

The Future of Home Improvement

or: How independent dealers can beat the big boxes, rescue their communities, and save the planet.

By Jay Tompt



March 7, 2011

© 2011 William Verde & Associates

About William Verde & Associates



Jay Tompt

William Verde & Associates is a sustainable business consultancy focused on helping retailers, distributors and manufacturers in the home and shelter supply chain thrive in the budding green economy. Informed by extensive experience in the “home channel”, and in important sustainability movements like green building, permaculture and localization, we deliver practical strategic advice and actionable programs that transform brands, meet the demand for better products, and put important innovations into the hands of the trades people and households who are remaking their communities.

Visit our website, www.williamverde.com for more information on our services.



Before starting William Verde & Associates, Jay was co-founder of Plan-It Hardware, a division of California Hardware. It was the first major green product distributor in the “home channel” and served 70 independent dealers throughout California.

Contents

Introduction	4
One: Macro-Forces and Fundamental Change	6
The Changing Climate.....	8
The End of Cheap Oil.....	12
Toxic Chemicals in the Environment	19
Government Policy	24
Two: Market Trends and Emerging Opportunities	30
Green Building	31
Energy and Water Retrofitting.....	36
Green Roofs.....	39
Gardening and Urban Ag.....	41
Localization.....	44
Shifting Household Priorities.....	49
Three: New Models for Sustaining Business.....	52
Greening Operations.....	54
Rethinking Categories	55
Value-Add Services	56
Manufacturing.....	57
Education.....	59
Conclusions	61
Resources.....	62

Introduction

This document is designed for the thousands of independent and family-owned hardware, home improvement, ag and garden, lumber and building materials dealers throughout the country whose idea of sustainability lies in serving their community and leaving a positive legacy for the children and grandchildren. It used to be that businesses like these were the “go to” source for materials, advice, or just a little personal connection. They were the community hubs and focal points. Some still are.



California gold rush era hardware store. Credit: Jay Tompt

There were once thousands more such hubs and focal points, but times have changed and are rapidly changing still. Their Golden Age, which for some may have begun with the gold rushes of the West or the post-WWII boom, has long past. With the rise of globalized manufacturing and “big box” chains, thousands of independent merchants have quietly faded away along with their local Main Streets and downtowns. Ironically, many independents are actually highly dependent - on cheap foreign-made goods, dwindling distributor choice, or a single big customer. Many face constant, arguably unfair, media dominance and price competition from well-funded, national retail corporations. Margins are thin and thinning.

It’s also true that we’ve entered an era of uncertain change. This economic crash is not leading to economic boom, at least not anytime soon. The construction industry, in general, is forced to change, driven by current economic conditions,

new codes, and green building standards, though many tradespeople and small firms are struggling to adapt. Household priorities are shifting toward simpler, non-toxic, resource and money-saving solutions.

What's on the further horizon, maybe in our lifetime, certainly in our children's, are a host of challenges associated with a changing climate and the end of cheap oil. There will be no government bailouts. What will our communities be like in twenty years? There's a chance the future could actually be quite bleak. On the other hand, it's still an open question and destiny is not predetermined. Business as usual is not an option, but there are opportunities to begin building resilience and long-term sustainability into your business model and into your community.

I'm an optimist, but an optimist who believes in taking well-planned action. I believe our communities can become strong and healthy enough to thrive, come what may, and that locally-owned and independent hardware stores, home centers, building materials yards, and garden centers can be the heroes in story. In fact, I've seen evidence of this unfolding in a few communities around the country over the past several years. What follows is what I've learned from those examples, as well as from a host of organizations and citizen groups actively engaged in efforts to create community sustainability, economic resilience and greater self-reliance.

This guide is divided into four sections. The first describes some of the macro-scale forces that are fundamentally changing the economic landscape. The second looks at demand-side trends developing in response, providing new and growing opportunities for "home and shelter" supply chain businesses. The third offers ideas on strategic options for independents to create more resilient and sustainable business models. The final section lists the resources that provide background information or were cited directly.

One: Macro-Forces and Fundamental Change

The last generation of independents experienced a wave of brutal economic forces that brought long-term negative, sometimes unintended, consequences to their businesses and communities. A couple of decades ago, manufacturing moved overseas en masse, and those decent paying manufacturing jobs disappeared. National large-format retail chains sprung up all over, bulked up on container-loads of inexpensive goods with familiar brand names, but now produced abroad. They located just out of town or in suburbs, eventually dooming many downtowns and locally-owned independent merchants.

“JOB LOSSES HINT AT VAST REMAKING OF U.S. ECONOMY”

NY Times, March 7, 2009

The last decade has been brutal, to say the least. Some economists have called it the “Lost Decade” due to declining real wages and decimation of household wealth. One might also call it the “Decade of the Unexpected.” The surprise attacks of 9/11 sent shockwaves of unanticipated negative consequences throughout the nation. From an economic point of view, it brought the airlines to their knees and dealt a severe blow to the tourist industry, widening an economic slowdown that originally looked to be contained within the technology sector. And then, Hurricane Katrina nearly wipes out New Orleans and government stumbles. In 2008, transport fuel prices skyrocket suddenly and inexplicably. The housing bubble and financial meltdown were less surprising, perhaps. A few issued warnings, but their voices were overwhelmed by the new conventional wisdom that Wall Street wizardry is invincible. The first decade of the new century began with an economic slump and ended with the Great Recession, bookending a decade in which the middle class on down suffered real hardship. Who was prepared for all of that?

Surprises aside, the next twenty years will bring significant change to the home and shelter supply chain, whether incremental or disruptive, or both. It’s futile to attempt predictions of how the future will unfold; instead we’ll look at several large-scale forces and the potential implications for this industry. There are threats as great as any that have confronted this industry, but opportunities, too, to derive business advantage and contribute to stronger and healthier communities. Being forewarned is forearmed.

