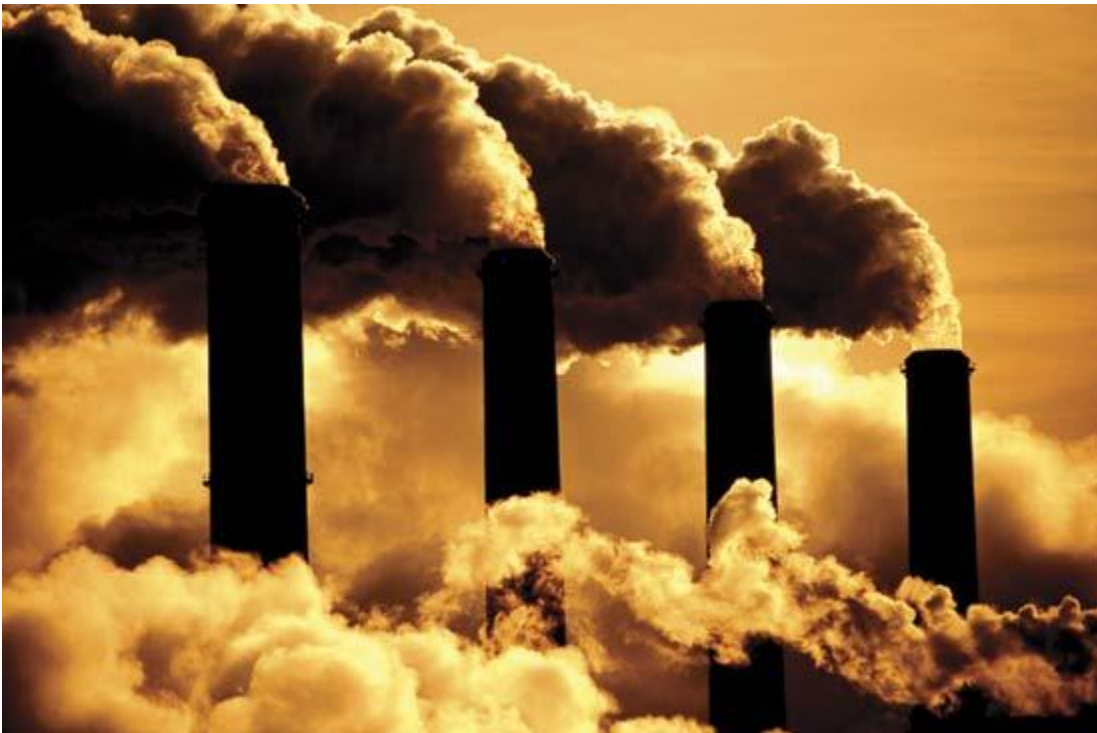


Energy and Transportation Issues: A Libertarian Analysis

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Introduction

The energy debate, typically, is framed in terms of state intervention to alter existing behavior, which is taken to be spontaneously arising.

Ivan Illich, in *Energy and Equity*,¹ depicted the pathological overdevelopment of high-energy technologies as an example of the recurring theme of “counter-productivity” which he first elaborated in *Tools for Conviviality*.

At its first watershed, the adoption of a technology produces high levels of return. In the case of health, this includes measures like public sanitation, the eradication of rats, anaesthetics, sterile techniques, and basic antibiotics. At the second watershed, the technology is adopted beyond the point of counter-productivity, so that the the total marginal costs associated with its increased use outweigh the benefits.

When a technology reaches the second watershed and is adopted beyond the level of counter-productivity, it becomes what Illich called a “radical monopoly.” That is, it becomes a self-supporting social-technological complex that crowds out competing alternatives, and leaves many people in a position of involuntary reliance on it.

Illich's argument in *Energy and Equity* was that energy and transportation had reached that threshold. So the automobile-highway complex created a pattern of urban design suited to its own needs, based on suburban monoculture and commercial strips. In this environment the private automobile is a necessity, public transportation is impracticable for most people because of low population densities, and alternative methods like walking and bicycling are useless to those who can't afford cars.

Illich wrote from the implicit assumption that such high-energy technologies would inevitably crowd out the vernacular alternatives just by the nature of things, and leave ordinary people who previously relied on those vernacular technologies at the mercy of the new technologies.

He called, consequently, for a socially imposed ceiling on energy use and tight legal controls on the adoption of high-energy technologies.

What is generally overlooked is that equity and energy can grow concurrently only to a point. Below a threshold of per capita wattage, motors improve the conditions for social progress. Above this threshold, energy grows at the expense of equity. Further energy affluence then means decreased distribution of control over that energy.

...This is the fact which must be theoretically recognized before a political issue can be made of the per capita wattage to which a society will limit its members....

...I argue that beyond a certain median per capita energy level, the political system and cultural context of any society must decay. Once the critical quantum of per capita energy is surpassed, education for the abstract goals of a bureaucracy must supplant the legal guarantees of personal and concrete initiative. This quantum is the limit of social order.

I will argue here that technocracy must prevail as soon as the ratio of mechanical power to metabolic

¹ Ivan Illich, *Energy and Equity* (1973) <https://clevercycles.com/energy_and_equity/>.

energy oversteps a definite, identifiable threshold.

George Monbiot, writing three decades later, framed the issue in much the same way: as stated in his appropriately worded subtitle, “Climate change’s unprecedented moral challenge demands that we restrict market freedom.”

By way of precedent, Monbiot refers to—brace yourself—the *Enclosures* as an example of the runaway free market, and the workhouses as an unintended consequence. Anyone who's at all familiar with my past work, or that of any of the other free market anti-capitalist comrades at C4SS, knows our position on the “free market” nature of the Enclosures.

After that bit of unintentional hilarity, Monbiot goes on:

It is not just that we are free to kill other people; market freedom constrains us to do so. The economy is so organised as to make it almost impossible to do the right thing. If your village isn't served by public transport and there is nowhere safe to cycle, you have, for all the talk of freedom to drive, no choice. If the superstores have shut down all the small shops, you must give your money to a company whose purchasing and distribution networks look like a plan for maximum environmental impact....

We can deal with climate change only with the help of governments, restraining the exertions of our natural liberties.²

Illich was entirely right that transportation, as an economic input, has been adopted far beyond its threshold of counter-productivity. And he was entirely correct that over-adoption of transportation actually generated distance between things, and created led a situation in which most people were less mobile.

High speed capitalizes a few people's time at an enormous rate but, paradoxically, it does this at a high cost in time for all.... The compounded, transport-related time expenditure within a society grows much faster than the time economies made by a few people on their speedy excursions. Traffic grows indefinitely with the availability of high-speed transports. Beyond a critical threshold, the output of the industrial complex established to move people costs a society more time than it saves. The marginal utility of an increment in the speed of a small number of people has for its price the growing marginal disutility of this acceleration for the great majority....

Beyond a certain speed, motorized vehicles create remoteness which they alone can shrink.³

Where he went wrong was in assuming that this was an inevitable state of affairs resulting from the nature of the technology itself, in the absence of coercive measures to prevent it. The truth is that only *subsidized* traffic “grows indefinitely with the availability of high-speed transports.”

In fact a technology or input will only be adopted—*can* only be adopted—when some form of privilege intrudes in the market mechanism to shift the costs and benefits of the technology to different parties. The car culture has grown exponentially because the state has intervened to shift its costs off of its primary beneficiaries—the urban real estate developers and the automobile industry—and onto the general public. If all benefits and costs of a technology or input are born by those who consume them, and costs are fully internalized in the price of that technology or input, it will cease to be adopted any

² George Monbiot, “A Restraint of Liberty,” *The Guardian*, May 24, 2005 <<http://www.monbiot.com/2005/05/24/a-restraint-of-liberty/>>.

³ Illich, *Energy and Equity*.

further once its costs equal its benefits.

As for Monbiot's comments, I will attempt to show in the body of this paper that the truth is directly contrary to his assertions. It is the state's constraints on market freedom that have created an economy centered on long-distance shipping and the automobile-highway complex, and led to the geometrically snowballing consumption of subsidized energy inputs with declining net benefit. And it is market freedom—simply put, a society in which big business operates on its own nickel instead of the taxpayer teat—that will deliver us from our enslavement to this unholy monoculture.

I. Energy

Subsidies. Let me preface this section by saying that the only true subsidies, strictly speaking, are those which actually provide unearned taxpayer funds to industry. These include direct payouts from the treasury for engaging in certain activities, or refundable tax credits to which a company is entitled regardless of whether it paid any corporate income tax in the first place. A tax deduction or non-refundable credit, on the other hand, is not a subsidy.

Nevertheless, as I've noted before in discussions of the distorting effect of such tax loopholes, the practical effect of a targeted tax exemption to a particular industry or particular activity, when other industries or those not engaged in that activity are paying the standard rate, is exactly the same as if one started from a tax rate of zero and then imposed punitive taxes on non-favored industries and activities. The practical effect is to reduce the costs of favored activities compared to non-favored activities; i.e., the market price of energy is artificially lowered compared to the prices of other inputs. That means the competitive advantage is shifted toward such favored firms, at the expense of other firms, and the proportion of the economy taken up by the favored activity is inflated. When the supply of particular production inputs is favored by such tax loopholes, the effect is to shift the competitive advantage to producers who rely more heavily on those inputs and away from those who don't.

For example the \$8 billion in what are conventionally referred to as “subsidies” to the coal industry actually include not only tax deductions, but hundreds of millions in actual subsidies for exploration, research and development.⁴

Most of the nuclear power industry's \$9 billion in subsidies, on the other hand, consists of actual subsidies at every step of the production chain from uranium extraction and enrichment (including federal construction of roads to the mines on federal land) to waste disposal and plant decommissioning. The federal government has also provided billions in loan guarantees for the construction of new plants.⁵ Nuclear power's tax benefits—most of which are genuine subsidies—are \$3.5 billion per year.⁶

Federal tax loopholes for the oil industry go back to the drilling cost deduction in 1918, followed by the depletion allowance in 1926. The value of these loopholes, in today's dollars, amounted to \$1.8 billion per year during the early years of the industry. From 1918 to date, in constant dollars, such loopholes averaged \$4.86 billion per year. With all subsidies and tax loopholes at the federal and state

⁴ Mark Clayton, “Budget hawks: Does US need to give gas and oil companies \$41 billion a year?” *Christian Science Monitor*, March 9, 2011 <<http://www.csmonitor.com/USA/Politics/2011/0309/Budget-hawks-Does-US-need-to-give-gas-and-oil-companies-41-billion-a-year>>.

