The Oil Drum: Campfire

Discussions about Energy and Our Future

Rescuing Suburbia

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Analysis from The Oil Drum : Mr. Jeff Vail from ASPO-USA 2010 Peak Oil Conference. More: http://www.aspousa.org/

Below the fold are the slides, and a rough approximation of my presentation entitled "Rescuing Suburbia" from the 2010 ASPO-USA conference in Washington, D.C. The presentation takes a fairly one-sided approach to the issue of how suburbia will fare for the long haul, primarily as a tool to spark conversation and debate.

My presentation is about “Rescuing Suburbia.” I thought about putting a question mark after that title, but decided instead to take the position of a cautious advocate for the prospects of suburbia. I’m not even sure that suburbia needs “rescuing.” Instead, I’ll take the radical viewpoint that suburbia’s inherent flaws may turn out to be our civilization’s salvation, though in a rather unexpected way. [NOTE: I love this picture--it's about as extreme an illustration of the failings of suburbia that I can imagine. In fairness, THIS is the kind of suburbia that I do expect to fail and be abandoned, the following comments notwithstanding...]

Suburbia is a favorite whipping boy, especially when the topic of peak oil or energy descent comes up. It was a bad idea, a short-sighted endeavor made even more tragic by our then less complete understanding of energy and environmental constraints. Everyone take ten seconds and think about how terrible suburbia is.

Great. Now drop it. Suburbia happened. Is there value in articulating exactly why it was a bad idea? Yes, especially to the extent that we should stop building more of it in its current form. But that's not the conversation I'm interested in having, and frankly in this audience as a whole I think it's a bit pointless to keep rehashing that conclusion. The question we should focus on is what to do about it. And the answers, perhaps not surprisingly, can be easily divided into three categories: do nothing and pray; abandon it for something better, transform it.

In the interest of time and out of respect for your intelligence, I'm going to ignore the "do nothing and pray" option, though that is certainly the most widespread "choice" in our society. I think the REASON it's the widespread choice is that people don't have much of a clue on the "transform it" option, and understand, at least subconsciously that we can't just "abandon it."

Can we abandon Suburbia? The obvious answer is that yes, we CAN abandon suburbia. As long as you're OK with catastrophic economic collapse and all of its attendant horrors, it's certainly an option. Most people propose an alternative to suburbia—whether it's "New Urbanism," re-urbanization, or some variant thereof, these often implicitly stand for the proposition that we should "abandon suburbia" in order to move in to its replacement. Let's look at why that's a problem:

Where do all the people go? More than 150 million Americans live in suburbia. That's about 40 million homes. Most people would say we can build a new-urbanism, a re-urbanism to absorb these people. But where does the money and energy to do that come from? The shift in infrastructure required to resettle people out of suburbia would be massive—and, as I think this group is especially well aware, we're not exactly swimming in net energy with which to do this.

How would you pay for it? Millions of new homes, above and beyond that required by replacement and current rates of growth, won't come cheap. Since the recent economic crisis hit, about 5 million homes—urban and suburban—have been either in foreclosure or facing foreclosure. That didn't work out so well for the economy. And that was despite a mainstream faith that home values would eventually rise again. How do you think the financial system would react to any kind of concerted effort to abandon suburbia? Even if it merely became clear that early adopters were leaving suburbia for more urban pastures, and it dawned on people that the value of suburban homes would continually decrease, our collective ability to finance anything —let alone something on such a grand scale as re-urbanizing 150 million people—would cease to

exist.

We have a massive amount of stranded cost in suburbia. Whether we look at that stranded cost from an energy or finance perspective, that's the bottom line: we can't abandon suburbia without abandoning accepting extreme costs.

That's the Catch-22: Like it or not, the functioning of our modern finance system hinges on the viability of suburbia. The size of our mortgage debt is roughly the same as our entire GDP. If that article of faith ceases to function, then you can forget about financing the technical solutions that increasingly geologically difficult oil extraction will demand. You can forget about financing a transition to renewable sources of energy. You can forget about new urbanism or re-urbanization, at least to the extent that anyone will need a loan, line of credit, or mortgage to develop or purchase these shiny new urban digs.

Of course, if we need suburbia to be viable, but it's doomed, that's not too promising. Is suburbia really doomed? Or, just like we deluded ourselves into this happy motoring utopia in which we now live, have we deluded ourselves into thinking it can't adapt, evolve, even prosper? Let's look at the ups and downs of suburbia before we try to answer that question.