The Changing Climate

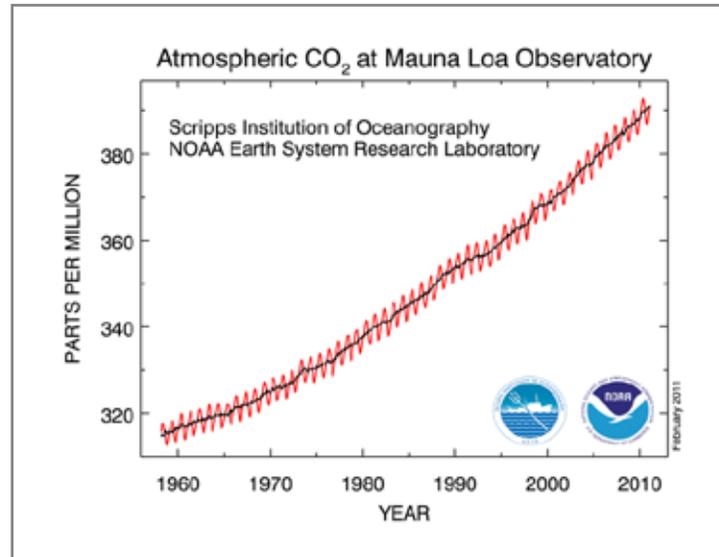
KEY POINTS:

- Increased green house gases (GHG) in atmosphere are changing climate patterns
- Government will be active in reducing emissions and mitigating climate impacts
- Climate scientists have predicted changes to regional climatic patterns in the US

Let's begin by considering one of the most important long-term forces affecting our ongoing economic life. Climate change impacts, and our political, social and economic responses, will underlie almost every significant threat and opportunity facing this industry for the next twenty years and far beyond.

Here's the issue in a nutshell. The earth's average temperature is rising, most likely due to increased amounts of heat trapping gasses in the atmosphere, which are most likely due to human industrial and agricultural activity over the last 150 years. Current concentrations of carbon dioxide (CO₂) are roughly 390ppm and many scientific experts advise that in order to avoid the worst scenarios, this level should be brought down to at least 350ppm as soon as possible. But this warming is changing large-scale climatic patterns and will continue to do so for a long time, even if we were to stop adding greenhouse gases (GHG) like CO₂ to the atmosphere immediately. These patterns are changing quickly in terms of evolutionary timescales, therefore there will likely be large numbers of plant and animal species that go extinct. Sea levels are rising steadily due to ocean expansion (because they're warmer) and glacial melt, so low lying coastal areas will increasingly be affected. But to make matters more precarious, there are many potential tipping points, or natural feedback loops, that once engaged would accelerate warming, bringing even more abrupt changes that would cause enormous disruptions to societies around the globe. Hence the urgency to bring emissions down to safe levels as quickly as possible.

That's the big picture. There is, of course, much more to the story and the likely impacts, both immediate and long-term, are many and complex. For our purposes, let's focus on some of the implications for independent suppliers. In general, because this issue is so important with far-reaching consequences, government at all levels will be concerned with mitigating the effects of a changing climate, as well as reducing GHG emissions. In fact, it is the awareness of global warming, climate change, and GHG emissions that is, in part,



Data from National Oceanic and Atmospheric Administration showing growth of atmospheric CO₂.

responsible for powering the green building movement, corporate sustainability, and changes in individual attitudes and purchasing behavior. It is increasing social pressure on every business and household to reduce emissions due to operations, as well as, emissions and other environmental impacts associated with supply chains. We'll revisit many of these issues in the sections that follow.

But climate change will also bring some very direct impacts to every region in the country. Obviously, regional climate systems are changing, but the process of change may include decades of less predictable patterns until new equilibria are reached. That's why some climate scientists prefer to speak in terms of "climate chaos" instead of "climate change," because the process of changing to a new predictable pattern may very well be erratic and disruptive. That said, computer models published on the U.S. Global Change Research Program website, (www.globalchange.gov), do suggest what new patterns may look like for different regions of the country.

For merchants, understanding these patterns may provide insights on how to better serve the community with the kinds of products and materials it may need to adapt to changing conditions. For example, many regions will

ACTION ITEMS:

- Research and understand changing regional climate patterns
- Adapt merchandising strategy for mitigation of, and adaption to, impacts

likely experience prolonged drought or serious disruptions to water supply due to shifting precipitation patterns. Issues like these point to needs for water conserving household fixtures, compost toilets, grey water systems and components, rainwater harvesting systems and components, etc. Some regions may experience prolonged heat waves suggesting needs for shade materials, misters, solar-powered fans, super-energy-efficient coolers, cool-roof coatings, green roof (also known as living roof) systems and components, insulation, etc. Some regions may experience more wild fires, flooding or more frequent extreme weather events, suggesting needs for disaster preparedness supplies and mitigation solutions.

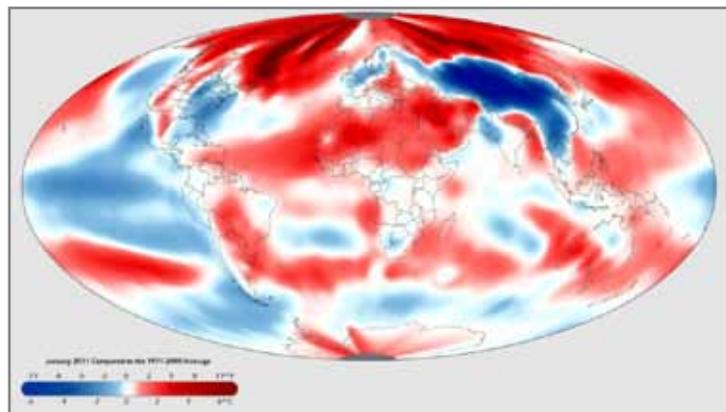


Chart from NOAA showing recent temperature variations from global average over the last 40 years. Note much higher than average temperatures for the arctic.