⁵ Clayton, *op. cit.*

⁶ William Browning, “History of U.S. Oil Subsidies Go Back Nearly a Century,” *Yahoo! News*, March 29, 2012 <<http://news.yahoo.com/history-u-oil-subsidies-back-nearly-century-215500548.html>>.

level lumped together, estimates of total benefit to the oil and gas industries range from \$133.8 billion to \$208.8 billion.⁷ Taxpayers for common sense in 2011 estimated such budgeted federal subsidies and loopholes for the oil and natural gas industries to add up to \$78 billion over the next five years.⁸

The Export-Import Bank of the United States provided \$4.5 billion in financing and loan guarantees for fossil fuel industry projects in 2010, and in 2011 spent \$805 million on “the largest greenhouse gas-emitting project in its history, a 4,800 megawatt coal plant that will spew 30.5 million tons of carbon dioxide as well as enormous amounts of particulate emissions into the atmosphere each year.”⁹ The World Bank—whose most important shareholder is the United States government—provided \$4.4 billion in support to coal industry operations around the world in 2010.¹⁰

Although oil tankers are the primary beneficiary of federal expenditures on maintenance of water infrastructure (e.g. U.S. Army Corps of Engineers dredging of harbors so they're deep enough to accommodate tankers, the largest of commercial ships), the activity is funded by a tax (with revenues of \$1.4 billion per year) on all incoming commercial shipping.¹¹

Despite conservative focus on wind and solar boondoggles like Solyndra, the most heavily subsidized “alternative energy” program by far is ethanol, which on the American model at least produces little if any net energy gain over the energy cost of producing it. The \$5.7 billion annual ethanol tax credit underwrites 45 cents on the dollar of every gallon of ethanol produced. Federal law actually mandates the consumption of billions of gallons of ethanol every year.¹²

Liability Exemptions. Governments artificially lower the cost of energy, and shift the energy industry's costs onto the rest of society, by capping the maximum compensation for tortious actions by energy suppliers.

In the United States, such measures include the Price-Waterhouse Act of 1957, which underwrites—at taxpayer expense—the nuclear power industry's tort liability for meltdowns and other accidents above \$12.6 billion (in today's dollars). More importantly, the industry retains liability for only the first \$375 million per reactor; that means the nuclear power industry must be insured for only \$375 million in damages for all liabilities from a nuclear meltdown, and the taxpayers cover the rest of it.

The rationale behind this legislation was fairly straightforward. Nuclear power advocates in the U.S. government feared the lack of sufficient private insurance coverage for potential nuclear liabilities would hamper the development of the industry. Although the legislation was originally envisioned as temporary, it has since been repeatedly extended; it is currently due to expire in 2017.¹³

⁷ *Ibid.*

⁸ Autumn Hanna, “Subsidy Gusher: Taxpayers Stuck With Massive Subsidies While Oil and Gas Profits Soar ” (Taxpayers for Common Sense, 2011).

⁹ Autumn Hanna, Eli Lehrer, Benjamin Schreiber, and Tyson Slocum, *Green Scissors 2011* (Friends of the Earth, 2011), p. 8. “Green Scissors 2011 is produced by Friends of the Earth, Public Citizen, Taxpayers for Common Sense and The Heartland Institute to highlight and end wasteful and environmentally harmful federal spending. This diverse coalition of environmental, taxpayer, free market and consumer groups has come together to show how the government can save billions of tax dollars and improve our environment.”

¹⁰ *Ibid.*

¹¹ Adenike Adeyeye, James Barrett, Jordan Diamond, Lisa Goldman, John Pendergrass, and Daniel Schramm, *Estimating U.S. Government Subsidies to Energy Sources: 2002-2008* (Environmental Law Institute, September 2009), p. 20.

¹² Hanna *et al.*, *op. cit.*, p. 12.

¹³ “Price-Anderson Nuclear Industries Indemnity Act,” Wikipedia <<http://en.wikipedia.org/wiki/>

As a Westinghouse official admitted in 1953:

If you were to inquire whether Westinghouse might consider putting up its own money..., we would have to say "No." The cost of the plant would be a question mark until after we built it and, by that sole means, found out the answer. We would not be sure of successful plant operation until after we had done all the work and operated successfully... This is still a situation of pyramiding uncertainties.... There is a distinction between risk-taking and recklessness.¹⁴

The oil industry—as Americans were surprised to learn in the aftermath of the 2010 Deepwater Horizons spill—is protected by a similar liability cap. Under the terms of the Oil Liability Act of 1990 the first \$75 million in liability is funded by an 8 cents/barrel tax on petroleum. Liability over that amount—which extended to billions in the Deepwater Horizons disaster alone—is capped.¹⁵ And while the liability cap does not apply to cleanup costs, both tort damages and cleanup costs can be deducted from the corporate income tax.

This is not, as we already pointed out regarding corporate income tax deductions and non-refundable credits for the fossil fuel industry, to argue for the legitimacy of the corporate income tax. But when a corporation can engage in tortious activity, and then count the cost of restitution toward its tax bill at the same time as other companies are paying the same tax bill for simply being in business, it clearly entails a shift in competitive advantage to the fossil fuels industries and away from other industries and artificially reduces their costs compared to other industries operating under the same corporate tax code.

Regulatory Preemption. The normal pattern, when federal regulatory standards are less stringent than traditional common law standards of liability, is for such regulatory standards to preempt common law standards and create a “safe harbor” against tort liability for corporate malfeasance.

Even before the rise of the federal regulatory state, at the turn of the 20th century, a body of case law in the state courts in the United States in the early- and mid-19th century had significantly weakened common law standards of liability in the interests of making the law more “business-friendly.” In the original common law of torts, actors were considered strictly liable for the consequences of their behavior, regardless of intent; “the absence of negligence... [could not] serve as a limitation on legal liability for injury to person or property.” New doctrines emerged in state courts which protected commercial actors—particularly large transportation projects like railroads—from “extraordinary expenses arising from accidents which human foresight cannot always prevent.” And many activities which did in fact inflict tangible harm on neighbors were immunized from liability if they were regarded as a normal part of doing business in a particular industry—particularly in the case of activities which were deemed essential to “progress,” like those same infrastructure projects. Legal doctrine also evolved to exempt indirect and consequential—as opposed to direct and immediate—damages from liability (e.g. damage to the foundation of a house from grading a road on an adjoining street, or flooding of riparian land and obstruction of access to docks resulting from waterway improvements).¹⁶ The courts, essentially, used the law as an instrument of social engineering for

Price_Anderson_Nuclear_Industries_Indemnity_Act> Accessed June 1, 2012.

¹⁴ Walter Adams and James Brock, *The Bigness Complex. First Edition* (New York: Pantheon Books, 1986)., pp. 278-279.

¹⁵ Hanna et al., *Green Scissors 2011*, p. 4.

¹⁶ Morton J. Horwitz, *The Transformation of American Law: 1780-1860* (Cambridge and London, Harvard University Press, 1977), pp. 69-72.

externalizing the costs of “progress” and “economic development” to society at large.

As for the regulatory state itself, its regulations frequently act as a ceiling on quality standards, rather than a floor. Regulatory standards do not merely create a safe harbor against more stringent common law standards of liability for a company in compliance with them. They are frequently interpreted to prohibit even voluntary adherence to a more stringent standard. Corporations often take a harsh view of competitors who exceed regulatory safety or quality requirements.

So, for example, once the FDA approves POSILAC, it is forbidden for a dairy to advertise any product differentiation based on a more stringent safety standard than that of the FDA. Merely telling the consumer whether or not you choose to use FDA-approved additives constitutes disparagement of those who follow the government-established industry standard.

In one jurisdiction, the issue is no longer in doubt. Pennsylvania, in November 2007, officially prohibited dairies from labeling their milk growth hormone-free.

State Agriculture Secretary Dennis C. Wolff said advertising one brand of milk as free from artificial hormones implies that competitors' milk is not safe, and it often comes with what he said is an unjustified higher price. "

It's kind of like a nuclear arms race," Wolff said. "One dairy does it and the next tries to outdo them. It's absolutely crazy."...

Monsanto spokesman Michael Doane said the hormone-free label "implies to consumers, who may or may not be informed on these issues, that there's a health-and-safety difference between these two milks, that there's 'good' milk and 'bad' milk, and we know that's not the case."

Rick North of the Oregon Physicians for Social Responsibility, a leading critic of the artificial growth hormone, said the Pennsylvania rules amounted to censorship.

"This is a clear example of Monsanto's influence," he said. "They're getting clobbered in the marketplace by consumers everywhere wanting rBGH-free products."

Acting on a recommendation of an advisory panel, the Pennsylvania Agriculture Department has notified 16 dairies in Pennsylvania, New York, New Jersey, Connecticut and Massachusetts that their labels were false or misleading and had to be changed by the end of December.¹⁷

If complying with minimalist regulatory standards, based as they allegedly are on “sound science,” is sufficient to actually prohibit even voluntary adherence to more stringent standards, then *a fortiori* it could certainly be expected to provide a fig leaf for any company sued for damages as a result of pollution or other tortious activity. A company sued for contaminating groundwater, or making surrounding communities sick with chemical fumes or coal dust, need only say, as a *prima facie* defense: “We are fully in compliance with EPA emissions standards which are based on sound science, and emitting contaminates in quantities far below the regulatory limit of so many parts-per-million.” Cases which otherwise might have resulted in severe damages based on the medical histories of the plaintiffs and the testimony of scientific experts, are dead in the water.

These same standards of “sound science,” on which minimalist federal regulatory standards are

¹⁷ "Pa. bars hormone-free milk labels," *USA Today*, November 13, 2007 <http://www.usatoday.com/news/nation/2007-11-13-milk-labels_N.htm>.

supposedly based, also serve as a vehicle for protecting corporate malfeasors under assorted “corporate personhood,” “equal protection,” and “substantive due process” doctrines associated with Fourteenth Amendment jurisprudence.

In recent years, for example, local ordinances to protect groundwater and local populations against toxic pollution and contagion from hog farms, to protect property owners from undermining and land subsidence caused by coal extraction--surely indistinguishable in practice from the tort liability provisions of any just market anarchy's libertarian law code—have been overturned as violations of the "equal protection" rights of—*inter alia*—hog factory farms and mining companies.

