25. The Winds of Change

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25

The Winds of Change

At the turn of the century—we still refer to it as this (even though we have witnessed the turn of another) because this turn signified so much—humankind was for the first time experiencing mechanization. America was seized by the excitement of technology and recognized its source. Henry Obermeyer claimed: "Almost the sum total of modern construction in America is nothing more than a monument to coal."

As America surged to the lead in coal production, it surged to the lead in the world economy. It wasn't hard to remember where energy came from because at that time, a number of Americans still burned coal in their stoves. Evidence of the price of this energy loomed over industrial skies. In 1919, Waldo Frank wrote of Chicago: "The sky is a stain. The air is streaked with runnings of grease and smoke. Blanketing the prairie, this fall of filth like black snow—a storm that does not stop … Chimneys stand over the world, and belch blackness on it. There is no sky now." In 1886, 31 percent of deaths from disease were smoke related: pneumonia, bronchitis, and asthma. Once viewed as a sign of progress, wealth, and job opportunities, smoke became seen as a degrader of health and morals.

Social change began with small suits brought by ordinary citizens against neighborhood polluters. In Pittsburg, one man sued a brick factory for damaging his orchards and grapevines, but as "manufacturing interests were necessary and indispensible to the growth and prosperity of every city," the Pennsylvania Supreme Court sided with the company. Tired of cleaning smoke residue off their curtains, antismoke women's organizations began to spring up in industrial cities across America. The Women's Health Protective Association of Allegheny County was formed in Pittsburgh; the Wednesday Club, in St. Louis; the Smoke Abatement

Club, in Cincinnati. These ladies combated smoke to promote the values of health, cleanliness, aesthetics, and morality, and they spent their afternoons patrolling residential skies for the smokestacks issuing the darkest fumes. Charles Reed, a member of the Smoke Abatement Club, declared before the Ladies Club of Cincinnati: "To breathe pure air must be reckoned among man's unalienable rights. No man had any more right to contaminate the air we breathe than he has to defile the water we drink. No man has any more right to throw soot in our parlors than he has to dump ashes into our bedrooms."

By 1916, seventy-five American cities had passed antismoke ordinances, and the nuisance suits brought against businesses that exceeded legal smoke density limitations were upheld in court. The Waterside electric plant along the East River in midtown Manhattan—owned by the upstanding American Thomas Edison—was fined for the smoke put out by its 114 broilers in People v. New York Edison 6. In order to abide by the new laws, companies appealed to the engineers. In this case, the answer was not necessarily the development of new technology, but priming existing equipment to minimize smoke output. There was no cure-all—each specific situation was assessed. With proper installation, settings, and operation of the equipment, plus "a good match between the equipment type and coal quality," factories and businesses reduced emissions. In some cases, this actually increased efficiency: low quality coal, when burned in a relatively smokeless manner, produced more heat. Skies began to clear, and became even clearer as Americans shifted to the fossil fuels of natural gas and oil, which were more efficient and cleaner burning.

This history of coal smoke eradication is a parable for our times, when we have more fully realized the atmospheric consequences of burning coal and other fossil fuels. It testifies to the validity of grassroots action to pressure energy companies into adopting pollution reducing measures. Smoke abatement verifies that persistent appeals for justice will convince courts that the health of citizens ultimately overrides any business concerns. Additionally, it provides evidence that our economy was able to sustain a shift in energy production. In our current situation, another production shift may be far overdue. The 105-year-old Waterside plant owned by Consolidated Edison (ConEd), fined for smoke output in 1916, was finally closed in 2001 as a result of pollution complaints by its neighbors. Its sister plant, the East River Generating Station in lower Manhattan, planned to pick up the slack by increasing operations until nearby residents living in what is dubbed "Asthma Alley" protested and sued the company. Mayor Rudolph Giuliani backed ConEd based on the familiar energy crisis rhetoric; the ensuing settlement required the company to pledge $3.7 million to clean up its operations. Despite the contributions of historical power plants to the industrialization of America, after a hundred years of

pumping harmful emissions into our cities and our skies, it may be time to retire our grandfathers.

One of the most striking features of the smoke abatement movement is that the solution was embodied in the concepts of *specific* and *individual*. Just as engineers in the previous century were able to reduce the smoke output by evaluating particular broilers, coal grades, and atmospheric conditions, there are individual adjustments in energy use that nations, states, businesses and organizations, and citizens can make to reduce our carbon footprint and use of fossil fuels. Reclaiming our atmosphere will require a revolution of specific proportions to be enacted in multiple levels of society, which will pave the way for the use of alternative fuels and ultimately alternative energy lifestyles. This revolution may be initiated in part by citizens in Sylvester, Blair, and Alexandria who are tired of sweeping their porches—just as smoke abatement began with ladies tired of cleaning their curtains.