Commuting. It's the most obvious and most discussed issue with the unsustainability of suburbia. It's also a bit of a red herring. Sure, tens of millions of people driving by themselves in oversized SUVs 20 miles to and from work each day is a huge waste of energy, and psychologically the convenience and feelings of power and control will be difficult to give up.

Low Hanging Fruit. But practically speaking, this is the low hanging fruit, and the intractable nature of this problem is wildly overblown. Even without any massive changes in infrastructure all it takes is ridesharing, commuter mini-vans, and intelligent use of gas taxes or other similar

and very realistic, if unpopular measures and commuting is a non issue. Not to mention telework, or even more radical solutions like decentralized production, something I'll raise later in this presentation.

There's also the issue of distributing goods to suburbia. It's really the same issue in reverse. Just like we've come to expect the ability to hop in our car and drive ourselves directly to our job, without the inconvenience of stopping to pick up someone else, we've also come to expect the daily UPS deliveries, flowers flown in fresh from Kenya and Thailand, etc. It's my opinion that both peak oil and global warming are examples of how markets fail to solve problems, but I do believe that markets will prove extraordinarily nimble at conserving energy in the distribution of goods to suburbia when the appropriate price signal is in place.

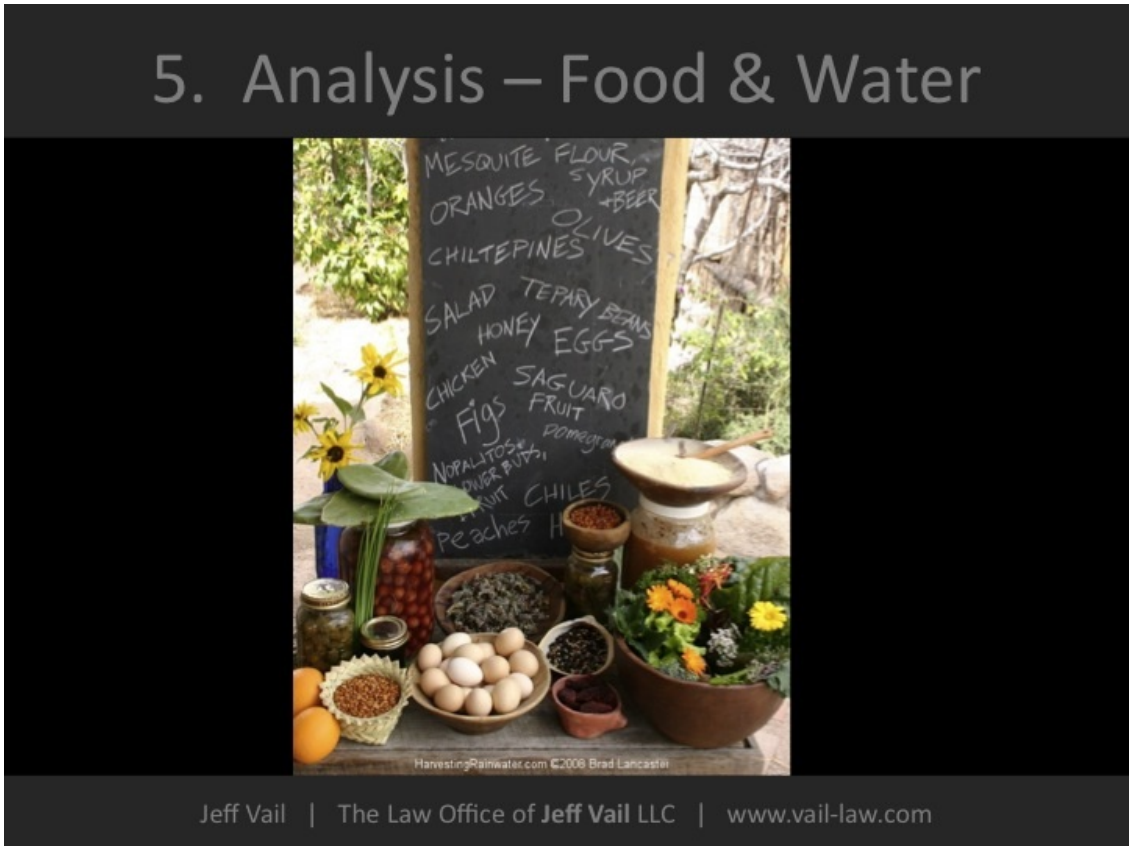
90% reduction. It would take some significant measures—certainly some unpopular measures—but the reality is that we could reduce by 90% the amount of energy used to transport people and goods to and from suburbia without actually changing the fundamental mode of single-family suburban living.