Four years ago, Robertson and the other [Clarion County Pennsylvania] supervisors were debating an ordinance to restrict the spreading of toxics-laden sewage sludge on local fields—a major issue in an area that has become a destination for waste from Pittsburgh. The supervisors knew that messing with big business could come at a price: Three years earlier, another Pennsylvania township had passed an anti-sludge ordinance, only to be sued by a sludge hauler called Synagro, which argued that the township had infringed on its rights under the 14th Amendment, passed after the Civil War to guarantee "equal protection" to all....

After *Santa Clara*, federal judges began granting more and more rights to nonliving "persons." In 1922, the Supreme Court ruled that the Pennsylvania Coal Co. was entitled to "just compensation" under the Fifth Amendment because a state law, designed to keep houses from collapsing as mining companies tunneled under them, limited how much coal it could extract....

BY THE LATE 1990s, fear and anger over sludge application in rural Pennsylvania—fueled by the deaths of an 11-year-old who got sick after riding his dirt bike through a sludge-treated field, and a 17-year-old who fell ill after exposure to sludge at a farm—was running high. Thomas Linzey found himself fielding calls from local officials desperate for ways to battle the "biosolids" applicators, as well as the corporate hog farms whose stench sickened people for miles around. Municipalities had been used to keeping those nuisances at bay with their own waste ordinances; but in 1997, in response to agribusiness lobbying, the state began enforcing a law that invalidated the local rules. Residents packed schools and fire stations to air their grievances. "These are the people with the shitkickers and the John Deere hats," Linzey says. "These are the people who salt the roads in the wintertime and fix the roads in the summertime. We had rural farmers coming to community meetings with the Declaration of Independence in their back pockets."¹⁸

In response to local regulation of toxic sludge, the Pennsylvania Chamber of Business and Industry's newsletter sounded the alarm over a "stronger force than evil space invaders: the radical agenda of militant environmentalists that seems to have taken possession of the township supervisors." One corporation sued, claiming that the township's restrictions violated its rights with regard to "equal protection, due process, taking without just compensation, and rights guaranteed under the commerce clause." Last year, agribusiness took the fight to the state Legislature, supporting a law under which the state attorney general could sue any local government for passing an ordinance that "prohibits or limits a normal agricultural operation."

In this light, federal regulatory standards can be seen to act as a significant subsidy in favor of such operations as mountaintop removal and fracking. It's hard to imagine the groundwater contamination from fracking, or the air pollution and other environmental damage which mountaintop removal foists upon surrounding communities in West Virginia, not resulting in civil damages sufficient to render such operations unprofitable. Even the possibility of such liability, and the risk that a corporation's assets

¹⁸ Barry Yeoman, "When Is a Corporation Like a Freed Slave?" *Mother Jones*, November-December 2006. <http://www.motherjones.com/news/feature/2006/11/when_is_a_corporation_like_a_freed_slave.html>.

would vanish in a puff of smoke as a result, would be sufficient to make insurance prohibitively costly and drive capital into less risky investments.

Just imagine, for example, if the coal industry were left entirely open—without appeal to EPA standards as a fig leaf—to individual or class action suits for respiratory problems of children who breathed coal dust from mountaintop removal at surrounding elementary schools, or for damage to streams and groundwater. The career of Don Blankenship, CEO of Massey Energy—a company notorious for mine disasters—is instructive in this regard. Mountaintop removal involves clearing areas of thousands of acres, in the process filling nearby valleys and stream beds with debris and destroying entire watersheds. It also involves showering surrounding areas with coal dust from silos. And then there's the multi-billion gallon sludge ponds full of coal mine waste. The dam enclosing one such Massey pond gave way several years ago, with its contents wound up in the Big Sandy River. A number of towns lie in the flood path of other such ponds, should they give way.

Now, you'd think tort liability for the full damages of wholesale devastation of the entire countryside, the poisoned water and coal dust, the deaths from gross negligence, and all the rest of it, would seriously undermine the profitability of mountaintop removal. And you'd be right. Massey's mountaintop removal operation was fined \$50 million by West Virginia courts for polluting its neighbors. But by spending a mere \$3 million on attack ads (he "released sexual deviants") that would make Lee Atwater or Karl Rove proud, Massey managed to replace an unfriendly justice with his own stooge and thereby dispense with that fine—a 1666% return on investment. (Blankenship was spotted in Monte Carlo a few months later partying with yet another buddy on the Supreme Court.)

Blankenship also opined, by the way, that it's perfectly OK for elementary school kids to inhale coal dust from his operations while playing on school grounds. You see, Massey "already pays millions of dollars in taxes each year."

The state, by shielding corporate malfeasors against liability for pollution, makes energy artificially cheap.

State Preemption of Vacant Land. Extractive industries like oil and coal are heavily dependent on privileged access to vacant land or offshore water preempted by the state. From the earliest days of European settlement in America, European states preempted title to vacant lands (or "vacant" lands already occupied by natives) and then granted them by the millions of acres to favored clients who in terms rented, leased or sold them to those who actually first occupied and used them. Under the terms of the Treaty of Paris in 1783, British Crown lands passed to the newly independent state governments. Likewise, land claimed by the French state became federal property under the Louisiana cession of 1803. And under the terms of the Treaty of Guadalupe-Hidalgo, state lands of the Republic of Mexico (formerly lands of the Spanish crown) passed directly into ownership by the U.S. government. In some western states, these federal lands are the great majority of total land. The government, in turn, leases this land at nominal rates to extractive industries. And the leases are awarded in auctions in which only members of a particular industry are allowed to bid (e.g. only timber companies are allowed to bid for leasing federal forest land, oil companies for petroleum reserves, etc.).

Were vacant land not preempted by the state and then granted on a privileged basis, then such industries could establish legitimate homestead rights only over the land that they were capable of effectively developing and fully prepared to economically exploit at any given time. In the meantime, other groups might have homesteaded significant parcels of land with the intention of conserving it. Or

individuals might have homesteaded it piecemeal for private use, drastically increasing the cost—or rendering altogether impractical—the exploitation of non-contiguous land. In a free market regime with open homesteading, extractive industries like oil would have to buy out such competition at whatever price the latter demanded, if they were willing to sell at all.

One reason the ecosystem in West Virginia has had so little protection against mountaintop removal is that small owners historically had so little recourse against expropriation—outright robbery—by politically influential corporate interests. As illustrated in the movie *Matewan*, the first white homesteaders in coal-rich western lands like what was to become West Virginia—who mostly lacked formal title to their land, having settled when government was still quite irregular—were later expropriated by the mining companies, who could afford to buy both good lawyers and bad legislators.

Offshore oil development, in a stateless society, might be hindered in many cases by such groups as fishermen's associations administering fisheries as regulated commons, and—with the help of local juries with much stricter standards than the EPA—enforcing strict liability claims against the environmental impact of drillers like BP.

Foreign Policy. To a large extent the U.S. National Security State operates as a subsidy not only to petroleum consumption within the United States, but throughout the industrialized world. U.S. foreign policy is an adjunct of a larger corporatist policy of guaranteeing “safe, cheap and abundant energy” to the American economy.

As we already mentioned, the U.S. Navy, with its expensive ships, is the most expensive of the U.S. armed services. And the primary function of the U.S. Navy and its carrier groups, as an instrument of policy for the world's leading maritime power, is to keep the sea lanes—particularly for oil tankers—open and safeguard them from attacks by terrorists, pirates or rival powers that might want to cripple the industrial economies of the United States and its oil-dependent allies.

The missions of the U.S. Central Command—CENTCOM—are focused mainly on guaranteeing access to Persian Gulf and Caspian Basin oil reserves. The two enormously expensive wars which the U.S. has fought in Afghanistan and Iraq over the past decade were primarily the result of considerations involving these reserves. The same is true of the “Great Game” between the U.S. and Russia—including competition over basing rights in former Soviet Central Asia and such Russian initiatives as the Shanghai Security Organization.

Accounting and Corporate Culture. Energy waste and excessive consumption are further exacerbated by the cartelizing effects of the regulatory state, which insulate large corporations in oligopoly industries from the negative effects and weaken the competitive penalties from inefficiency.

In the state-cartelized economy, most manufacturing—and a great deal of other activity like food processing, retail, etc.—takes place in oligopoly markets where a handful of firms control most of the market share. Such markets commonly operate on the basis of administered prices, with prices tending to cluster into a fairly narrow range as the result of the “price leader” system. Hence there is only limited competitive pressure for cost minimization, and excessive costs can be passed onto the consumer through administered pricing.

Under these conditions, to say there is little internal interest in energy efficiency inside the large

corporation is a gross understatement. American business culture for over a century has been based mainly on growth through the extensive addition of inputs, rather than the more intensive use of existing inputs.

The very management accounting system in common use in American corporations creates a set of perverse incentives, because it equates the consumption of inputs as such to the creation of value (a bias it shares with Soviet central planning and national GDP accounting). As William Waddell and Norman Bodek argued in *The Rebirth of American Industry*, production labor is the only thing treated as a direct, variable cost in corporate management accounting. Hence when MBAs talk about cost-cutting, what they mean is obsessively looking for every spare second they can shave off of direct labor. Whenever business slows down workers are laid off, and when it picks up again they are either called back or replaced. This is the case despite the fact that labor is really more like a capital asset: skilled labor is extremely expensive to replace, and an efficient production process presupposes human capital: all the kinds of tacit knowledge and informal relationships that have built up over the course of years as an aid to people doing their jobs.¹⁹

Capital outlays and management salaries, on the other hand, are viewed as fixed, indirect costs. That means they're simply treated as overhead and included in the internal transfer prices of goods which are "sold" to inventory. And since inventory counts as a liquid asset under the corporate accounting system, the greater the overhead costs from management featherbedding and capital spending boondoggles, the better for the company's balance sheet. That's the same kind of cost-maximizing incentive, in an environment of cost-plus markup and guaranteed return, that leads to regular cost overruns among military contractors.

If you infer from this that the average large corporation probably pays no serious attention to energy efficiency, you are entirely correct. Even firms that consider future cost savings from energy efficiency at all—as opposed to making purchases based entirely on initial price—require extremely quick payback from an investment in energy efficiency ("a median of 1.9 years"). A 1.9 year simple payback on an investment in energy efficiency "is equivalent to a 71 percent real after-tax rate of return per year"—a far, far higher return than the corporate bean-counters consider high enough to justify a conventional investment. Most firms, therefore, "invest every day in ways to increase production or sales that don't return anywhere near 71 percent a year after tax; yet they continue to insist, often unknowingly, that energy efficiency leap this lofty hurdle." The typical MBA would jump at a guaranteed return of 27% after tax on an investment; but when the same rate of return is described as a 3.4 year simple payback, they couldn't care less. This means, in practical terms, "tenfold higher requirements for saving energy than for producing it."²⁰ Totally irrational? You bet. That's the point: In a state-cartelized economy, you can afford to be irrational.