These kinds of climate and weather factors may affect food supply chains, as well. Agricultural areas may experience drought, prolonged heat waves, or other extreme weather which could wipe out crops or decimate livestock. Industrial farms and concentrated animal feeding operations (CAFOs) may be particularly vulnerable. Awareness of food system vulnerabilities is one of the motivations leading households and communities to implement strategies for diversifying food supply through local gardening and urban agricultural initiatives, “back to basics” canning and food storage classes, etc. All of this implies a range of need for supplies and advice.

Understanding bioregional and local climate impacts will inform tactical decisions about product mix, and more strategic decisions about new categories, services and business models. In addition, insights gleaned from such research will be useful in evaluating other, somewhat related, forces and opportunities shaping the direction of the industry.

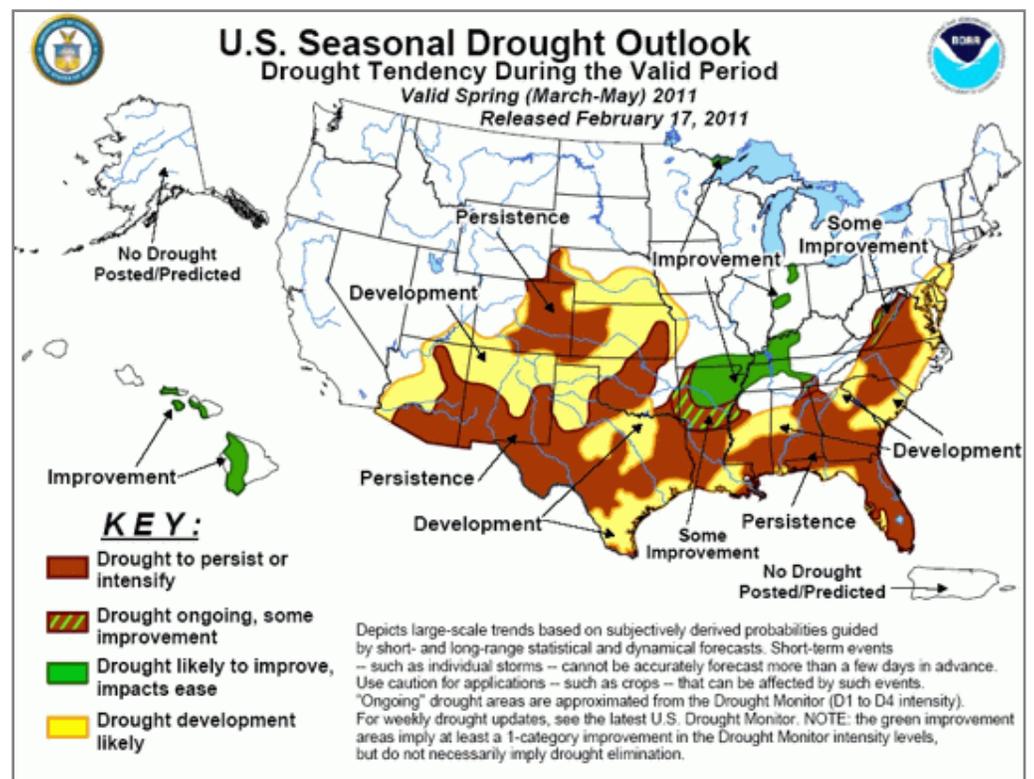


Chart from NOAA showing regions experiencing drought.

The End of Cheap Oil

KEY POINTS:

- Increased global demand, increased cost of production, and potential carbon pricing schemes point to higher oil prices in long term
- A near-term oil production peak may cause sudden and harmful price shocks
- Higher oil prices increase cost of logistics and commodities, threaten marginal businesses

Like climate change, the reality that we're at the end of the cheap oil era will bring with it a host of game-changing effects to the national economy, our way of life, and our industry.

Many remember the summer of 2008 when oil prices spiked, dramatically raising the price of diesel and gasoline, wreaking havoc with transport and logistics. Higher fuel prices led to higher transport prices, which led to price hikes on many other commodities. Petroleum products include liquid transport fuels like gasoline and diesel, but also feedstock for other products like chemicals, plastics and fertilizer, so naturally prices for commodities like these were also affected. That summer squeezed just enough margin from some suppliers that they were left vulnerable to the recession that followed. The price stayed over \$100 a barrel from February to September and reached \$145 a barrel in July.

Although much of the blame was laid at the feet of commodity traders and speculators on Wall Street, conditions for future price shocks remain and the general trend is for higher prices. As of this writing, the Commodity Futures Trading Commission (www.cftc.gov) has yet to impose curbs on energy traders, but it is likely that eventually some controls may be put into place, theoretically preventing speculators from driving up oil prices again. However, the fact remains that oil is a finite resource, demand is rising, and it is packed with carbon, all of which will contribute to prices trending upward, with very realistic possibilities of unexpected price shocks.

Taking them in reverse order, the fact that oil is densely packed with carbon – about 5.3 lbs of carbon per gallon of gasoline which converts into 19.4 lbs of CO₂ emissions when combusted – means that government efforts to reduce carbon emissions will inevitably lead to measures to reduce consumption of gasoline and diesel. The only question is when and by what method. There will be attempts to raise gasoline taxes because this is a convenient and effective policy lever that could reduce emissions and raise revenue. (Of course, there may

other rationale for raising taxes on gasoline. In addition, the petroleum industry enjoys government subsidies on the order of tens of billions of dollars per year in tax breaks and “royalty relief”, leading many citizen groups and politicians to call for their end.) More generally, the issue of a specific carbon pricing mechanism, such as a carbon tax or a cap and trade system, will not go away even though Congress in 2010 has decided to delay the issue. Given these factors, it would be naïve to expect the relatively low fuel prices in the US to persist, though it is likely that government policies will attempt to avoid abrupt increases.