A more serious downside in my view is the energy inefficiency of suburban living. Quite simply, we didn't build suburbia for energy efficiency—whether we're talking heating, cooling, water and waste infrastructure, etc. We can do a lot to both conserve and improve the efficiency of suburban energy use, but at the end of the day it is structurally less efficient to heat and cool an oversized single-family dwelling than a more compact urban complex.

Of course, there are more radical solutions, such as increasing the density of suburbia by moving more than one family into current single family dwellings, most simply by creating extended-family dwellings.

Most troubling to me is that, simply by virtue of the spaces involved, the cost in both energy and dollars of maintaining suburban infrastructure—roads, electricity grids, sewer and water supplies, etc.—is very high. This is a tougher nut to crack, though in a moment I'll cover what I think is part of the solution—providing this infrastructure on a more distributed basis.

Overall, suburbia is and will remain less energy efficient than more dense settlement. While this presents a significant challenge, I don't see it as insurmountable.



These last two down sides of suburbia are well publicized, and frankly, there aren't many structural advantages in suburbia's current manifestation. But if we accept the stranded cost of suburbia and ask "if we USED IT DIFFERENTLY, could it actually produce comparative advantages," things get interesting…

Can suburbia provide for itself? This is a complicated question. There are two issues here: (1) the potential of suburbia to provide self-sufficiency, and (2) the comparative capability compared to alternative modes of settlement, such as urban settlement.

Now I think I've heard just about every reason or excuse why suburbia can't be sustainable, why it can't produce any meaningful amount of food self-sufficiency, water self-sufficiency, etc. There's no knowledge of gardening for real food production, there's no topsoil, there's no water, there's no interest.

First, I agree that these are often valid concerns. But let's look first from a comparative perspective. In each of those problems that I rattled off, there's really no argument that suburbia is still comparatively better situated than urban settlements. Let's not forget that, while today urban and suburban supply lines are essentially identical, this is not structurally so. Structurally, urban supply lines will always depend more heavily on large-scale political control and economic

coordination than will any less dense form of settlement. The only debate is about the extent to which this is true.

Second, I am confident that there is a tremendous potential for building self-sufficiency in fundamental requirements like food, water, and energy in suburbia. Not necessarily suburbia as it exists today, but as a lattice and foundation, as a structure that can change and evolve into something that is not just significantly self-sufficient, but that is vital, that produces culture and civitus, not just as a consumer of it. That might seem like a radical vision, but let's look at the specifics and see how far-fetched it is or isn't:

Food & water. I've heard all he excuses mentioned previously, and in the end I come to the conclusion that it's a motivation issue—a price signal issue. I'm not here to lecture on gardening, beekeeping, or water purification methods. Rather, for the skeptics or merely curious I'll highlight a single example. Take possibly the least forgiving suburban environment—110 degree summers, less than 12 inches of rainfall in a few brief downpours each year, and no topsoil to speak of. That's Tucson, Arizona. Mix one part looking to native groups for inspiration and one part innovative application of modern knowledge and you get Brad Lancaster. He's turned a 1/6th acre suburban lot in Tucson into a true food forest in only a few years. It's irrigated entirely by rainwater and graywater with no outside chemical inputs, and it produces this bounty of food. It provides almost half of the caloric requirements for four people living on the property, not to mention the majority of the flavor and variety, and a significant amount of community and culture along with it.

