-community problem, and we’ll need to get the whole community motivated and involved. A proven way to do that is to give each stakeholder group meaningful, near-term benefits they can get excited about. Give alternative-energy advocates, for instance, things they can personally do, like purchase 100 percent local renewable energy from the utility. We can also give them incentives to do more, like investing in low-energy homes. For renewable energy startups, create a supportive local market in which they can test products. Give the business community long-term, affordable utility bills by encouraging investments in energy efficiency (e.g., lights, insulation). And give consumers something they can show off to their neighbors, like solar energy systems for electricity and heat. We are even thinking about tying incentives for residential and commercial PV systems to the buildings’ total energy performance — encouraging less glamorous essentials like attic insulation.

Inspiring True Progress as a Nation

Has Fort Collins figured out the answer to climate change? Probably not. But we think we are asking better questions — and beginning to invest in better projects.

As the United States rejoins the global dialogue on climate change, we need to be skeptical of unproven schemes in which the “best” investments are the cheapest means of achieving a short-term goal. We should be especially skeptical if those policies are at odds with larger goals, like reducing our need for new fossil fuel-fired power plants. More coal plants have no place in a low-carbon future. And outsourcing our GHG-mitigation efforts to the lowest-cost countries will do little to inspire American innovation.

Can the next president learn from our experience? Maybe the next administration should ask not what is the cheapest way to reduce today’s carbon footprint — but what inspiring steps we can take as a nation to get us to a vibrant, renewable energy-based economy tomorrow. ●

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