Although the US government has been sluggish about adopting nationwide energy regulations, thirty-two individual states and the District of Columbia have instituted renewable portfolio standards, mandating that a certain percentage of electricity be derived from renewable sources by a designated deadline. The particulars of each of these energy portfolios are specific to each state. California is one of the most ambitious, with a commitment to 20 percent of renewables by 2013 Among that state's possible alternative forms of energy are biomass, geothermal, hydropower, wind, and some of the most viable solar power capabilities in the nation. The Solar Initiative, which was launched on January 1, 2007, by Governor Arnold Schwarzenegger, provides funding to develop the capacity to produce three thousand megawatts of new, solar-produced electricity by 2017. Two years later, Schwarzenegger declared: "Our vision of solar panels lining the rooftops of houses and businesses across California is becoming a reality. I'm encouraged to see that even in these difficult financial times we are breaking solar installation records and spurring private investment in solar projects."

Individual cities are also initiating energy saving legislation. Pasadena, California, recently took up the challenge to become a model for green cities around the nation and the world. Adopting a environmental charter and endorsing the US Conference of Mayors' Climate Protection Agreement, which upholds the Kyoto Protocol, Pasadena has laid out an action plan that includes resolutions such as buying recycled paper, using green technologies in the city's transit system, buying products from local farms, and constructing buildings using energy efficient models and renewable sources of power.

Individual companies are also making efforts to build in more sustainable ways. During one of my visits to Utah, the opening of the Mark Miller

Toyota Dealership in Salt Lake City made headlines as one of the greenest buildings in the Intermountain West. It was built according to Leadership in Energy and Environmental Design (LEED) certification, with an emphasis on natural light, heat and energy saving technologies, waterless urinals, and internal components made of recycled materials. Although the initial construction of the building was costly, the green technologies cut its operational energy consumption by a third, and Miller expected payback from these efficiencies within ten years.

Aside from governmental and commercial initiatives, there are specific adjustments we can make personally in energy consumption. The Maynard family in Mesa, Arizona, keeps their air conditioning off until it is absolutely necessary, setting the temperature during the summer months at 80° F. They use a solar oven to cook bread, designate "no driving days," and coordinate errands on other days so that they don't have to use their vehicle frequently. They catch excess shower and sink runoff to water their plants. My friend Carl rides his bike to work every day and buys a share in alternative energy, so that even though in Virginia he only has access to traditional sources of power, he can help subsidize the higher price of alternative energy for somebody in another state. Laura and Dan in Seattle, Washington, buy into a farming cooperative and walk to the farmers' market every Saturday for their bundle of fruits and vegetables, saving the fossil fuel transportation costs of produce. In Utah, when my parents remodeled their home, they put in energy efficient light bulbs. My maternal grandfather bought a hybrid car and installed an energy efficient window shade in his living room; it blocks his view but cuts his air conditioning bills.

Transforming our atmosphere and averting an energy crises ultimately depend on our collective will for change. With new technologies for coal burning and carbon capture, the easy answer may be to continue burning the remaining recoverable coal reserves and let a future generation to deal with the environmental and human health costs of further extraction and the implementation of alternative technologies. Symbolically, our energy future is the decision between the two pillars that marked my entrance into Wales and the beginning of my exploration into coal—a smokestack and a windmill.

I was reminded of this image when traveling through the mountains to visit the Skyline Mine in central Utah. Nine wind turbines turned almost imperceptibly at the mouth of Spanish Fork Canyon. Tall, white, industrial-chic, they did not blend well with the Rockies. But they gave me hope. I could smell the outside air pumped in through the air conditioning. It was particulate; a "red" day the announcer had warned on the radio, not a good day to be outside. It was fortunate I was headed underground.

In the eye-sore of those windmill blades, there were no CO_2 emissions, no coalcleaning stations, no sludge ponds, no mines. They did not blend

well, but in their turning there was a chance of something cleaner. Utah lags behind other states, with only one megawatt of installed wind power. In the state's energy portfolio, the goal of 20 percent alternative energy production by 2025 is not mandatory, but a geological survey of the prime areas for wind power has been prepared by the US Department of Energy, and the Utah Wind Working Group has been founded.