Besides this lack of incentives, in an economy where the state subsidizes large organizational size and externalizes the inefficiency costs of it, the typical large corporation also has severe knowledge problems resulting from its bureaucratic culture. Such a culture makes it difficult to coordinate knowledge of any kind, or to make rational decisions on any subject—including energy. Given the stovepiping of specialized knowledge and the difficulties of aggregating dispersed knowledge in a corporate bureaucracy, the design of plant and equipment and of products tends to be quite defective.

¹⁹ William Waddell and Norman Bodek, *The Rebirth of American Industry: A Study of Lean Management* (Vancouver, WA: PCS Press, 2005). See Carson, *The Homebrew Industrial Revolution: A Low-Overhead Manifesto* (CreateSpace, 2010), Chapter Two for a more detailed discussion.

²⁰ *Natural Capitalism*, pp. 266-268.

The best designs typically come from small, integrated teams, or “skunk works,” like Steve Jobs' garage. But in the corporate world this almost never happens.

Amory Lovins and his coauthors, in *Natural Capitalism*, described the cascading cost savings (“Tunneling Through the Cost Barrier”) that result when the efficiencies of one stage of design reduce costs in later stages. Incremental increases in efficiency may increase costs, but large-scale efficiency improvements in entire designs may actually result in major cost reductions. Improving the efficiency of individual components in isolation can be expensive, but improving the efficiency of systems can reduce costs by orders of magnitude.²¹

Much of the art of engineering for advanced resource efficiency involves harnessing helpful interactions between specific measures so that, like loaves and fishes, the savings keep on multiplying. The most basic way to do this is to “think backward,” from downstream to upstream in a system. A typical industrial pumping system, for example..., contains so many compounding losses that about a hundred units of fossil fuel at a typical power station will deliver enough electricity to the controls and motor to deliver enough torque to the pump to deliver only ten units of flow out of the pipe—a loss factor of about tenfold.

But turn those ten-to-one compounding losses around backward..., and they generate a one-to-ten compounding *saving*. That is, saving one unit of energy furthest downstream (such as by reducing flow or friction in pipes) avoids enough compounding losses from power plant to end use to save about ten units of fuel, cost, and pollution back at the power plant.²²

To take another example, both power steering and V-8 engines resulted from Detroit's massive increases in automobile weight in the 1930s, along with marketing-oriented decisions to add horsepower that would be idle except during rapid acceleration. The introduction of lightweight frames, conversely, makes possible the use of much lighter internal combustion engines or even electric motors, which in turn eliminate the need for power steering.

The inefficiencies that result from an inability to “think backward” are far more likely to occur in a stovepiped organizational framework, where each step or part is designed in isolation by a designer whose relation to the overall process is mediated by a bureaucratic hierarchy. For example, in building design:

Conventional buildings are typically designed by having each design specialist “toss the drawings over the transom” to the next specialist. Eventually, all the contributing specialists' recommendations are integrated, sometimes simply by using a stapler.²³

This approach inevitably results in higher costs, because increased efficiencies of a single step taken in isolation generally *are* governed by a law of increased costs and diminishing returns. Thicker insulation, better windows, etc., cost more than their conventional counterparts. Lighter materials and more efficient engines for a car, similarly, cost more than conventional components. So optimizing the efficiency of each step in isolation follows a rising cost curve, with each marginal improvement in efficiency of the step costing more than the last. But by approaching design from the perspective of a whole system, it becomes possible to “tunnel through the cost barrier”:

²¹ Paul Hawken, Amory Lovins, and L. Hunter Lovins, *Natural Capitalism: Creating the Next Industrial Revolution* (Boston, New York, and London: Little, Brown and Company, 1999), pp. 113-124.

²² *Ibid.*, p. 121.

²³ Hawken et al, *Natural Capitalism*, p. 90.

When intelligent engineering and design are brought into play, big savings often cost less *up front* than small or zero savings. Thick enough insulation and good enough windows can eliminate the need for a furnace, which represents an investment of more capital than those efficiency measures cost. Better appliances help eliminate the cooling system, too, saving even more capital cost. Similarly, a lighter, more aerodynamic car and a more efficient drive system work together to launch a spiral of decreasing weight, complexity and cost. The only moderately more efficient house and car do cost more to build, but when designed as whole systems, the *superefficient* house and car often cost less than the original, unimproved versions.²⁴

While added insulation and tighter windows increase the cost of insulation or windows, taken in isolation, if integrated into overall building design they may *reduce* total costs up front by reducing the required capacity—and hence outlays on capital equipment—of heating and cooling systems. A more energy-efficient air conditioner, *given* unchanged cooling requirements, will cost more; but energy-efficient windows, office equipment, etc., can reduce the cooling load by 85%, and thus make it possible to replace the cooling system with one three-fourths smaller than the original—thereby not only reducing the energy bill by 75%, but enormously reducing capital expenditures on the air conditioner.²⁵ The trick is to “do the right things in the right order”:

...if you're going to retrofit your lights and air conditioner, do the lights first so you can make the air conditioner smaller. If you did the opposite, you'd pay for more cooling capacity than you'd need after the lighting retrofit, and you'd also make the air conditioner less efficient because it would either run at part-load or cycle on and off too much.²⁶

But such thinking is overwhelmingly the exception in American corporate culture. As we saw above with the production process, the design process is governed by a tendency to optimize each component in isolation at the expense of the efficiency of the design as a whole.

II. Transportation

Railroads. The grant of federal lands to homesteaders under the Homestead Act is commonly depicted as the quintessential example of populism. But the actual acreage granted was dwarfed by the federal government's land grants to the railroads—and individual homesteaders, as opposed to the railroads, actually had to *pay* for their land. The total land received by the railroads (185 million acres) exceeded the area of Texas.

Federal railroad land grants included not only the rights-of-way for the actual railroads, but extended 15-mile tracts on both sides. As the lines were completed, this adjoining land became prime real estate and skyrocketed in value. As new communities sprang up along the routes, every house and business in town was built on land acquired from the railroads. The tracts also frequently included valuable timberland.²⁷ The railroads, according to Matthew Josephson (*The Robber Barons*), were “land companies” whose directors “did a rushing land business in farm lands and town sites at rising prices.”²⁸

²⁴ Ibid., p. 114.

²⁵ Ibid., pp. 119-120.

²⁶ Ibid., p. 122.

²⁷ Murray Rothbard, *Power & Market: Government and the Economy* (Menlo Park, Calif.: Institute for Humane Studies, Inc., 1970), p. 52.

²⁸ Matthew Josephson, *The Robber Barons: The Great American Capitalists 1861-1901* (New York: Harcourt, Brace & World, Inc., 1934, 1962), pp. 77-78.

Theodore Judah, chief engineer for what became the Central Pacific, assured potential investors “that it could be done—if government aid were obtained. For the cost would be terrible.” Collis Huntington, the leading promoter for the project, engaged in a sordid combination of strategically placed bribes and appeals to communities’ fears of being bypassed in order to extort grants of “rights of way, terminal and harbor sites, and . . . stock or bond subscriptions ranging from \$150,000 to \$1,000,000” from a long string of local governments that included San Francisco, Stockton, and Sacramento.²⁹

Government also revised tort and contract law to ease the carriers’ way—for example, by exempting common carriers from liability for many kinds of physical damage caused by their operation.

Had railroad ventures been forced to bear their own initial capital outlays—securing rights of way, preparing roadbeds, and laying track, without land grants and government purchases of their bonds—the railroads would likely have developed instead along the initial lines on which Lewis Mumford speculated in *The City in History*: many local rail networks linking communities into local industrial economies. The regional and national interlinkages of local networks, when they did occur, would have been far fewer and far smaller in capacity. The comparative costs of local and national distribution, accordingly, would have been quite different. In a nation of hundreds of local industrial economies, with long-distance rail transport much more costly than at present, the natural pattern of industrialization would have been to integrate small-scale power machinery into flexible manufacturing for local markets.

Alfred Chandler, in *The Visible Hand*, argued that the national railroad system made possible, first, national wholesale and retail markets, and then large manufacturing firms serving the national market. The existence of unified national markets served by large-scale manufacturers depended on a reliable, high-volume distribution system operating on a national level. The railroad and telegraph, “so essential to high-volume production and distribution,” were in Chandler’s view what made possible this steady flow of goods through the distribution pipeline: “The revolution in the processes of distribution and production rested in large part on the new transportation and communications infrastructure. Modern mass production and mass distribution depend on the speed, volume, and regularity in the movement of goods and messages made possible by the coming of the railroad, telegraph and steamship.”

The centralized railroad networks, themselves largely creatures of the State, in turn actively promoted the concentration of industry through their rate policies. Sabel and Piore argue that “the railroads’ policy of favoring their largest customers, through rebates” was a central factor in the rise of the large corporation. Once in place, the railroads—being a high fixed-cost industry—had “a tremendous incentive to use their capacity in a continuous, stable way. This incentive meant, in turn, that they had an interest in stabilizing the output of their principal customers—an interest that extended to protecting their customers from competitors who were served by other railroads. It is therefore not surprising that the railroads promoted merger schemes that had this effect, nor that they favored the resulting corporations or trusts with rebates.”³⁰

So artificially cheap long-distance rail shipping resulted in a transportation-intensive economy in which both average firm size and market area were artificially large.

²⁹ *Ibid.*, pp. 83-84.

³⁰ Michael J. Piore and Charles F. Sabel, *The Second Industrial Divide: Possibilities for Prosperity* (New York: HarperCollins, 1984), pp. 66-67.

Highways. The automobile-highway complex, and government subsidies to the creation of a national highway system, date back to the early days of the automobile. The first venture at a national highway system was the program of federally designated state highways after WWI.

The biggest such project to date, begun in the 1950s, was the Interstate Highway System. It was carried out under the tenure of Defense Secretary Charles Wilson (former CEO of General Motors, famous for the quip “What's good for the United States is good for General Motors”); the chief administrator of the program was Francis DuPont, whose family owned the largest share of GM stock.