Meanwhile, increased global demand will also contribute to keeping prices up. China and India, with growing middle classes and burgeoning auto industries, are both set to unleash millions of cars onto their roads. There are several other emerging economies with growing numbers of middle class consumers demanding Western lifestyles and putting their cars on their roads, too. Keep in mind that petroleum is used to produce plastics, chemicals and power a host of manufacturing processes, so as the global economic picture brightens, demand from these sectors will rise, as well. While OPEC may increase production

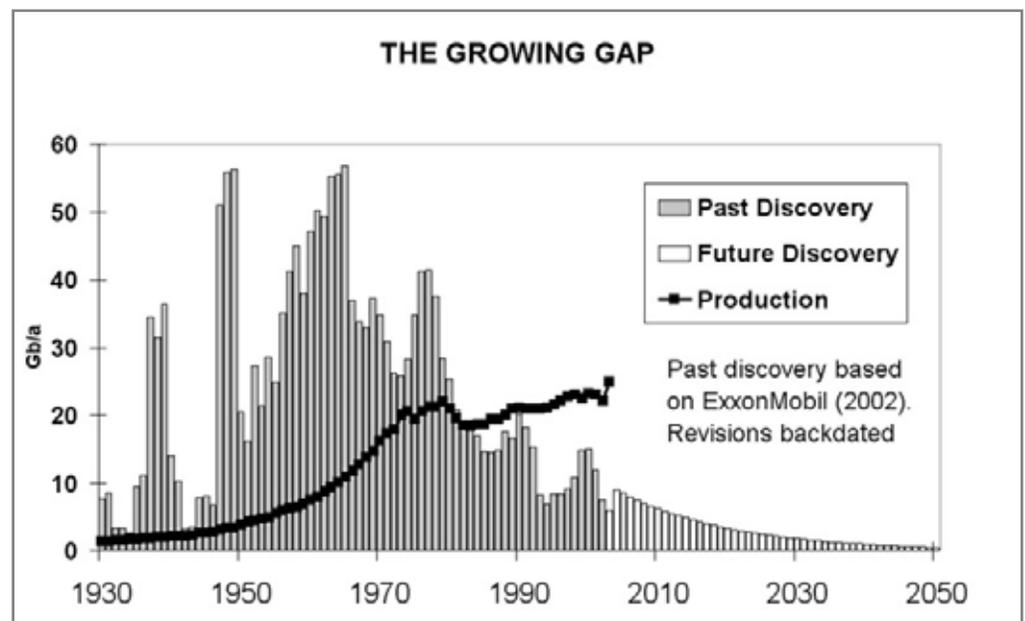


Chart courtesy, Association for the Study of Peak Oil.



Chart depicts Hubbert Curve for the Alaska oil producing region. US Energy Information Administration.

in the short run to cover a marginal increase in global demand, it's in their interest, as well as other oil producing countries, to let prices gradually rise. The International Energy Agency (www.iea.org) projects demand to grow by nearly 18% by 2035.

But looming ever larger is the fact that oil resources are finite. While there are current reserves amounting to over a trillion barrels, there are factors limiting increasing global production volumes much beyond current levels in the short term, and probably not much higher in the longer term. The rate of discovery of new fields peaked 50 years ago, declining ever since. Many new fields waiting to be exploited are in extreme environments, such as under 5,000 feet of ocean as is the case with the BP Deepwater Horizon well in the Gulf of Mexico, and are therefore less economic to develop. Many existing fields have reached a production plateau or have already peaked.

Production peaks are followed by production declines, generally following a bell curve. So, even though an oil field may be "half full," so to speak, once the peak is reached the rate of extraction cannot continue to increase and will, in fact, decline. The Peak Oil theory, as it is generally known, was developed by Shell Oil geologist, M. King Hubbert. It explains the phenomenon where oil fields, as well as entire oil producing regions, are initially developed and extraction progresses at increasing rates, then volume eventually peaks and begins to decline. This has already occurred in most oil producing regions around the world and will eventually be the case for the global oil industry as a whole.

There is widespread agreement about the validity of the theory, but there is some disagreement about when and how a Peak Oil scenario may unfold. The main issue is that it's difficult to predict precisely when or if a peak will or has occurred due to many complex variables. The Chief Economist for the IEA, Fatih Birol, has projected a timeframe around 2020, with many well-regarded analysts projecting the peak on either side of that general timeframe.



Production of oil from tar sands in Alberta, Canada. Photo courtesy SBAMueller, Creative Commons.

The biggest worry about most Peak Oil scenarios is that they point to dramatic price fluctuations, supply disruptions, and potentially devastating economic problems. A report on Peak Oil by the US Department of Energy, generally known as the Hirsch Report, describes very well the national security issues that would arise, as well as the potential economic dislocations, but they're not hard to imagine even for the layperson. Remember 2008 or the OPEC embargo of the 1970s? Nearly every aspect of every industrial and post-industrial economy is predicated on inexhaustible, inexpensive oil. If oil is suddenly very expensive or unobtainable, that could keep food rotting in the fields, trucks off the roads, goods on the dock, and so on. Worse, it could lead to resource wars around the world as countries eager to maintain their own economies try to secure oil supplies by any means necessary. The Hirsch report, published in 2005, suggested 10 years lead time would be required to plan and implement mitigation measures, but few have been planned or implemented.

Unconventional fuels offer no near-term solution. It makes little economic sense to grow food crops for biofuels, though biodiesel from used cooking oil can

“Creating long-term resilience to supply problems and fuel prices will be difficult, but necessary.”

provide a fleet solution or may be locally viable in some communities. Ethanol from corn offers a negative or barely even energy return on investment (EROI), meaning it may actually take more energy to make than what it delivers. The formula for calculating EROI is straightforward: (the energy potential of a fuel)/(energy consumed in producing fuel)=EROI. When oil was easy to extract, its EROI was about 40 or 50, so oil delivered about 40-50 times more energy than it took to produce it. It takes more energy to produce oil today – all the easy oil is gone – current EROI is about 15 and falling. The Alberta tar sands are often cited as another possible transport fuel source, but extraction is extremely destructive to downstream communities and the environment. It also has a very low energy return on investment, between two and four. (Though in the short run they can't be used for transport fuels, per se, it's interesting to note that the EROI for wind energy is about 18 and, for solar, it's in the 6-12 range.)