This is why, when my father hired Sam Quigley to run the energy center at the College of Eastern Utah, he hired him to train energy workers, and not coal miners. Although Sam is quick to assert that "coal is the only resource that works," he also acknowledges times are changing, coal is an exhaustible resource, and the 1,100 miners who work in thirteen Utah mines may be doing something else in the future. Classes at the center focus on the areas of mechanics, electrical systems, hydraulics, equipment operation, and ground control—all transferable skills allowing energy workers to shift between technologies. In 2007, it was estimated that 50 percent of coal miners and 50 percent of coal plant workers would be eligible for retirement in the next decade. Coal mining especially is struggling to find new recruits, and the market presents a natural opportunity for jobs in new energy generation technologies, which have finally become feasible and reasonably affordable.

In my current home state of Virginia, wind is one of the viable alternatives. It receives a double credit under the voluntary energy portfolio goal that grants incentives to private businesses to generate energy from alternative sources. Although there are no commercial wind farms in Virginia to date, the neighboring states of West Virginia and Pennsylvania have both installed profitable wind facilities.

Especially in West Virginia, wind power may be a partial solution to fill the hole in the economy that scaling back on coal mining would inevitably create. Citizens and environmental groups have realized that in order to save their mountains, they must replace mountaintop removal with another source of income and energy that is less destructive. The Coal River Mountain Watch, an environmental organization based in West Virginia, has proposed the Coal River Wind Project, a plan to erect a wind farm on Coal River Mountain in Raleigh County, West Virginia, which is currently permitted to Massey Energy for a mountaintop removal project. Not only would the project preserve the mountain and the forest, but it would also provide more income for the community and the state.

According to a study conducted by Downstream Strategies, this wind farm will permanently generate $1,740,000 in county taxes, in contrast with the strip mine, which will only pay $36,000 over a period of just seventeen years. Jobs will be available to local residents indefinitely, while the coal mining jobs will only last for the duration of the strip mine. Downstream Strategies also calculated that the health (in terms of death

and hospitalization) and environmental costs of mountaintop removal ultimately exceed the financial benefit to the local community from employment and taxes. In another town in West Virginia, Dominion Resources and BP are currently investigating the possibility of installing a sixty megawatt generator with thirty turbines, which will provide sufficient energy for fifteen thousand homes. The companies anticipate this project will make a profit of $2 million annually, offer five to ten permanent jobs, and provide several thousand dollars in taxes each year.

In response to Pennsylvanian consumer requests, the Green Mountain Wind Farm was the first wind facility to be installed in the small borough of Garrett in 2000. National Wind Power, a UK company, erected the eight, two hundred foot tall turbines on land that was reclaimed from a coal strip mine and is currently farmed by the Decker family. When it was built, it was one of the largest wind farms on the East Coast; since then, Pennsylvania has erected six wind farms, one in the neighboring town of Meyersdale. Green Mountain Wind Farm generates twenty-five million kilowatt hours each year, powering 2,500 homes.

Early in April, when the trees where just beginning to sprout leaves, I traveled to Pennsylvania to inspect the current most feasible alternative to coal. Garrett and Meyersdale are former coal mining communities nestled in hills. The topography did not rise sufficiently to meet my classification of mountain country, but the land rippled into a contour that made me feel at home. As in Appalachia, turning off a major highway plunged me into a stream of small towns: the borough of Salisbury, the village of Boyton. The residences were a mixture of beat-up sheds, trailer homes, older wooden and brick houses, and newer edifices with aluminum-siding sheens. As in small-town West Virginia, these Pennsylvanians expressed their patriotism by decorating their houses with Americana. There were fewer beaten-brass stars; these Yanks proclaimed their pride of being over the Mason-Dixon Line with personal flagpoles that spanned divergent local economies. I spied a flag waving next to a large stone establishment, and a flag waving on the property of a ramshackle white trailer.

Near Green Mountain, in valleys that sloped down from the hills, wide-roofed red barns lounged next to silver grain silos—seeming to suggest farmland wholesomeness and prosperity. The straw colored land that rolled out in front was squared by barbed wire nailed to wooden dancers. Small communities clumped between the stretches of field. In Meyersdale, the houses climbed to the ridge of a hill that was topped with a line of white turbines built three years after the Green Mountain facility.

I gasped when I reached the summit of the next hill and the windmills popped up on the horizon. Although the wind farms hadn't seemed to jibe with the local scenery in Utah, either the clean lines were beginning to grow on me or turbines resonated in a state I associated with the

Erin Thomas, 2009

White turbines in Meyersdale, Pennsylvania

Pennsylvania Dutch; calmness and self-sufficiency seemed to emanate from that line along the hilltop. The slow turn of the massive, ninety-five foot blades felt meditative—a measured spin that said what must be done must be done thoughtfully. I skirted the edge of one property along a line of pussy willows to get a closer photograph of the windmills next to a pine. A man and his wife were selling Easter eggs on the side of the highway for a church fundraiser, and I asked them what they thought of the facility. They shrugged their shoulders and handed me my change.