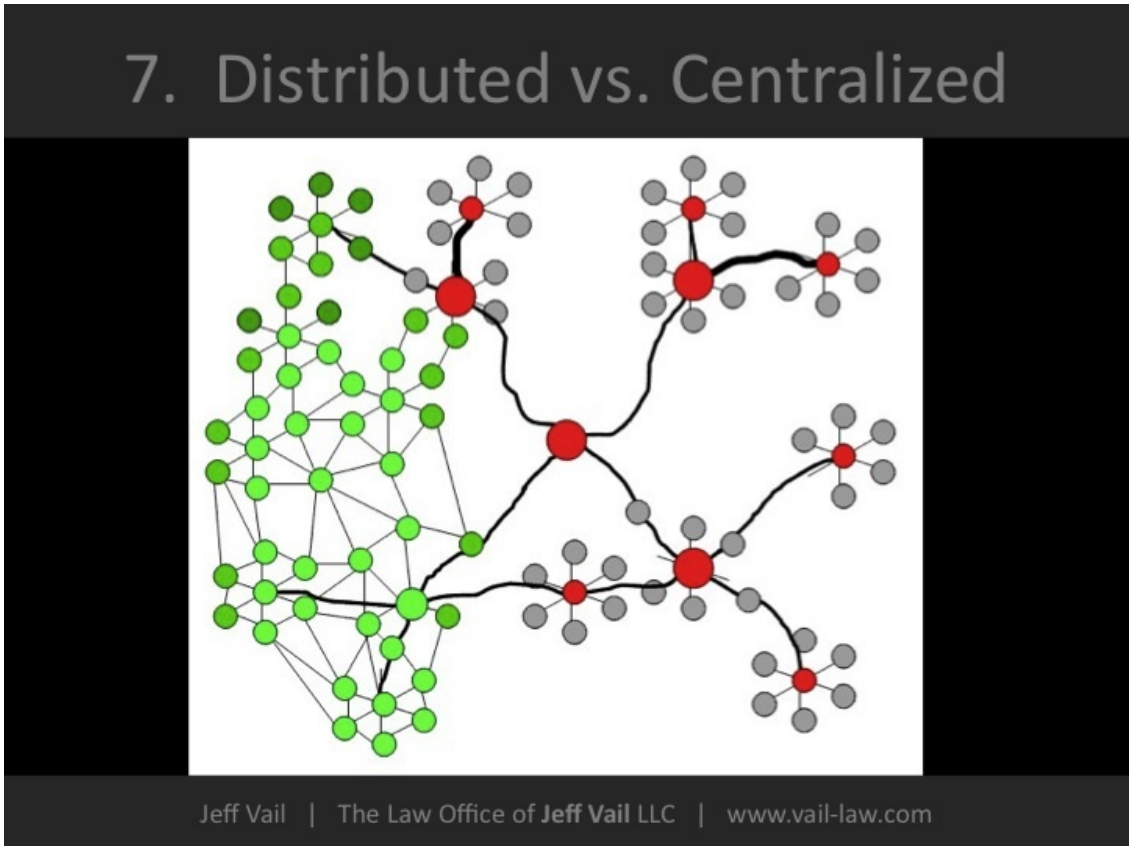
That's not to say it's as easy as planting a pot of geraniums. There are myriad other examples, but if Brad can succeed like this, with less to start with than 99% of American suburbia, then I challenge those who say that it can't be done.

What about energy? We've already covered that the suburban mode of living uses more energy than does urban living, but can it also produce energy in any meaningful amount? Again, let's look at this in a comparative and absolute sense.

Comparatively, suburbia is clearly ahead of urban settings when it comes to renewables. While we can debate cost and net energy—and I'm a skeptic—suburbanites at least have the viable option of installing solar panels on their roof. Many, if not most urbanites do not, at least not with as much space to turn into generation. If photovoltaics are a boondoggle, then this isn't much of an advantage. On the other hand, if nano-solar begins to churn out PV for pennies, suburbia is in a far better position to seize the opportunity.

What about more dire circumstances? Suburbia is also ahead when it comes to woodlots. It's easy to scoff at this, but let's not forget this was the primary historical form of domestic energy, and when raised sustainably and burned in high-efficiency stoves can even be environmentally friendly.

In an absolute sense, we should admit that suburban homes won't be energy self-sufficient unless nanosolar delivers on its most optimistic promises, or the level of energy consumption drops from first-world to third-world levels. But no matter what picture of the future we paint, suburbia has a non-negligible potential to generate power, and a comparative advantage in doing so over more dense settlement.