The implications for the home and shelter supply chain are many, affecting operations, merchandising strategies, and ultimately the foundations of the business model. Some analysts think that the global production peak may be very near, which would lead to decreasing production volumes and very dramatic price increases. For those businesses operating trucking fleets, whether owned, leased or outsourced, the exposure to fuel prices can hardly be avoided. Creating long-term resilience to supply problems and fuel prices will be difficult, but necessary. Obviously, investment in radically efficient technologies, or outsourcing to radically efficient logistics providers, may provide some advantage. Smaller, hybrid vehicles may be options for some, developing biodiesel sources may be a viable strategy for others. It may even be feasible for some businesses to process their own biodiesel from cooking oil recycled from fast food restaurants or other sources close to hand.

Long-term operational strategies may include development of multi-modal/multi-hub distribution systems, with rail, barge and hybrid-diesel long-haul, and electric vehicle short-haul delivery. Siting warehouses, hubs, or retail yards in close proximity to rail or water transport alternatives, or co-locating with

symbiotic businesses, can also be pathways to reduce exposure. An operation adjacent to a plant whose waste provides feedstock for alternative fuel, for example, could produce its own reliable biodiesel supply. Or perhaps clustering with other transport dependent businesses can lead to cost sharing or pooled investment in rail or barge transport systems. It may be possible to secure grant funding to research and develop these kinds of solutions, so it's worth investigating what's on offer at local, regional or state development agencies. There may be non-profit organizations that can help, as well.

For the merchant, a good place to begin is with the customer. Whether you're serving pros or households, if fuel is expensive or hard to get, their driving will be conserved. Suburban, exurban, rural and low-income communities will feel the pain acutely. Fulfilling a wide range of need and providing one-stop shopping will be an advantage and may require expanding into unfamiliar product categories. Offering delivery options with spiffy hybrid, electric, or biodiesel trucks may keep customers loyal and supplied. Mobile showrooms might make sense for some. The more technologically sophisticated can utilize the internet and video technologies like Skype to rethink "place" in terms of the customer experience.

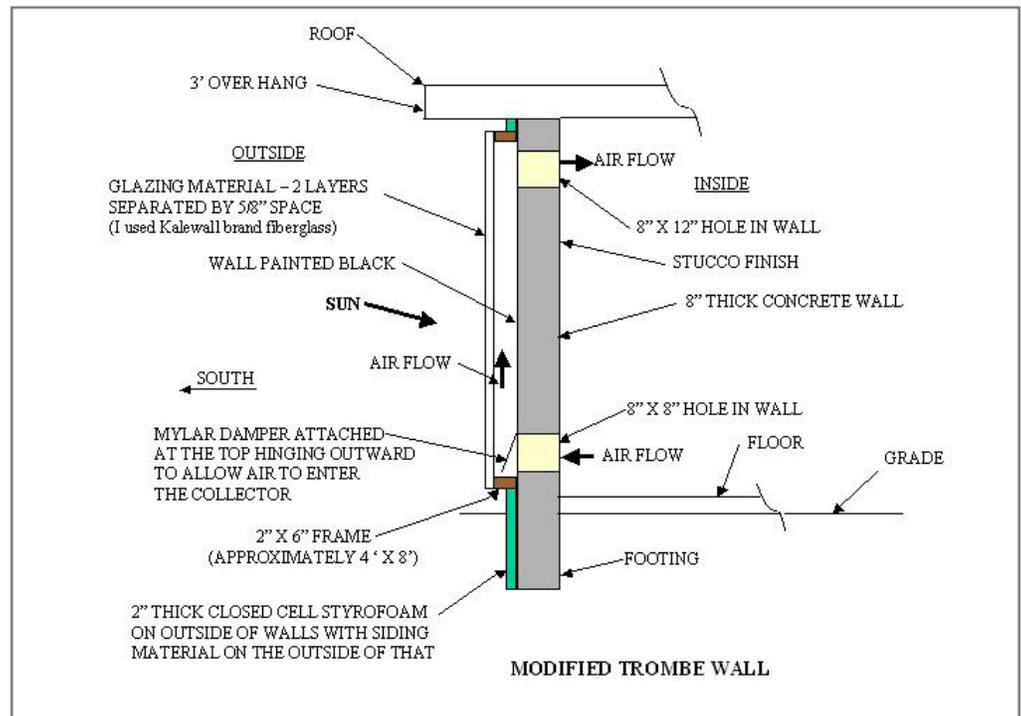
It's likely that many economic decisions will fundamentally change for households, as they opt for simpler, cost saving and fuel saving solutions. Human powered and electric mobility will also gain in importance – everything from cargo bicycles to neighborhood electric vehicles, (all of which could be new product categories to consider adding to your store's mix.) This will, in part, stimulate demand for alternative energy systems, such as wind and solar, both large-scale and small. There may be demand for home-scale biodiesel processors. Keep in mind, high fuel prices makes everything more expensive, not just driving. Home-grown food is already gaining in popularity and this trend will continue to strengthen, pointing to more demand for garden and urban agriculture supplies – composters, rainwater harvesting gear, drip irrigation, seeds, organic pest controls, apiary and chickens, tools, etc. Householders will find many more opportunities to do for themselves and get more with less.

ACTION ITEMS:

- Invest in fuel efficient logistics technologies and methods
- Shorten supply chains
- Adapt merchandising strategies to accommodate changing customer priorities

While most of this discussion has been about petroleum as a transport fuel, many communities are reliant upon home heating oil. Strategies here may include alternative feedstocks, such as biodiesel, as well as a variety of biomass stoves and similar technologies. Homes that are well sealed and insulated require less energy to heat in winter, therefore, insulation and ultra-high efficiency windows should be in demand. Passive solar water heaters, passive solar walls, and even Trombe wall plans and components, will all garner more interest from households eager for home heating alternatives.