Past Meyersdale, you come to the edge of Garrett, a town founded in 1871 by its namesake, Robert T. Garrett, the son of a railroad man. According to the 2000 census, 449 people live there. Just on the outskirts, the turbines of Green Mountain are visible above the Cassleman River and the railroad track that runs alongside, an artery that carried Pennsylvania coal to energy consumers in the outside world. The rock that once powered Garrett's economy still had local appeal. On entering the town, I immediately caught sight of a little white sign advertising "House Coal." Piles of wood were stacked behind most of the homes, and I realized a good portion of the residents burned both coal and wood for heat.

I stopped to talk to a tall man in his forties with buzz-cut hair, who was fixing the sign of the local Baptist church. He was dressed in scrubby jeans and a fleece jacket, and I initially assumed he was a repairman, but given the size of the population, he may well have been the preacher. I asked him his opinion of the wind farm: "First an attraction, now a distraction. It'd be nice if we benefited from it, but they pipe all the energy out." When the facility was first installed, it attracted thousands of visitors and wind energy experts. The dedication was marked by a celebration

that included live music, drinks, and a barbecue, an event that may have provided temporary employment—and certainly entertainment—for the surrounding towns. The keynote speaker, Dan Reicher, then the Assistant Secretary for Energy Efficiency and Renewable Energy, declared, "Today we are celebrating a new opportunity for Pennsylvania and throughout rural America."

Like the MTR operations in West Virginia, the energy produced by Green Mountain Wind Farm doesn't power the homes of the locals, but is carried elsewhere. An extractive business, it's operated by international CEOs who are the primary financial beneficiaries. It's a shame that Green Mountain doesn't provide electricity to the town of Garrett, given the amount of energy that is lost over transmission lines. Despite Reicher's comments, wind is probably not the ultimate solution to unemployment or poverty in rural America. In 2008, wind power made up one-third of new electrical generation, creating ten thousand energy jobs. This is nothing to the percentage of the population coal employed at the peak of bituminous extraction in 1923 when 705,000 men worked underground. For that matter, current mining doesn't compare favorably, either. In 2007 there were eighty-one thousand coal miners—for a new technology, wind is not far behind.

Compared with the grievances in Appalachia over coal dust, explosions, floods, and poisoning, most residents in Garrett had little to say. Aesthetics is typically the major complaint against the installation of new wind farms. Once facilities are in operation, surrounding communities have voiced concerns of noise pollution and lowering property values. In Nantucket, Maryland, since 2001, local citizens have been protesting the installation of the first offshore wind farm. The proposed 130 turbines would provide 420 megawatts of pollution free power, but opponents counter that the "steel forest" would ruin the scenery and interfere with fishing.

In my interview with Jim Presswood, I had asked him for his opinion about the situation: "If you're going to build a turbine within sight of million-dollar homes, you're going to have problems. You can develop offshore a farther distance out beyond the horizon. Sighting is an issue, and we're very sensitive to those concerns. Wind turbines on top of mountain ridges for instance, that's not necessarily the thing to do, but think of a mountain that's been leveled; maybe that makes more sense."

Robert Kennedy Jr., who spoke at the MTR gathering I attended in Kayford, West Virginia, was very vocal in the debate against wind farms along the northeast Atlantic coast. Aside from disrupting breeding grounds for sea creatures, concerns have also been raised about seafaring migratory birds. There is no truly "green" approach to energy, but a visit to Garrett, Pennsylvania—after my trip through coal country in Wales, after walking the path of Zeph and Evan in central Utah, after

witnessing the modern reality of mining in West Virginia, and understanding the true impact of coal burning plants on my lungs—was a detoxifying experience.

Coal had begun get to under my skin, like the blue scars on the faces of my Welsh ancestors. As an energy consumer, I was complicit in this process of coal. It was under my fingernails, smudged on the end of my nose, and no matter how many times I scrubbed, the coal dust would not come free of my clothing. It had worked its way into everything that I used and ate; coal dust was laced through the internal organs of my body.

The energy that ran in the wires out of Garrett was free from the stain of coal sludge and toxic heavy metals. It meant healthier air and streams that ran clearer. Garrett would never be obliterated from the map by dynamite and draglines. The lives of these citizens in small-town Pennsylvania would remain intact. The turn of these windmills constituted a streamlined process of energy generation to the power lines, no dig, no cleanse, no burn—straight from the blade to the grid. As my coal miner's lamp and the anthracite lump from Tower Colliery will always remind me of the coal miner's blood that runs in my veins, these turbines will symbolize a flush and a freedom from the rock that has shaped my life.