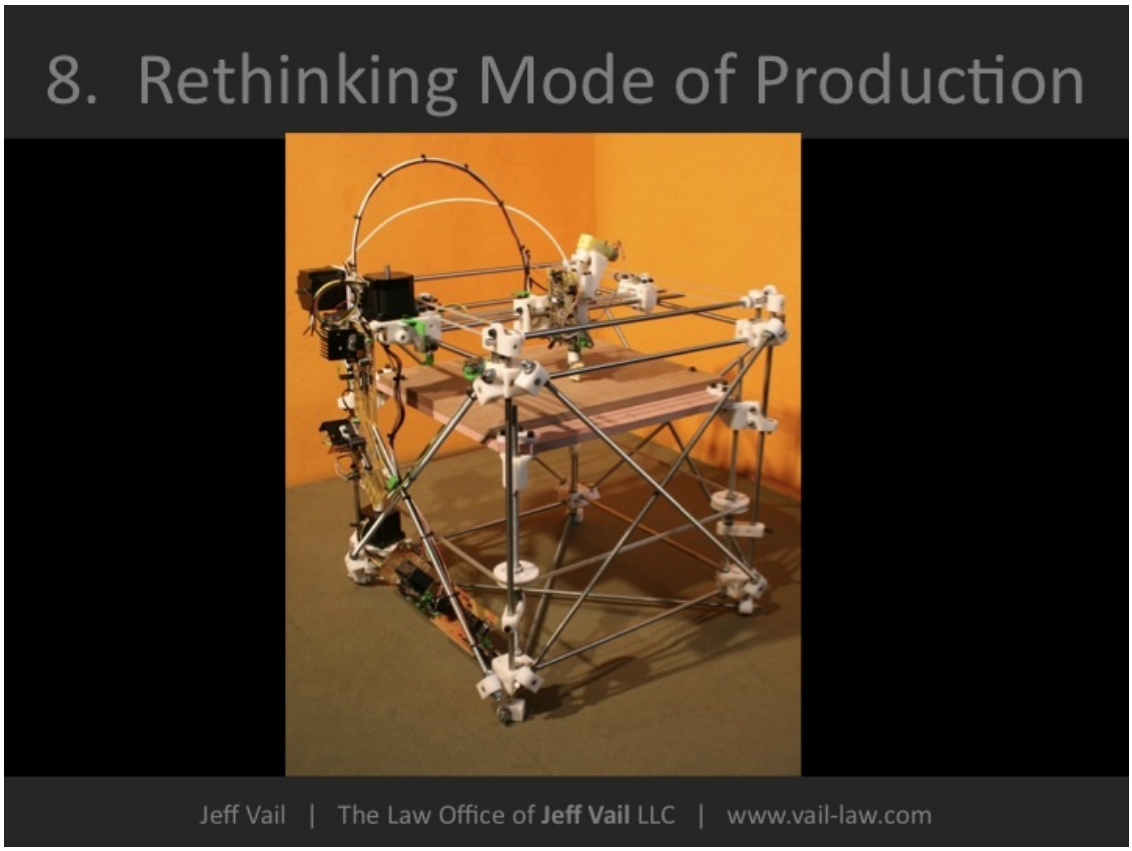


But even with the potential for suburbia to makes advances in self-sufficiency, it would be a mistake to think that the goal is a patchwork quilt of isolated homesteads, each striving for true self-sufficiency. Rather, the correct comparison is between centralized/specialized production and an optimal form of distributed production—a "platform"—that I'll call "scale-free self-sufficiency."

This starts to get heavily into theory, but it's important—in fact, it is the key to beginning to grasp the potential of suburbia. So let's briefly compare some traits of centralized vs. decentralized systems.

Centralized systems, by definition, are structurally more dependent on transportation, than are decentralized systems. That's of obvious importance in an energy-constrained future. When there's cheap energy, it acts as a subsidy to centralization, both political and economic. When that cheap energy ends, the trend reverses. Mix this with modern technology and organizational theory—things like the bazaar of open-source innovation—and I think we will see a revolution in the importance of open-protocol, distributed manufacturing in the coming decades. How expensive does energy have to get before it makes sense to shift a significant part of our economic production to local production? Certainly high-bulk, vernacular, or perishable products will reach this price signal first.

Centralized systems, by definition, are structurally more dependent on hierarchy than decentralized systems. This requires top-down control, and tends to create barriers to innovation. We have quite the innovation-focused capitalist culture—you don't need to work hard to sell the value of free market innovation and competition to the business community. But that really hasn't transferred to the same sense of innovation and competition among communities or localized political and economic structures. Those, in contrast, tend to be more uniform and controlled. "Federalism" is billed as creating a laboratory at the state-level. But now most states are bloated, multi-multi-million person entities, and the relevant level for competition is the locality or micro-locality. Decentralization has the potential to free up the forces of innovation to work on our community economies, and provide results like Brad Lancaster's Tucson garden on a community-scale.