But no matter what products you're stocking, if they're being transported, their price will include the cost of fuel. Therefore, the closer to home you can source the better, but it's easier said than done. A majority of products in this supply chain are made in China or other foreign manufacturing centers. In addition to suffering the added product transport miles, the long-term potential for a carbon pricing mechanism may bring surcharges to foreign-made products. Products from countries with high carbon-intensive electricity



Modified trombe wall design. F.Koester

production, such as is currently the case in China and India, would theoretically become more expensive and less competitive than products from less carbon-intensive competitors.

Making strategic investments in local manufacturers is one strategy worth evaluating, as is expanding business models to incorporate local manufacturing of key import substitutes. Generally speaking, the more needs a community and its businesses can satisfy locally, the less exposure there will be to radically higher fuel costs.

Toxic Chemicals in the Environment

Since the 1960s, the idea that toxic chemicals in the environment can do lasting harm to ecosystems and human health has been mainstream science. Half a century later, the presence of chemicals in the built environment, ecosystems, food chain, and even inside our own bodies, has never been greater. Over the last few years, an increasing number of scientific studies have sharpened concerns over individual chemicals and substances, as well as, concerns over the synergistic effects of prolonged exposure to small doses of many chemicals. In addition, public outrage over toxic chemicals found in building materials, baby toys, pet food, and furniture, and the resulting government action and inaction, foreshadow continued flux with implications up and down the home and shelter supply chain.

In the US, there are over 80,000 chemicals on the market, including about 17,000 pesticides, but only the barest handful have adequately been tested for human and ecological safety. At the federal level, the Toxic Substances Control Act (TSCA), Clean Air Act, Clean Water Act and OSHA's Material Safety Data Sheets (MSDSs) are among the regulatory regimes that attempt to establish a measure of oversight and safety. There are a few state programs, several in California, that provide some measure of control, transparency, or regulation.

KEY POINTS:

- Increasing toxic chemicals in environment create range of serious health issues
- Regulations will increase and strengthen in long term
- Short term, expect more activism customer preference for less toxic alternatives
- Toxic products present risk of range of liabilities

The overall result, or lack thereof, is that nearly all chemicals still enter the market with very little known about immediate or long-term health effects. Action on toxic chemicals occurs only after the public has been exposed and health problems diagnosed. In other words, we are guinea pigs in a national-scale uncontrolled experiment, but not given a choice to opt our families out. Chemical ingredients are not adequately disclosed – MSDSs do not require disclosure of proprietary compounds – so, the buyer has inadequate information upon which to make important decisions about potential health risks.

There are some government efforts to turn this around and the long-term trend now seems clear: the old dogma “the poison is the dose” may be on its way to being replaced by “the precautionary principle.” The current TSCA legislation may very soon be replaced with a new program – Toxic Chemical Safety Act (TCSA) – which would model the EU’s REACH. In Europe, since 2007, the REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulations follow the precautionary principle. It will ultimately require chemical manufacturers to first demonstrate health and ecological safety before allowing a product to market, and will require Consumer Data Sheets disclosing chemicals of concern. In the long run, improvements to US legislation along these lines will eventually “weed out”, so to speak, chemicals linked with serious health issues. California’s Green Chemistry Initiative will provide additional impetus to steer the chemical industry toward less toxic compounds. But that’s the long run.

In the short run, there will continue to be pressure from citizen groups for more transparency and accountability from chemical companies, with consequences for the worst offenders. Non-profit groups are conducting studies that shine a spotlight on chemicals of concern and the products that contain them. A few years ago, the Healthy Building Network and others reported on the dangers of PVC and related chlorinated plastics. For example, dioxins are formed when PVC is combusted. Phthalates and other toxicants are released into the environment from wear, as in the case of resilient vinyl flooring. Efforts were made by some to ban such materials from LEED rated buildings, and then to offer credits for



Anti-toxics activist. Photo credit: Jay Tompt

avoidance of such materials. While those efforts have failed for the time being, the controversy remains with many professionals and activists giving PVC a black mark and refusing to use it.

Coupled with the reality of today's internet culture, negative product and company reviews spread fast, as do campaigns for bans, petitions, boycotts and other citizen action. That can wreck a brand's reputation such as when a study by a non-profit advocating for women's health issues called out Simple Green cleaning products, as well as other national brands, for containing 2-butoxyethanol, a chemical linked to reproductive harm. State and city governments have reacted here and there with ad hoc bans and controls, such



Non-toxic alternatives, such as these, reduce retailer risk.
Photo credit: Jay Tompt

as Minnesota's partial ban on bisphenol A (BPA), which can also be bad for the bottom line for suppliers caught unawares. In addition, liability litigation will continue to be a tool of redress, and a constant concern for all supply chain members handling toxic chemical products.

People don't want to be exposed to toxic chemicals and they're more informed than ever before. This is partly due to the success of the organic food movement in educating people about the dangers of pesticide exposure to both farm workers and consumers, (as well as the broader ecological impacts of pesticides, synthetic fertilizers, and genetically modified organisms (GMOs) in the environment.) It's also partly due to increased media coverage of rising asthma rates, cancer and birth defect clusters, and newly identified health problems such as Multiple Chemical Sensitivity Syndrome, which is thought to result from long-term, low-dose exposures. Headlines about toxic flame retardants in furniture, BPA in children's products, atrazine in our drinking water, pesticide links to Parkinson's disease, ethylene glycols in household cleaning products, sulphur-emitting drywall, and formaldehyde in FEMA trailers have made the toxic chemicals in our midst ongoing front page news.

ACTION ITEMS:

- Examine ethical responsibility for health and safety of workers and community
- Reduce or eliminate toxic products from inventory
- Shift inventory to less toxic or non toxic alternatives

As merchants that, heretofore, have included many toxic chemical products in our inventories, we must take notice of these issues because they affect our businesses directly and indirectly. More importantly, because these kinds of products affect the health of our families and friends, and the ecosystems upon which we all depend, there is a very real ethical responsibility to understand these issues fully and to make wise decisions about the kinds of products we are willing to stand behind.