The economic effect of the interstate system should hardly be controversial. Virtually 100 percent of roadbed damage to highways is caused by heavy trucks. After repeated liberalization of maximum weight restrictions, far beyond the heaviest conceivable weight the interstate roadbeds were originally designed to support, fuel taxes fail miserably at capturing from big-rig operators the cost of pavement damage caused by higher axle loads. And truckers have been successful at scrapping weight-distance user charges, in most states, and preventing them whenever they're proposed. So only about half the revenue of the highway trust fund comes from fees or fuel taxes on the trucking industry, and the rest is externalized on private automobiles.³¹ A study in 1998 estimated that standard 5-axle tractor-trailer semi rigs paid about 90% of the total costs they imposed, but multi-trailer rigs paid for only 60% of the damage they caused.³²

Wal-mart's “warehouses on wheels” distribution model, and similar models since adopted by the other big-box retail chains, depend on a well-maintained, high-volume Interstate Highway System. So the big-box retailers are essentially adaptations to an ecological niche created by the state.

Civil Aviation. As for the civil aviation system, from the beginning it was a creature of the state. Its original physical infrastructure was built entirely with federal grants and tax-free municipal bonds.

Since 1946, *the federal government has poured billions of dollars into airport development.* In 1992, Prof. Stephen Paul Dempsey of the University of Denver estimated that [sic] *the current replacement value of the U.S. commercial airport system—virtually all of it developed with federal grants and tax-free municipal bonds—at \$1 trillion.*

Not until 1971 did the federal government begin collecting user fees from airline passengers and freight shippers to recoup this investment. In 1988 the Congressional Budget Office found that *in spite of user fees paid into the Airport and Airways Trust Fund, the taxpayers still had to transfer \$3 billion in subsidies per year to the FAA to maintain its network of more than 400 control towers, 22 air traffic control centers, 1,000 radar-navigation aids, 250 long-range and terminal radar systems and its staff of 55,000 traffic controllers, technicians and bureaucrats.*³³

(And even aside from the inadequacy of user fees, eminent domain remains central to the building

³¹ Frank N. Wilner, "Give truckers an inch, they'll take a ton-mile: every liberalization has been a launching pad for further increases - trucking wants long combination vehicle restrictions dropped," *Railway Age*, May 1997
<http://findarticles.com/p/articles/mi_m1215/is_n5_v198/ai_19460645>.

³² James March, “Federal Highway Cost Allocation Study,” *Public Roads*, vol. 62 no. 4 (Jan/Feb 1998)
<<http://www.fhwa.dot.gov/publications/publicroads/98janfeb/cost.cfm>>.

³³ James Coston, Amtrak Reform Council, 2001, in "America's long history of subsidizing transportation"
<<http://www.trainweb.org/moksrail/advocacy/resources/subsidies/transport.htm>>.

of new airports and expansion of existing airports.)

Subsidies to the airport and air traffic control infrastructure of the civil aviation system are only part of the picture. Equally important are the direct role of the state in creating the heavy aircraft industry, whose jumbo jets—both cargo and passenger—revolutionized civil aviation after WWII. In *Harry Truman and the War Scare of 1948*, Frank Kofsky described the aircraft industry as spiraling into red ink after the end of the war and on the verge of bankruptcy when it was rescued by the Cold War (and more specifically Truman's heavy bomber program). David Noble, in *America by Design*, made a convincing case that civilian jumbo jets were only profitable thanks to government heavy bomber contracts; the production runs for the civilian market alone were too small to pay for the complex and expensive machine tools. The 747 is essentially a spinoff of military production. Without the Cold War heavy bomber program to revive it from the late '40s on, it is questionable in what form the aircraft industry would have survived; the growth of a civilian jumbo jet industry would have been unthinkable.

So the civil aviation system is, many times over, a creature of the state.

The result of the government-sponsored highway and civil aviation systems, taken together, was massive concentration in retail, agriculture, and food processing.

Eminent Domain. Government subsidies to railroads, highways and airports include eminent domain and other illegitimate forms of appropriation or expropriation of land. The railroad land grants, as we've already seen, involved federal preemption of title to vacant and unimproved land in the Mexican public domain, and the subsequent distribution of it to railroad interests. Today the creation or expansion of new highways and airports involves seizure of private land via eminent domain.

To take just one example, the Northwest Arkansas Regional Airport at Highfill was built under the auspices of the Northwest Arkansas Regional Airport Authority, an intergovernmental body with power—among many other things—to condemn land. The process entailed the condemnation of a considerable amount of farmland in the vicinity. Had farmers been free to set the price of their land or to refuse altogether, the airport simply would not have been built.

Tibor Machan writing in *The Freeman*, dismissed consequentialist arguments that eminent domain was necessary for “progress”:

Some people will say that stringent protection of rights [against eminent domain] would lead to small airports, at best, and many constraints on construction. Of course—but what's so wrong with that?

Perhaps the worst thing about modern industrial life has been the power of political authorities to grant special privileges to some enterprises to violate the rights of third parties whose permission would be too expensive to obtain. The need to obtain that permission would indeed seriously impede what most environmentalists see as rampant—indeed reckless—industrialization.

The system of private property rights—in which... all... kinds of... human activity must be conducted within one's own realm except where cooperation from others has been gained voluntarily—is the greatest moderator of human aspirations.... In short, people may reach goals they aren't able to reach with their own resources only by convincing others, through arguments and fair exchanges, to cooperate.³⁴

³⁴ Tibor S. Machan, "On Airports and Individual Rights," *The Freeman: Ideas on Liberty* (February 1999), p. 11.

Summary. It is fallacious to say that state-subsidized infrastructure "creates efficiencies" by making possible large-scale production for a national market. The fact that a large, centralized infrastructure system can only come about when the state subsidizes or organizes it from above, or that such state action causes it to exist on a larger scale than it otherwise would, indicates that the transaction costs are so high that the benefits are not worth it to people spending their own money. There is no demand for it by consumers willingly spending their own money, at the actual costs of providing the services, risks and all, without state intervention. If production on the scale promoted by infrastructure subsidies were actually efficient enough to compensate for real distribution costs, the manufacturers would have presented enough effective demand for such long-distance shipping at actual costs to pay for it without government intervention. On the other hand, an apparent "efficiency" that presents a positive ledger balance only by shifting and concealing real costs, is really no "efficiency" at all. Costs cannot be destroyed. Shifting them does not make them any less of a cost—it only means that, since they aren't being paid by the beneficiary of the service, she profits at someone else's expense. There Ain't No Such Thing As A Free Lunch.

III. Sprawl and the Car Culture

Urban Freeway Systems. Local governments are typically dominated by what Harvey Molotch calls "Urban Growth Machines," made up of politically influential business interests and real estate developers in particular. The purpose of local urban development policies is to increase the profits of the Chamber of Commerce, and in particular to increase real estate values.

The dominant influence on local government consists of groups which depend on government for the appreciation of their land values, like real estate speculators and developers; allied professions like realtors; and commercial enterprises whose income is not directly derived from land value but "who need local government in their daily money-making routines." It is this group whose interests are tacitly reflected in what is commonly called "civic mindedness," and drip off the slick pages of the glossy booster magazines that plague virtually every community in America. It is their interests which are served by efforts like taxpayer-funded sports stadiums, parades and festivals.³⁵

Michael Bates of Tulsa refers to this coalition of local interests—including the local newspaper—as the "Cockroach Caucus": "the 'Developers, Chamber, and Establishment' party"; a "cluster of special interests which has been trying to run the City of Tulsa without public input, and preferably without public debate."³⁶

The *World* is more than just an observer of the local scene. It is an integral part of the tight social network that has run local politics for as long as anyone can remember. This network... has pursued its own selfish interests under the name of civic progress, with disastrous results for the ordinary citizens of Tulsa and its metropolitan area....

The Cockroach Caucus is most recently infamous for convincing state and local elected officials to pour \$47 million in public funds into Great Plains Airlines.... It went bankrupt, leaving local taxpayers liable for millions in loan guarantees. Many leading lights of the Cockroach Caucus, including World Publishing

³⁵ Harvey Molotch, "The City as a Growth Machine: Toward a Political Economy of Place," *The American Journal of Sociology*, vol. 82, no. 2 (Sept. 1976), pp. 314-315.

³⁶ Michael Bates, "A Name for This Bunch," *Batesline*, April 19, 2004 <<http://www.batesline.com/archives/2004/04/a-name-for-this.html>>.

Company, were investors in Great Plains Airlines.

The Cockroach Caucus has wasted tens of millions in public funds on failed economic development strategies...., and has bent and sometimes broken the rules of the land use planning system to favor those with political and financial connections. The same small number of connected insiders circulates from one city authority, board, or commission to another, controlling city policy, but beyond the reach of the democratic process.³⁷

The business of local government, as described by Molotch, is to serve this Cockroach Caucus:

...to the degree to which otherwise competing land-interest groups collude to achieve a common land-enhancement scheme, there is community—whether at the level of a residential block club, a neighborhood association, a city or metropolitan chamber of commerce, a state development agency, or a regional association. Such aggregates, whether constituted formally or informally, whether governmental political institutions or voluntary associations, typically operate in the following way: an attempt is made to use government to gain those resources which will enhance the growth potential of the area unit in question. Often, the governmental level where action is needed is at least one level higher than the community from which the activism springs. Thus, individual land-owners aggregate to extract neighborhood gains from the city government; a cluster of cities may coalesce to have an effective impact on the state government, etc.³⁸

According to Molotch, this direction of resources toward the appreciation of real estate values for politically mobilized landed elites is “the essence of local government.”³⁹

To put it in Henry George's terms, the land owners of a city exert powerful political influence in favor of government policies that will increase the site value of the land they own. The old real estate dictum is “location, location, location”; and any form of urban infrastructure spending makes the locations served by it more valuable—increases their differential rent, in the language of David Ricardo and Henry George.

Hence downtown development and redevelopment policies tend to raise the price of land on and adjoining Main Street, resulting in gentrification that prices the area out of the market both for grocers and other shops that serve the daily needs of ordinary people, and for affordable housing within walking distance. Downtown instead becomes a high-rent district of banks, yuppie fern bars, high-end retailers and “arts centers,” patronized mainly by well-to-do people who drive to get there. That's what “downtown revival” means, when that phrase is used by local elites.

Besides direct spending, local governments achieve this end through such policies as improvement districts and tax increment financing. An improvement, typically, is formed by the owners of a majority of the property value in the neighborhood in question. Once formed, it can levy taxes even on businesses in the area which opposed creating the improvement district. Such an improvement district was created to finance the construction of the Walton Arts Center on Dickson Street in Fayetteville, Arkansas in the 1990s. The Dickson Street area, including residential neighborhoods extending several blocks to the Square on the south and Wilson Park on the north, was originally a distinctive, humanly appealing low-rent district whose character was set by the aging hippies who'd settled the neighborhood during the “back to the land” influx of the 1970s. The Arts Center was the centerpiece of a gentrification and “revitalization” project that priced both residential and commercial properties out

³⁷ Bates, “Whirled Threatens Batesline,” *Batesline*, February 15, 2005 <<http://www.batesline.com/archives/2005/02/whirled-threate-2.html>>.