Now talk of "distributed production," and this analysis of the potential energy, water, or food

production in suburbia might make one think that suburbia only has potential for relevance in a "collapse" scenario. In fact, I think just the opposite may be the case. Suburbia may have the potential to become an engine of economic vitality in a very high-tech future.

This picture is a RepRap—essentially a homebrewed 3D printer that can take a simple CAD drawing produced by someone a continent away and make a three-dimensional part in your garage. It's about where the personal computer was in the lat 70's—who would want one, and what can it possibly be good for. And it might also end up having the same kind of revolutionary impact on our economy. Already, distributed production has advanced beyond the craft stage and people are creating custom microprocessors and performing genetic engineering in garage workshops. The movement "100,000 Garages" has begun to capture this spirit, but the potential is astounding.

Just like we now know that the personal computer is more than a parlor gimmick, it's my prediction that we'll soon realize the potential for transformation contained in decentralized and distributed economics. With intensive coordination and contribution to open-source knowledge networks, our ability to "produce" at home, from gardens to garments and telemedicine to pharmaceuticals, we're just at the tip of the iceberg.

Now, without diving too far into the deep end of political theory, we also need to consider the impact of the changing political landscape. I'll skip the long-winded overview and simply state that if you haven't read Philip Bobbitt's "Shield of Achilles," please do so as soon as you can. Trying to understand the future course of our civilization without understanding the nation-state system and how it evolved is like trying to understand World War II without ever studying World War I—it will lead to shallow conclusions at best, and possibly catastrophic miscalculations.

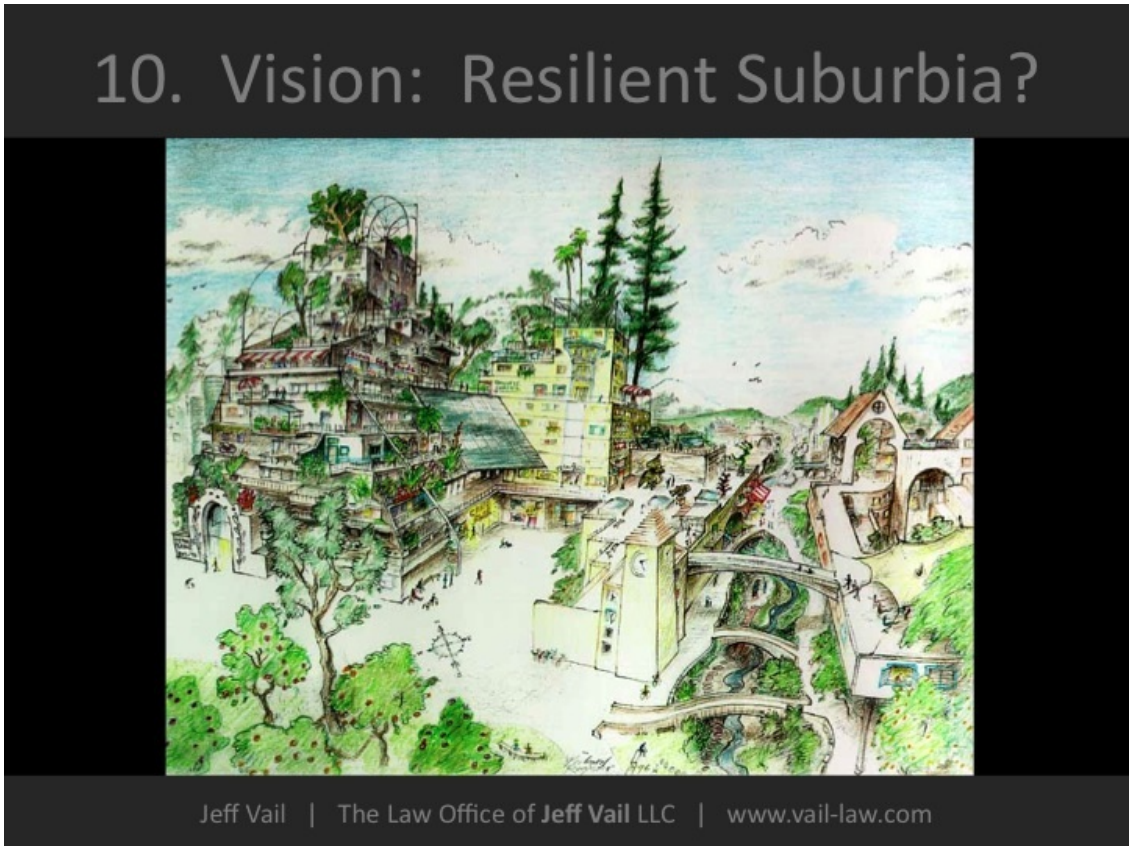
Simply put, the Nation-State is dead. It never really existed, but we believed it did with enough