“Body burden” is the term toxicologists use to describe the toxic load an individual might be carrying at a given moment. In the US, that’s several hundred substances for most people, some of which accumulate, others metabolized or excreted. Pregnant mothers will pass these substances to her child. One of the common pathways for exposure to toxic chemicals is by inhaling airborne pollutants. The chemical odors that hover around the paint, cleaner, and pesticide aisles are, in fact, the actual chemical compounds themselves. If you can smell them, you can be sure their tiny molecules are entering your lungs and your bloodstream. This includes your employees and customers, too. And, of course, there are also toxic chemicals that have no odor and other exposure pathways, such as absorption through the skin.

Dealers and distributors can comply with regulations and try to keep pace with changes in the years to come, but compliance does not necessarily equate to being safe or healthy. Nor does it offer cover from action by citizen groups.

The other option is to get safely ahead of the risks and regulatory burdens by shifting inventories toward non-toxic alternatives. There are several product certifications that can offer guidance, indicating chemical compounds to be avoided – chemical “black lists” - for products aimed at the green building market, such as Green Seal, Green Guard and SCS Indoor Advantage Gold. In agriculture and gardening, the National Organics Program indicates substances to be avoided and the Organics Materials Research Institute (www.omri.org) tests products for their adherence to the program. Unfortunately, most other product categories do not have similar programs or certifications upon which to rely,



Civic demonstration urging government action on climate change.
Photo credit: Jay Tompt

leaving it to inquisitive merchants and forthcoming manufacturers to sort out chemicals of concern. Transparency should be the rule and manufacturers who are reluctant to reveal chemical ingredients should be suspect. There are online resources that can help identify health effects for many chemical compounds. Scorecard (www.scorecard.org) is one, and The Pesticide Action Network (www.panna.org) is another.

Government Policy

In the long run, policies from all levels of government will become an increasingly important factor in transitioning the economy from carbon-intensive energy toward clean and renewable energy. Environmental health and sustainability issues will also be addressed. In the short run, the current polarized political situation may lead to temporary reversals or halts to any of a number of sustainability related policies. In general, however, taxes, incentives, regulations and codes, will contribute to both opportunities and challenges for the home and shelter supply chain.

As mentioned above, the reality of climate change and the associated international and domestic pressure for governments to reduce greenhouse gas emissions will inevitably force more action. It is likely that some form of cap and trade system or carbon tax will come into effect at some point in the future. And while federal action lags, some states and cities are taking action on their own, such as California and AB32. How any of these measures would directly affect dealers and distributors is unknown. Indirectly, carbon-intensive products, electricity from fossil fuels, and petroleum-based products will all see higher prices.

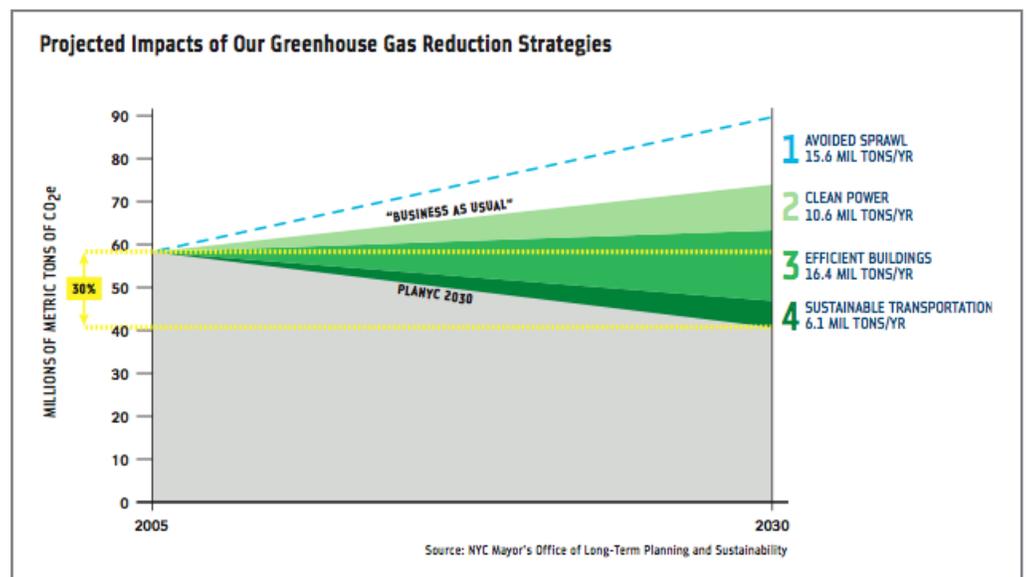
There are other ways government policy may attempt to reduce emissions. Currently, there are a number of incentives designed to encourage investment in clean, renewable energy production. Tax breaks exist for wind farms and concentrated solar, as well as for home and business photovoltaic installations. There is generous government funding for initiatives around planning and

KEY POINTS:

- Government policies in long run aim to reduce GHG emissions and act in other arenas of sustainability
- Incentives boost demand for variety of green products and materials

implementation of a sophisticated nation-wide energy grid, or smart grid. The smart grid would create the infrastructure for greater renewable energy adoption, demand response and other energy efficiency solutions for residential, small business, and industry. At the local level, some communities have instituted PACE, or Property Assessed Clean Energy, programs, or something similar, that offer financing for renewable energy installation and retrofits. These kinds of programs are in limbo at the moment, with Fannie Mae and Freddie Mac currently objecting to some elements of the program. Whether they survive or not, expect more innovative programs of this type in the coming years.