³⁸ Molotch, *op. cit.*, pp. 311-312.

³⁹ *Ibid.*, p. 313.

of the range of the people who'd previously been using them, and turning Dickson Street into a glorified yuppie shopping mall.

Under tax increment financing, property owners in a depressed neighborhood are allowed to count spending for developing their own properties toward their local property tax bill. Never mind the question of whether property taxes are legitimate; I'm an anarchist. But given the fact that property taxes exist, consider the equity of the differential treatment. If you're threatened with the full apparatus of the law for not paying your full property tax bill, but your next door neighbor is allowed to spend an equal amount of money building a deck onto her house in lieu of the property tax, what's your instinctive reaction?

Even more important, the primary activity of local government is to build the freeways and below-cost utilities that enable profitable development of outlying real estate into strip malls and suburban bedroom communities. The result is a pattern of development in which older, inlying areas are taxed for the benefit of development in new, outlying areas.

Zoning. Local zoning ordinances and design plattees actually mandate sprawl and monoculture, and prohibit mixed use development.

Zoning laws criminalize neighborhood enterprises like grocery stores in predominantly residential areas, or businesses operated out of people's homes. They criminalize cheap housing in commercial areas, like walk-up apartments over business enterprises. Even something as minimal as reviving neighborhood grocers, alone, would reduce gasoline consumption by around 5%.⁴⁰

Through minimum parking lot size mandates, they not only promote the big box model of commercial development in outlying areas, but promote a model of downtown development based on gentrification (with people driving in from outside rather than walking in from the surrounding neighborhood as the main source of business). Development plattees that mandate minimum curb setbacks for houses impose a Brady Bunch-style model of suburban design.

James Kunstler tells the story of a house that burned down in an old Georgetown neighborhood of bungalows set close to the street. The old houses were grandfathered in under the new urban design plattees. But the new house on the lot wasn't. So the street in question wound up consisting of a long line of houses snuggled close to a maple-shaded sidewalk—except for one split-level ranch set back from the street with a golf course for a front yard.

Unless one takes the fantastic position that zoning laws fortuitously replicate the exact same pattern of urban development that would have taken place in a free market—that laws prohibiting neighborhood commercial enterprises, prohibiting walk-up apartments over downtown stores, and mandating minimum lawn and parking lot sizes had absolutely no effect because there was not a single person who would have desired to do anything forbidden by these laws—then the logic is inescapable that their net effect was some non-zero increase in sprawl.

Utility Subsidies and Infrastructure for Outlying Development. Public utilities and local governments, typically, provide artificially cheap roads and water and sewer connections to new

⁴⁰ *Natural Capitalism*, p. 45.

housing additions, at the expense of taxpayers and ratepayers in older, more centrally located neighborhoods.

For example, in the neighboring city of Fayetteville, Arkansas, back in 2006, the local government proposed a one cent increase in the sales tax to fund an expansion of the sewer system to meet the burden imposed on the system imposed by new outlying residential and commercial developments. At the time Mayor Dan Coody—who'd been elected as a green/"smart growth" candidate, by the way—said it was "the only alternative" to a higher sewer rate for existing customers. If it was "the only alternative," that's because the people who framed "alternatives" for public referendum didn't choose to put anything else on the table. After the voters approved that one cent sales tax by a slim margin, the government proposed an increase in the sewer hookup fee for new developments. But having already approved one tax increase, the voters were understandably not in the mood for another increase in fees. An increase in sewer hookup costs for those who actually imposed burdens on the system would have been the logical solution. But for some reason that "alternative" wasn't "on the table" for the first vote. The reason might have had something to do with Jim Lindsey and Associates, a real estate concern with billions of dollars in properties around northwest Arkansas.

Summary. The cumulative effect of subsidies and legal mandates for urban sprawl has been to create a society, over the past several decades, in which there are two separate cities for each person. There's the city in which the person works and shops, and another city in which she goes home to sleep. Each has its own energy-consuming utility infrastructure, and the two are linked by an enormously energy-consuming daily commute.

The physical boundary between this new society and the old is delineated by the point at which new settlement began after the introduction of the Model T. Within this boundary are the old parts of town as they existed around WWI: walkable downtowns, surrounded by old residential neighborhoods designed for convenient access to Main Street via foot, bicycle or streetcar. Residential streets tend to be narrow, with comparatively small front lawns and shade trees, and foot and bicycle traffic are part of everyday life.

Outside this boundary is a system of freeways, lined with suburban residential monocultures and strip malls. To get from one's home to one's job or shopping, it's necessary to drive from the cul-de-sac in which one lives to the nearest freeway cloverleaf, and drive from there to another exit which leads to a commercial monoculture. In this new America, residential areas are designed mainly to drive through, with huge lawns in front of split-level ranch homes. Walking in these neighborhoods is a good way to be questioned by police.

IV. The Solution

From what we've seen so far, it's clear that the American car culture, sprawl development, centralized truck-based distribution system, and the rest of its pattern of energy and transportation consumption are far from the spontaneous outcome of "free market" preferences that they're portrayed as being by apologists for all these things. On the contrary: They're the result of a decades-long social engineering project in reshaping America in the image of the automobile.

It's hard not to conclude on this basis that the cumulative effect of all these direct and indirect subsidies to the extraction and consumption of fossil fuels, and to the overconsumption of

transportation inputs, is so great that simply eliminating them would reduce total fossil fuels consumption far below Kyoto Accord protocols.

Indeed Fatih Birol, chief economist at the International Energy Agency, estimates the price effect of scrapping the \$409 spent globally on fossil fuel subsidies (not actually all subsidies, as I explained earlier, but with an equivalent price-distorting effect) would by itself be enough to reduce total global fossil fuel consumption by almost half enough to reach the Kyoto targets.⁴¹ Bear in mind that Birol's figure doesn't even include the great majority of policies described above that make energy consumption artificially cheap.

You may notice, despite all this, that I don't waste any space in this section discussing policy proposals for removing energy subsidies, sprawl-promoting regulations, or anything of the sort. That should be self-explanatory. While I feel I should tip my hat to the recommendation that governments do all these things, it should be obvious to anyone outside of Stepford why I regard any serious discussion of it as a waste of time.

Peak Oil. The basic idea of Peak Oil is that the rate of extraction of petroleum has peaked, or is about to peak. On the downside of the peak, the supply of oil will gradually contract year by year. Although the total amount of oil reserves in the ground may be roughly comparable to those extracted to date, they will be poorer in quality, and more expensive in both dollar terms and energy to extract.

All the panaceas commonly put forth for Peak Oil—oil shale, tar sands, offshore drilling, algae—turn out to be pipe dreams. The issue isn't the absolute amount of oil in offshore reserves or tar sands, but the *cost* of extracting them and the maximum feasible *rate* of extraction. In terms of the net energy surplus left over after the energy cost of extraction (Energy Return on Energy Investment, or EROEI), all the “drill baby drill” gimmicks are far more costly—cost far more BTUs per net BTU of energy produced—than did petroleum in the “good old days.” The maximum rate of extraction from all the newly discovered offshore oil bonanzas the press reports, and from unconventional sources like tar sands, doesn't begin to compensate for the daily output of old wells in places like the Persian Gulf that will go offline in the next few years. And the oil from such sources is far more costly to extract, with much less net energy surplus.⁴²

The list of false panaceas includes coal, by the way. It's sometimes argued that Peak Coal is some time away, and that increased coal output (e.g. China's much-vaunted policy of building another coal-fired generator every week) will compensate for decreased oil output in the intermediate term. But estimates of coal reserves have been revised radically downward in the last two decades—by some 55%, as a matter of fact. In virtually every country where coal reserves have been reestimated since the 1990s, such a downward revision has recurred. Poland, the largest coal producer in the EU, had its reserve estimates downgraded by 50%, and Germany by 90%. UK reserve estimates were revised from 45 billion tons to 0.22 billion tons. And interestingly, the countries with some of the highest estimated coal reserves (e.g. China) are also the countries whose estimates are the oldest and most out of date. The most recent figures for China, for an estimated 55 years' reserves, date back all the way to 1992—and Chinese production since then has amounted to some 20% of those total reserves.

⁴¹ Brad Plumer, “Scrapping fossil fuel subsidies would get us halfway on climate change,” *Washington Post*, January 1, 2012 <http://www.washingtonpost.com/blogs/ezra-klein/post/scrapping-fossil-fuel-subsidies-would-get-us-halfway-on-climate-change/2012/01/20/gIQAtZbcDQ_blog.html>.

⁴² Rob Hopkins, *The Transition Handbook: From Oil Dependency to Local Resilience* (Totnes: Green Books, 2008), p. 23.

The Energy Watch Group report gives projected production profiles showing that China is likely to experience peak coal production in the next 10-15 years, followed by a steep decline. It should also be noted that these production profiles do not take into account uncontrolled coal fires which – according to satellite based estimates – add around 5-10% to regular consumption. Since China's production dwarfs that of any other country (being almost double that of the second largest producer, the USA) the global coal production peak will be heavily influenced by China's production profile.⁴³

The Energy Watch Group's estimate for peak coal energy is 2025.⁴⁴ And even assuming increased coal output for another decade or more, Richard Heinberg forecasts total fossil fuel energy production peaking around 2010 or so.⁴⁵

Peak Oil skeptics frequently argue that a price spike like the one in 2008 is caused, not by Peak Oil, but “instead” by some special circumstance like a specific supply disruption or speculative bubble. But that misses the point.

The very fact that supply has reached its peak, and that price is entirely determined by the amount of demand bidding for a fixed supply, means that the price of oil is governed by the same speculative boom-bust cycle Henry George observed in land. Given the prospect of a fixed supply of land or oil, the rational interest of the oil industry, like that of real estate speculators, will lead them to hold greater or lesser quantities off the market, or dump them on the market, based on their estimate of the future movement of price. Hence the inconvenient fact, during the “drill here drill now” fever of the McCain-Palin campaign, that the oil companies were already sitting on large offshore oil reserves that they were failing to develop in anticipation of higher prices.

