

CLIMATE CHANGE PARADOX

Wind Turbines in Europe Do Nothing for Emissions-Reduction Goals

By Anselm Waldermann

Despite Europe's boom in solar and wind energy, CO2 emissions haven't been reduced by even a single gram. Now, even the Green Party is taking a new look at the issue -- as shown in e-mails obtained by SPIEGEL ONLINE.

Germany's renewable energy companies are a tremendous success story. Roughly 15 percent of the country's electricity comes from solar, wind or biomass facilities, almost 250,000 jobs have been created and the net worth of the business is €35 billion per year.

But there's a catch: The climate hasn't in fact profited from these developments. As astonishing as it may sound, the new wind turbines and solar cells haven't prohibited the emission of even a single gram of CO2.



REUTERS

Under current EU law, German wind turbines aren't helping to reduce CO2 emissions. They simply allow Eastern European countries to pollute more.

Even more surprising, the European Union's own climate change policies, touted as the most progressive in the world, are to blame. The EU-wide emissions trading system determines the total amount of CO2 that can be emitted by power companies and industries. And this amount doesn't change -- no matter how many wind turbines are erected.

Experts have known about this situation for some time, but it still isn't widely known to the public. Even Germany's government officials mention it only under their breath. No one wants to discuss the political ramifications.

It's a sensitive subject: Germany is recognized worldwide as a leader in all things related to renewable energy. The environmental energy sector doesn't want this image to be tarnished. Under no circumstances does Berlin want the Renewable Energy Law (EEG) -- which mandates the prices at which energy companies have to buy green power -- to fall into disrepute.

At the same time, big energy companies have an interest in maintaining the status quo. As a result, no one is pushing for change. Everyone involved is remaining silent.

Not an Instrument against Climate Change

In truth, however, even the Green Party has recognized the problem, as evidenced by an e-mail exchange last year between party energy experts and obtained by SPIEGEL ONLINE. One wrote the following message to a colleague: "Dear Daniel, sorry, but the EEG won't do anything for the climate anyway." Ever since the introduction of the emissions trading system, the Renewable Energy Law had become "an instrument of structural change, but not an instrument to combat climate change."

That means: wind turbines and solar energy plants are revolutionizing Germany's mix of power sources, creating jobs and making the country more independent from imports. But they aren't helping in the fight against climate change.

In the worst case scenario, sustainable energy plants might even have a detrimental effect on the climate. As more wind turbines go online, coal plants will be able to reduce their output. This in itself is desirable -- but the problem is that the total number of available CO2 emission certificates remains the same. In other words, there will suddenly be more certificates per kilowatt of coal energy. That means the price per ton of CO2 emitted will fall.

That is exactly what happened in recent trading. A certificate to emit a ton of CO2 cost almost nothing. As a result, there was very little incentive for big energy companies to invest in climate friendly technologies.

On the contrary. Germany was able to sell unused certificates across Europe -- to coal companies in countries like Poland or Slovakia, for example. Thanks to Germany's wind turbines, these companies were then able to emit more greenhouse gases than originally planned. Given the often lower efficiency of Eastern European power plants, this is anything but environmentally beneficial.

This phenomenon is especially apparent whenever the sustainable energy industry grows more quickly than anticipated -- as in recent years when growth in the renewable energy branch quickly rendered the EU Commission's CO2 plans obsolete.

Building Renovations Are Better than Windmills

Experts from the Green Party are taking the problem very seriously: "We are in a veritable crisis situation, and that means we must reconsider and alter things we once took for granted," writes one contributor, adding that it's important to re-examine "whether we have set the right priorities."

Another expert begins his e-mail with a general clarification: "Dear People, I'm not fundamentally against the EEG. I only emphasize this because Manfred has repeatedly and erroneously described me as an opponent of the EEG." But here comes the big "but": "When reduction of CO2 emissions is more cheaply achieved through insulating a building than using a wind turbine, that is where we should concentrate our support." When it comes to climate change, everything else is secondary to reducing CO2 emissions.

The Costs of CO2 Reduction

To reduce CO2 emissions by one ton, it costs (in euros):

Building Renovations (90% of cases)	<0 *
Building Renovations (5% of cases)	0-100
Building Renovations (5% of cases)	>100
Modernizing an old black-coal power plant	20
Reductions in industrial CO2 emissions	>20
Replacing black coal with natural gas	28
Brown-coal power plant with carbon capture technology	>30
Modernizing a new black-coal power plant	50
Replacing brown coal with natural gas	50
Black-coal power plant with carbon capture technology	>50
Biomass	>50
Biofuel	>50
Wind Energy	50-60
Geothermal Energy	>100
Solar Energy (Photovoltaic)	300-500

** A value less than zero indicates that the measure is actually profitable.*

Sources: McKinsey, RWE, German Renewable Energy Federation

Indeed, when it comes to climate change, investments in wind and solar energy are not very efficient. Preventing one ton of CO2 emissions requires a relatively large amount of money. Other measures, especially building renovations, cost much less -- and have the same effect.

The e-mail exchange ends with a conciliatory "What do you think?" But it is quickly followed by a bitter PS: "Do the Greens think that this problem (of climate change) will solve itself if we just screw solar panels onto our rooftops?"

Environmental Groups Admit to the Problem

The German Renewable Energy Federation is clearly not thrilled about the debate. The lobbying group's official line is: "By implementing renewable energy, there will by a reduction in 2008 of 120 million tons of CO2." When pressed, however, representatives of the federation will admit that this only applies to Germany. But the reality is that the freely traded CO2 certificates can be sold and used abroad.

Likewise, one federation employee openly said that there is "a certain degree of inconsistency" between the EEG and emissions trading.

But does it really have to be like this? Is it really so impossible to reconcile both of these instruments for protecting the climate?

In theoretical terms, of course it's possible. To do so, however, currently existing laws designed to prevent CO2 emissions would have to be reconciled. In real terms, for example, that means that every time a new wind turbine is built, the state would be forced to take certificates off the market. It is only in this way that you can achieve real positive effects on the climate.

Politicians Buckle to Business

There were discussions about such a system under Chancellor Gerhard Schröder, who governed in a coalition with the Green Party. At the time, Minister of the Environment Jürgen Trittgen wanted to exclude the amounts of energy covered by the EEG from the calculations used in the carbon-trading scheme. Instead, the industry-friendly regulations currently in effect were pushed through. Major energy corporations, which had claimed as many CO₂ certificates as they possibly could, lobbied heavily.

So why has nothing changed? According to experts, one reason has to do with technical problems. In the course of an ongoing trading period, they claim, adjusting the volume of CO₂ certificates is no easy task.

Still, an SPD insider provides yet another explanation: "Politicians just have to resign themselves to certain things." As he sees it, if the state went back to the companies and took away the certificates they had been allotted, the result would be an uproar. "What do you think the companies would say to us?" he asks. "As a politician, there are certain storms that you simply can't weather."

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