conviction to will it into effect. That age has passed. We now live at the dawning of the age of the market state, where the role of the state is to maintain a large-scale economic market, and is increasingly less concerned with things like entitlements, pensions, and equality. We'll keep hearing this rhetoric, of course, but the reality of competition on a global playing field is that costs have to be controlled, and this comes through dilution of obligations. But it's not all bad—the market state is also less wrapped up in self-definition, and is more comfortable with a murky, multitudinous constituency.

For example, intense interest in enforcement of regulations and codes tends to be a preoccupation of the intensive, centralized state. That's also expensive, and the market-state will likely find that increasingly less important. This is especially true where media fragments, and where open-source networks show potential at some degree of self-policing. Who cares? Well, if you were one of the regulation-aware people in the room who said, "They'll never let you do that" when I raised the potential of various forms of garage manufacture, this is very significant.

Remember the mention of decentralization freeing localities and communities to compete and innovate? Well, that kind of thing—internal political differentiation and experimentation—tends to be frowned upon by the nation-state. But in the market state we will increasingly find room for this kind of "diagonal economy"—not wholly sanctioned by, but not in direct conflict with the state.

How far down this rabbit hole you want to venture is up to you—I won't explore any further for now, but the effects of this political transition only get more and more interesting.



So I've taken you on a whirlwind tour of suburbia—why we can't abandon it, and why we perhaps shouldn't even if we could. I've thrown out a lot of ideas, a lot of concepts, and now I'd like to paint a picture of "Resilient Suburbia" and add a cautionary note.

In the entire story of human civilization, suburbia is unique. No, not for it's waste and hubris—we've done all that before, and frankly better. Suburbia is unique because it is the most evenly distributed pattern of land ownership and settlement that has ever existed. It is by no means perfect or "pure," but it is the most egalitarian substrate upon which to build a future civilization of our choosing, rather than as dictated to us, ever.

As we approach energy descent, I believe we are at a bifurcation point in our grand timeline. We can begin to regress along the axis that describes equality, freedom, and median access to health and culture—a return to some form of neo-feudalism, where geography stretches, the Earth becomes less "flat" and more bumpy, and where the historical patterns—absent massive subsidy of cheap energy—of local strong-men and the politics of control and dependency reassert themselves. If we try to maintain hierarchical, centralized structures in our politics and economics, I believe this is exactly where we will go.

However, if we seize the opportunity to build upon this egalitarian substrate of suburbia—if we build something bold and new, leveraging open-source coordination of decentralized and distributed production, and striving for scale-free self-sufficiency, I think we could build a platform on which to improve the lot of humanity in spite of energy descent. We don't need—in fact we cannot have—a centralized, federal government led effort to institute this kind of change. And it will take a few brave, curious, or innovative souls like Brad Lancaster in Tucson to pave the way before the price signals are in place. And while I'm positive about our potential, I remain cautiously pessimistic about the reality of this kind of transformation on a large scale. But what I will say is this: don't blame our failure on suburbia. Blame it on our failure to capitalize on the opportunity suburbia presents.

A few final thoughts. Do I really think that suburbia will persist in anything like its current form? No. I think the strength of suburbia lies, as noted above, in its potential to serve as the substrate for something *entirely different* from suburbia, but located where suburbia currently stands. As a species, we tend to overestimate the speed at which change will occur, while dramatically underestimating the scale of the change that is coming and the form it will take. I know it's a popular belief--especially in peak oil circles--that suburbia will become some haunted ghost town, a relic and reminder or our hubris and ignorance. I think that's the psychologically easy way to view our future. While it's of course just my opinion, I think DO think the role of what is today "suburbia" 20, 50, and 100 years from now will be important and dramatically different than almost any current predictions (either status quo or a wasteland) . . .