The oil companies already have access to some 34 billion barrels of offshore oil they haven't even developed yet, but ending the federal moratorium on offshore drilling would probably add only another 8 billion barrels (assuming California still blocks drilling off its coast). Who thinks adding under 100,000 barrels a day in supply sometime after 2020 -- some one-thousandth of total supply -- would be more than the proverbial drop in the ocean? Remember the Saudis couldn't stop prices from rising now by announcing that they will add 500,000 barrels of oil a day by the end of this year!

Here is the key data from EIA:

Look closely. As of 2003, oil companies had available for leasing and development 40.92 billion barrels of offshore oil in the Gulf of Mexico. I asked the EIA analyst how much of that (estimated) available oil had been discovered in the last five years. She went to her computer and said "about 7 billion barrels have been found." That leaves about 34 billion still to find and develop.

The federal moratorium only blocks another 18 billion barrels of oil from being developed.⁴⁶

And given the prospect of fixed supplies of oil, the greater the anticipated future scarcity value of oil, the greater will be the rational incentive for terrorists to leverage their power by disrupting supply. The infrastructure for extracting and distributing oil is unprecedentedly fragile, precisely because of a

⁴³ Chris Vernon, “Peak Coal—Coming Soon?” *The Oil Drum: Europe*, April 5, 2007
<<http://europe.theoil Drum.com/node/2396>>.

⁴⁴ Ibid.

⁴⁵ Richard Heinberg, *Peak Everything: Waking Up to the Century of Declines* (Gabriola Island, B.C.: New Society Publishers, 2007), p. 12.

⁴⁶ Joseph Romm, “McCain's Cruel Offshore Drilling Hoax,” *CommonDreams.Org*, July 11, 2008
<<http://www.commondreams.org/archive/2008/07/11/10301>>.

decline in productive capacity. Between 1985 and 2001, OPEC's excess production capacity fell from 25% of global demand to 2%. In 2003, the International Energy Agency estimated available excess capacity was at its lowest level in thirty years.⁴⁷

According to Jeff Vail, speculative hoarding of petroleum and terrorist actions against oil pipelines are not *alternative* explanations *in place of* Peak Oil, but the results of a positive feedback process created by Peak Oil itself.

It is quite common to hear “experts” explain that the current tight oil markets are due to “above-ground factors,” and not a result of a global peaking in oil production. It seems more likely that it is geological peaking that is driving the geopolitical events that constitute the most significant “above-ground factors” such as the chaos in Iraq and Nigeria, the nationalization in Venezuela and Bolivia, etc. Geological peaking spawns positive feedback loops within the geopolitical system. Critically, these loops are not separable from the geological events—they are part of the broader “system” of Peak Oil.

Existing peaking models are based on the logistics curves demonstrated by past peaking in individual fields or oil producing regions. Global peaking is an entirely different phenomenon—the geology behind the logistics curves is the same, but global peaking will create far greater geopolitical side-effects, even in regions with stable or rising oil production. As a result, these geopolitical side-effects of peaking global production will accelerate the rate of production decline, as well as increase the impact of that production decline by simultaneously increasing marginal demand pressures. The result: the right side of the global oil production curve will not look like the left... whatever logistics curve is fit to the left side of the curve (where historical production increased), actual declines in the future will be sharper than that curve would predict.

Here are five geopolitical processes, each a positive-feedback loop, and each an accelerant of declining oil production:

1. Return on Investment: Increased scarcity of energy, as well as increased prices, increase the return on investment for attacks that target energy infrastructure....

2. Mercantilism: To avoid the dawning “bidding cycles” between crude oil price increases and demand destruction, Nation-States are increasingly returning to a mercantilist paradigm on energy. This is the attitude of “there isn’t enough of it to go around, and we can’t afford to pay the market price, so we need to lock up our own supply....

3. “Export-Land” Model: Jeffrey Brown, a commentator at The Oil Drum, has proposed a geopolitical feedback loop that he calls the “export-land” model. In a regime of high or rising prices, a state’s existing oil exports brings in great revenues, which trickles into the state’s economy, and leads to increasing domestic oil consumption. This is exactly what is happening in most oil exporting states. The result, however, is that growth in domestic consumption reduces oil available for export....

4. Nationalism: Because our Westphalian system is fundamentally broken, the territories of nations and states are rarely contiguous. As a result, it is often the case that a nation is cut out of the benefits from its host state’s oil exports.... As a result, nations or sectarian groups within states will increasingly agitate for a larger share of the pie.... This process will develop local variants on the tactics of infrastructure disruption, as well as desensitize energy firms to ever greater rents for the security of their facilities and personnel—both of which will drive the next loop....

5. Privateering: Nationalist insurgencies and economies ruined by the downslide of the “export-land” effect will leave huge populations with no conventional economic prospects. High oil prices, and the

⁴⁷ Richard Heinberg, *Powerdown* (Gabriola Island, British Columbia: New Society Publishers, 2004), pp. 27-28.

willingness to make high protection payments, will drive those people to become energy privateers. We are seeing exactly this effect in Nigeria, where a substantial portion of the infrastructure disruption is no longer carried out by politically-motivated insurgents, but by profit-motivated gangs....⁴⁸

Mercantilism, in particular, probably goes a long way toward explaining America's invasion of Iraq and the Russian-American “Great Game” in Central Asia in recent years. The United States' post-9/11 drive for basing rights in the former Central Asian republics of the old USSR, and the rise of the Shanghai Cooperation Organization as a counterweight to American power, are clearly more meaningful in the light of the Caspian Sea basin oil reserves.

And the evidence is clear that price really is governed entirely by the fluctuation of demand, and that supply—at least on the upward side—is extremely inelastic. Just consider the movement of oil supplies after the price shock of the late '70s and early eighties to that of the past few years. As “transition town” movement founder Rob Hopkins points out, the supply of oil has increased little if any since 2005—fluctuating between 84 and 87 mbd—despite record price levels.⁴⁹

Fiscal Crisis. The origins of corporate capitalism and the mass-production economy are associated with massive government subsidies; since then the tendency of corporate capital to socialize its operating costs has never abated. As a matter of basic economics, whenever you subsidize something and make it available to the user for less than its real cost, demand for it will increase. American capitalism, as a result, has followed a pattern of expansion—particularly in the case of energy—skewed toward extensive additions of subsidized inputs, rather than more intensive use of existing ones. As James O'Connor describes the process,

Transportation costs and hence the fiscal burden on the state are not only high but also continuously rising. It has become a standard complaint that the expansion of road transport facilities intensifies traffic congestion. The basic reason is that motor vehicle use is subsidized and thus the growth of the freeway and highway systems leads to an increase in the demand for their use.⁵⁰

There is another reason to expect transportation needs (and budgets) to expand. The development of rapid transport and the modernization of the railroads, together with the extension of the railroad systems, will push the suburbs out even further from urban centers, putting still more distance between places of work, residence, and recreation. Far from contributing to an environment that will free suburbanites from congestion and pollution, rapid transit will, no doubt, extend the traffic jams and air pollution to the present perimeters of the suburbs, thus requiring still more freeway construction, which will boost automobile sales.⁵¹

And the tendency of monopoly capitalism to generate surplus capital and output also increases the amount of money that the state must spend to absorb the surplus.

Monopoly capitalism, according to O'Connor, is therefore plagued by a “fiscal crisis of the state.” “...[T]he socialization of the costs of social investment and social consumption capital increases over time and increasingly is needed for profitable accumulation by monopoly capital.”⁵²

⁴⁸ Jeff Vail, “Five Geopolitical Feedback-Loops in Peak Oil,” *JeffVail.Net*, April 23, 2007 <<http://www.jeffvail.net/2007/04/five-geopolitical-feedback-loops-in.html>>.

⁴⁹ Hopkins, *The Transition Handbook*, p. 22.

⁵⁰ James O'Connor, *The Fiscal Crisis of the State* (New York: St. Martin's Press, 1973), p. 106.

⁵¹ *Ibid.*, pp. 109-110.

⁵² *Ibid.*, p. 8.

...[A]lthough the state has socialized more and more capital costs, the social surplus (including profits) continues to be appropriated privately.... The socialization of costs and the private appropriation of profits creates a fiscal crisis, or “structural gap,” between state expenditures and state revenues. The result is a tendency for state expenditures to increase more rapidly than the means of financing them.⁵³

In short, the state is bankrupting itself providing subsidized inputs to big business, while big business's demand for those subsidized inputs increases faster than the state can provide them. As Ivan Illich put it,

queues will sooner or later stop the operation of any system that produces needs faster than the corresponding commodity....⁵⁴

...[I]nstitutions create needs faster than they can create satisfaction, and in the process of trying to meet the needs they generate, they consume the Earth.⁵⁵

The distortion of the price system, which in a free market would tie quantity demanded to quantity supplied, leads to ever-increasing demands on state services. Normally price functions as a form of feedback, a homeostatic mechanism much like a thermostat. Putting a candle under a thermostat will result in an ice-cold house. When certain hormonal feedback loops are distorted in an organism, you get gigantism; the victim dies crushed by his own weight. Likewise, when the consumption of some factor is subsidized by the state, the consumer is protected from the real cost of providing it, and unable to make a rational decision about how much to use. So the state capitalist sector tends to add factor inputs extensively, rather than intensively; that is, it uses the factors in larger amounts, rather than using existing amounts more efficiently. The state capitalist system generates demands for new inputs from the state geometrically, while the state's ability to provide new inputs increases only arithmetically. The result is a process of snowballing irrationality, in which the state's interventions further destabilize the system, requiring yet further state intervention, until the system's requirements for stabilizing inputs finally exceed the state's resources. At that point, the state capitalist system reaches a breaking point.

Eventually, therefore, state capitalism hits a wall at which the state is no longer able to increase the supply of subsidized inputs. States approach the condition described by John Robb's term “hollow state”:

The hollow state has the trappings of a modern nation-state (“leaders”, membership in international organizations, regulations, laws, and a bureaucracy) but it lacks any of the legitimacy, services, and control of its historical counter-part. It is merely a shell that has some influence over the spoils of the economy.⁵⁶

...A hollow state is different from a failed state in that it continues to exist on the international stage. It has all the standard edifices of governance although most are heavily corrupted and in thrall to global corporate/monied elites. It continues to deliver political goods (albeit to a vastly diminished group, usually around the capital) and maintains a military. Further, in sections of the country, there is an appearance of normal life.⁵⁷

⁵³ *Ibid.*, p. 9.

⁵⁴ Illich, *Disabling Professions* (New York and London: Marion Boyars, 1977), p. 30.

