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Germany's Energy Goals Backfire

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Germany’s radical initiative to subsidize renewable electricity generation has resulted in higher carbon dioxide emissions and the most expensive electricity in Europe, with the poor disproportionately bearing the burden.

I recently had an interesting opportunity to spend a week in Berlin talking to many people about *Energiewende*, one of the most radical and far-reaching initiatives any affluent economy has undertaken in recent years. The term *Die Wende* has a gradation of meanings, from a gradual turnaround to a sudden U-turn, and before it became associated with energy, its most common use in German conversations was in reference to the demise of East Germany in 1989. That was, of course, a true U-turn, from dogmatic communism to absorption by liberal Germany. *Energiewende* cannot be a near instant U-turn — no complex technical infrastructure can be changed that rapidly — but Germany’s new energy goals are bold and truly transformative. Their implementation is also proving to be less than admirable, indeed the process is becoming rather burdensome. Yet most of the people I talked to in Berlin seemed unconcerned, and many were even incredulous or politely hostile when I suggested (always mindful of Andersen’s wise tale) that the king may not be fully clothed.

In 2000, the Renewable Energies Law (*Erneuerbare-Energien-Gesetz*) subsidized increased renewable electricity generation. All electricity generated by conversions of renewable resources (such as solar radiation, wind, and biogas produced by the fermentation of crops) became eligible for fixed payments to producers, guaranteed for 20 years. No less important was the provision that gave all renewably generated electricity preference in feeding the national grid: when the sun shines and wind blows, the grid must absorb this spiking output even if it means that the output of thermal power plants burning coal, fuel oil, or natural gas must be reduced or that some of them must be completely shut down.

The law had its intended effect: by 2010 electricity generated from the renewables had more than

tripled to 17 percent. Remarkably, a country whose capital, Berlin, as well as the financial capital, Frankfurt am Main, normally receive 20 percent less solar radiation than Seattle, became the world's leader in photovoltaic (PV) electricity generation — and an example of how almost anything is possible with subsidies. Then came the nuclear disaster at Fukushima and a hasty, impulsive decision by Chancellor Angela Merkel to shut down all of Germany's nuclear power plants (in 2010 they contributed nearly 25 percent of all electricity) by the year 2022. *Energiewende* went into overdrive — and almost immediately this opened up a fundamental cleavage of perceptions and convictions, and the new realities led to inevitable second thoughts.

Proponents of the new green wave began to forecast, with great confidence, that the country would get 35 percent of its electricity from renewables by 2020, 50 percent by 2030, and 80 percent by 2050. According to many Berlin bureaucrats, everything is in perfect order and, if anything, *die Wende* should accelerate. In contrast, the operators of large fossil fuel-fired power plants face impossible choices: much of their electricity is useless on windy days, but they must keep enough capacity in place to carry the country through the gloomy fall and long winter nights. Anybody aware of Germany's technical prowess must ask: why has the nation that helped to pioneer the age of electricity (above all thanks to the engineering genius of Werner von Siemens and organizational achievements of Emil Rathenau) rushed into the difficulties that were easy to envision — into generating those highly fluctuating electricity flows? These flows create havoc with the grids in neighboring countries by suddenly overloading their transmission capacity, and they undermine economic viability of traditional utilities due to low returns realized on the repeatedly interrupted, but still necessary, fossil fuel-based generation.

And the impacts go far beyond the fate of large utilities. Germany now has the most expensive electricity in Europe. In September 2013, *Der Spiegel*, the country's premier weekly, gave the headline "How electricity became a luxury good" to its report on Germany's new energy poverty. The levelized cost of German photovoltaic electricity is easily four times that of coal-based generation, even as the subsidies for renewables continue to rise: they reached €16 billion in 2013. And due to the high cost of imported natural gas (about three times the U.S. price), German thermal power plants fill the demand with the cheapest alternatives, such as domestically produced lignite and, increasingly, imported inexpensive U.S. coal. So far, *die Energiewende* has not resulted in lower carbon dioxide emissions, one of its key goals.

Many German and foreign commentators have focused on this double trouble of prices and emissions, and Germany's new coalition government is looking for ways to step out of this self-imposed hexed circle of legal obligations.

What I find really remarkable is that so little attention has been given to an aspect of *die Energiewende* that is no less perverse than increased greenhouse gas emissions: indeed, that curiously overlooked reality is inimical to the animus of left-leaning green and socialist parties (the latter one now in the government) — and yet both of them chose to promote the shift, and they still keep silent in this critical regard.

The matter has been overlooked because most people are not aware of some surprisingly large differences in the rate of homeownership among high-income economies. The aggregate U.S. rate is about 65 percent, the UK rate is nearly identical, and the rates in Spain and Italy are about 80 percent — but the latest statistics show that only 43 percent German families own their home. What is even more noteworthy is the distribution of homeownership according to disposable income. In the United States, nearly 90 percent of households in the last quartile own their homes, and the rate is still 50 percent in the lowest quartile, while the corresponding German rates are just over 60

percent and barely over 20 percent. Of course, home owners have been able, for two decades, to take advantage of state subsidies and a guaranteed high price for electricity generated from their homes, essentially an effortless income for homeowners with enough initial capital to plaster their roofs with PV panels.

Renters (without roofs and often with no initial capital) cannot enjoy benefits available to their richer compatriots, but they are not exempt from paying rising electricity prices. All households pay them, but the richer ones can offset them in part by selling their surplus electricity to the grid. Large companies, however, are exempt from the burden of rising prices — a decision taken to keep Daimler, Volkswagen, Siemens, Hoechst, and ThyssenKrupp competitive. Thus we have a nearly perfectly socially regressive scheme in which the poorest segment of the society bears a disproportionate burden of an innovation that benefits many wealthier citizens and that leaves corporate accounts largely intact.

Another excellent example of how grand prescriptive state policies end up with dubious results.

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