⁵⁵ Illich, *Deschooling Society* (New York, Evanston, San Francisco, London: Harper & Row, 1973).

⁵⁶ John Robb, “Onward to a Hollow State,” *Global Guerrillas*, September 22, 2009 <<http://globalguerrillas.typepad.com/globalguerrillas/2008/09/onward-to-a-hol.html>>.

⁵⁷ Robb, “HOLLOW STATES vs. FAILED STATES,” *Global Guerrillas*, March 24, 2009 <<http://globalguerrillas.typepad.com/globalguerrillas/2009/03/hollow-states-vs-failed-states.html>>.

But to the extent that the current economic structure is heavily dependent on government activity, and adjustment to the withdrawal of subsidized infrastructure and services may take time, an abrupt retreat of state activity may result in a catastrophic period of adjustment.

The fiscal crisis dovetails with Peak Oil and other resource crises, in a mutually reinforcing manner. The imperative of securing strategic access to foreign oil reserves, and keeping the sea lanes open, results in costly wars. The increased cost of asphalt intensifies the already existing tendency, of demand for subsidized transportation infrastructure to outstrip the state's ability to supply it. As the gap expands, the period between deterioration of roads and the appropriation of money to repair them lengthens. The number of miles of high-volume highway the state is able to keep in a reasonable state of repair falls from one year to the next, and the state is continually forced to retreat and regroup and relegate an ever-larger share of highways to second-tier status. As James Kunstler points out, a highway is either kept in repair, or it quickly deteriorates.

Another consequence of the debt problem is that we won't be able to maintain the network of gold-plated highways and lesser roads that was as necessary as the cars themselves to make the motoring system work. The trouble is you have to keep gold-plating it, year after year. Traffic engineers refer to this as "level-of-service." They've learned that if the level-of-service is less than immaculate, the highways quickly enter a spiral of disintegration. In fact, the American Society of Civil Engineers reported several years ago that the condition of many highway bridges and tunnels was at the "D-minus" level, so we had already fallen far behind on a highway system that had simply grown too large to fix even when we thought we were wealthy enough to keep up.⁵⁸

It doesn't take many years of neglect before deterioration and axle-breaking potholes render a highway unusable to heavy trucks, so that a growing share of the highway network will for all intents and purposes be abandoned.⁵⁹

So each input crisis feeds the other, and we have a perfect storm of terminal crises. As described by Illich,

The total collapse of the industrial monopoly on production will be the result of synergy in the failure of multiple systems that fed its expansion. This expansion is maintained by the illusion that careful systems engineering can stabilize and harmonize present growth, while in fact it pushes all institutions simultaneously toward their second watershed.⁶⁰

Response to Incentives. The overall effect of all these trends is likely to be the opposite of what we saw in recent decades of artificially cheap energy and transportation.

We can expect to see a radical shortening of corporate supply and distribution chains, a resurrection of small-scale local manufacturing in the United States, and a reorientation of existing manufacturing facilities in China and other offshore havens toward production for their own domestic markets.

The same is true of relocalized agriculture. The lion's share of in-season produce is apt to shift

⁵⁸ James Howard Kunstler, "Lagging Recognition," *Clusterfuck Nation*, June 8, 2009 <<http://kunstler.com/blog/2009/06/lagging-recognition.html>>

⁵⁹ Kunstler, *The Long Emergency*, pp. 264-265.

⁶⁰ Illich, *Tools for Conviviality* (New York, Evanston, San Francisco, London: Harper & Row, 1973), p. 103.

back to local sourcing, and out of season produce to become an expensive luxury. As Jeff Rubin describes it,

As soaring transport costs take New Zealand lamb and California blueberries off Toronto menus and grocery-store shelves, the price of locally grown lamb and blueberries will rise. The higher they rise, the more they will encourage people to raise sheep and grow blueberries. Ultimately, the price will rise so high that now unsaleable real estate in the outer suburbs will be converted back into farmland. That new farmland will then help stock the grocery shelves in my supermarket, just like it did thirty or forty years ago.⁶¹

This was a common theme during the oil shocks of the 1970s, and has been revived in the past few years. In the late '70s Warren Johnson, in *Muddling Toward Frugality*, predicted that rising energy prices would lead to a radical shortening of industrial supply chains, and the relocation of manufacturing and agriculture.⁶² Although he jumped the gun by thirty years, his analysis is essentially sound in the context of today's Peak Oil concerns. The most pessimistic (not to say catastrophic) Peak Oil scenario is that of James Kunstler, outlined not only in *The Long Emergency* but fictionally in *World Made by Hand*.⁶³ Kunstler's depiction of a world of candles and horse-drawn wagons, in my opinion, greatly underestimates the resilience of market economies in adjusting to energy shocks. Brian Kaller's "return to Mayberry scenario" is much less alarmist.

In fact, peak oil will probably not be a crash, a moment when everything falls apart, but a series of small breakdowns, price hikes, and local crises....

Take one of the more pessimistic projections of the future, from the Association for the Study of Peak Oil, and assume that by 2030 the world will have only two-thirds as much energy per person. Little breakdowns can feed on each other, so crudely double that estimate. Say that, for some reason, solar power, wind turbines, nuclear plants, tidal power, hydroelectric dams, bio-fuels, and new technologies never take off. Say that Americans make only a third as much money, or their money is worth only a third as much, and there is only a third as much driving. Assume that extended families have to move in together to conserve resources and that we must cut our flying by 98 percent.

Many would consider that a fairly clear picture of collapse. But we have been there before, and recently. Those are the statistics of the 1950s -- not remembered as a big time for cannibalism.⁶⁴

Like Kaller, Jeff Rubin presents the world after Peak Oil as largely "a return to the past ... in terms of the re-emergence of local economies."⁶⁵

But despite the differences in relative optimism or pessimism among these various Peak Oil thinkers, their analyses all have a common thread running through them: the radical shortening of industrial supply and distribution chains, and an end to globalization based on the export of industry to low-wage sweatshop havens like China.

⁶¹ Jeff Rubin, *Why Your World is About to Get a Whole Lot Smaller: Oil and the End of Globalization* (Random House, 2009), p. 220.

⁶² Warren Johnson, *Muddling Toward Frugality* (San Francisco: Sierra Club Books, 1978).

⁶³ James Howard Kunstler, *The Long Emergency: Surviving the End of Oil, Climate Change, and Other Converging Catastrophes of the Twenty-First Century* (Grove Press, 2006); Kunstler, *World Made by Hand* (Grove Press, 2009).

⁶⁴ Brian Kaller, "Future Perfect: the future is Mayberry, not Mad Max," *Energy Bulletin*, February 27, 2009 (from *The American Conservative*, August 2008) <<http://www.energybulletin.net/node/48209>>.

⁶⁵ David Parkinson, "A coming world that's 'a whole lot smaller,'" *The Globe and Mail*, May 19, 2009 <http://docs.google.com/Doc?id=dg5dgmrv_79hjb66vc3>.

To quote a Rubin article from May 2008, two months before oil prices peaked, rising transportation costs had more than offset the Chinese wage differential. The cost of shipping a standard 40-ft container, he wrote, had tripled since 2000, and could be expected to double again as oil prices approached \$200/barrel.⁶⁶ What's more, "the explosion in global transport costs has effectively offset all the trade liberalization efforts of the last three decades." A rise in oil prices from \$20 to \$150/barrel has the same effect on international trade as an increase in tariffs from 3% to 11%—i.e., to their average level in the 1970s.⁶⁷ According to Richard Milne,

Manufacturers are abandoning global supply chains for regional ones in a big shift brought about by the financial crisis and climate change concerns, according to executives and analysts.

Companies are increasingly looking closer to home for their components, meaning that for their US or European operations they are more likely to use Mexico and eastern Europe than China, as previously.⁶⁸

Domestically, sustained oil prices at or above mid-2008 levels will cause a radical contraction in the trucking and airline industries. Estimates were widespread in the summer of 2008 that airlines would shut down 20% of their routes in the near-term if oil prices of \$140/barrel or more persisted, and long-haul truckers were under comparable pressure. Joseph Romm, an energy analyst, argues that the airline industry is "barely viable" at \$150/barrel. Sustained oil prices of \$200/barrel will cause air travel to become a luxury good (as in the days when those who could afford it were referred to as the "jet set").⁶⁹

Conclusion

Returning to the place where we came in, mainstream American media and political discourse frames the debate over energy as a choice between the present car- and fossil fuel-intensive economy which allegedly resulted from the free market, and some sort of tree-hugging hippie social engineering experiment to force an austere, dreary green lifestyle on us. But the truth is just the opposite. The real social engineering project, in fact, was the one that created the car culture and a centralized corporate economy with oversized firms and market areas. From the beginning the state has promoted gigantism through subsidies and cartels, and in particular has subsidized a model of growth based on the extensive addition of inputs. For decades, the state has skewed economic incentives to make it artificially cheap and profitable to lengthen supply and distribution chains, and to live in monoculture suburbs from which work and shopping are accessible only by car.

Reversing these skewed incentives, by removing the subsidies and restraints on competition, will amount to a reversal of this social engineering project. When the price of roads, airports and energy inputs incorporates the true cost of providing them, human behavior will spontaneously change under the influence of market incentives. No regulations or taxes will be needed. Corporations will shorten their supply and distribution chains, economies will relocalize, and people will shift to living in

⁶⁶ Jeffrey Rubin, "The New Inflation," *StrategEcon* (CIBC World Markets), May 27, 2008 <http://research.cibcwm.com/economic_public/download/smay08pdf>.

⁶⁷ Jeffrey Rubin and Benjamin Tal, "Will Soaring Transport Costs Reverse Globalization?" *StrategEcon*, May 27, 2008, p. 4.

⁶⁸ Richard Milne, "Crisis and climate force supply chain shift," *Financial Times*, August 9, 2009 <<http://www.ft.com/cms/s/0/65a709ec-850b-11de-9a64-00144feabdc0.html>>. See also Fred Curtis, "Peak Globalization: Climate change, oil depletion and global trade," *Ecological Economics* Volume 69, Issue 2 (December 15, 2009).

⁶⁹ Sam Kornell, "Will PeakOil Turn Flying into Something Only Rich People Can Afford?" *Alternet*, May 7, 2010 <http://www.alternet.org/economy/146769/will_peak_oil_turn_flying_into_something_only_rich_people_can_afford>.

walkable communities close to where they work and shop—all because it's cheaper to live that way.

In short, it has been the fossil fuel economy, not the green economy, which has had to be imposed by the state. Let's *stop* imposing it.