Since the built environment accounts for well over a third of total energy consumption and GHG emissions, government efforts will continue to include this sector. Energy conservation measures deliver huge returns on investment and, fittingly, there are many building retrofitting programs with federal funding. The long-term bet is that incentives for residential and commercial energy retrofits will continue. A growing number of jurisdictions at all levels of governments are incentivizing or requiring that green building standards be met for new construction on certain categories of buildings. In fact, as of this writing, there



New York City is one of several with GHG reduction plans.



Eighty-three percent of households recognize the ENERGY STAR label, according to Consortium for Energy Efficiency study.

are over 135 local and 34 state governments, and 12 federal agencies who have incorporated LEED, (Leadership in Energy and Environmental Design, the green building rating system developed by the US Green Building Council,) into policy and practice in some way. California is launching new mandatory green building codes in 2011, which may lead other states to follow suit in coming years.

The Energy Star program has been in existence since 1992, setting voluntary energy efficiency standards for a range of products. It's been a big success in raising awareness and spurring demand for energy efficient products. It's also been labeling energy efficient buildings and has labeled over 1 million homes. We can expect that this program will continue into the future with greater visibility over time. Its lists of products meeting criteria provide merchandisers a valuable and easy-to-use resource.

While energy and carbon reduction policies will remain top priorities for decades, governments will be acting in other arenas designed to promote long term sustainability, as well. For example, water will continue to be an area with intensifying government involvement, managing rights, quality, access, etc. The EPA recently created the WaterSense program which will attempt to do for landscaping and water-saving products what EnergyStar has done for buildings and electrical products. Some municipalities have amended building codes to allow grey water systems and it is likely that states that currently outlaw rainwater harvesting will eventually change course. Where water supplies are stressed, expect rationing, prohibitions of lawns and other water intensive landscaping practices, and car washing. Meanwhile, expect rollbacks of municipal codes in other areas, allowing practices currently prohibited, such as front yard vegetable gardens, keeping chickens, etc.

Toxic chemicals will likely come under increasing regulation with an anticipated replacement of the national TSCA (Toxic Substances Control Act) regime and other actions by state and local authorities. As noted above, the TSCA (Toxic Chemicals Safety Act) was introduced in 2010 which would require chemical companies to demonstrate safety of chemicals before bringing them to market,



Many communities now collect source separated waste, such as compostable (green) and recyclable (blue) materials.
Photo credit: Jay Tompt

much like REACH in the EU. Companies would also have to disclose more information about chemical ingredients in products. In New York, a new law will require disclosure of ingredients in household cleaners. In California, the Green Chemistry Initiative is actively engaging industry to find alternatives to common toxics. In coming years, there will be strengthening of VOC regulations for a range of emitting products, including formaldehyde, again, following California's lead. Garden and agricultural chemicals are coming under increased scrutiny and regulation, as well. With regulation there may come increased compliance and reporting requirements. In the past, some manufacturers have left themselves unprepared for changes in regulations, sometimes having to take back product, even from the dealer shelf, at great expense and embarrassment. Suppliers whose inventories lean toward non-toxic products will, in a sense, be future proof, and likely immune from additional compliance burdens.

The burdens of industrial and consumer waste streams over the past many years have also led to regulatory action at all levels of government, albeit spotty. These days, new landfills are sealed to contain hazardous leachate and some produce electricity from methane. Many communities divert certain waste categories from the landfill, like food and garden waste and recyclable materials. But the pace of waste generation grows with consumption – the more stuff consumed, the more stuff ends up in landfills at the end of its useful life, unless it has been diverted for recycling. Recycling rates are relatively low and some materials that theoretically could be recycled, aren't. Some products contain toxic components which must be handled separately.

As more municipalities are forced to deal with state-level waste management directives and are essentially on the front lines with collection and disposal, they are increasingly joining together to call for extended producer responsibility (EPR) regulation. EPR aims to make manufacturers responsible for their products for their entire lifecycle. This makes sense, since the manufacturer is then taking the full cost of the product into account and would be incentivized to reduce waste, and therefore expense, through better design, more efficient manufacturing,

etc. A similar concept is the idea that all members of the value chain, including the end user, bear responsibility for waste. In any case, the associated costs of waste or recovery, should be borne by those responsible and reflected in the true cost of ownership, rather than be borne by society as a whole. Regulation along these lines would put more responsibility on manufacturers to reduce packaging and improve product lifecycles. It would also put responsibility on dealers and distributors, too, potentially requiring collection and handling of certain items and materials. Reducing waste potential and hazardous materials in inventory may reduce exposure to unnecessary EPR burdens. Short-term prospects for such legislation are mixed, with some communities already on board. Longer term, expect more EPR and from larger jurisdictions.

Finally, while much of the current and anticipated government activity described above is designed to affect economic behavior in the private sector, policies guiding internal government operations may have a big effect, too. Environmentally Preferable Purchasing programs, or EPPs, are procurement policies stipulating preferences for green products. They have been in place at the federal level for many years, and have been adopted by cities and states around the country. It's probable that government entities not currently under an EPP policy will eventually adopt one. Meanwhile, EPP policies may get greener over time, reflecting new regulations and an evolving marketplace. These programs generally publish criteria and sometimes product lists, providing dealers and distributors a head start on evaluating their own merchandise strategies.

When considered together, the overall effect of government policies to incentivize greener economic behaviors, institute and enforce stricter standards, and so on, will eventually lead to a moderately greener playing field on which all businesses will compete. It will generally raise awareness and stimulate more demand for energy and water saving solutions, alternative energy systems, less toxic chemical products, and more. In general, dealers who aggressively take advantage of incentives and rebate opportunities for themselves, and merchandise those opportunities effectively to customers, can boost sales and

ACTION ITEMS:

- Understand incentives and regulatory risks and merchandise accordingly
- Take advantage of incentives to green operations

customer loyalty. Current incentives concerning energy retrofits offer a good example of an area in which dealers with expertise and perseverance can make gains. Dealers and distributors serving government customers will also do well being proactive in meeting or exceeding EPP requirements, too. On the other side of the coin, evolving compliance issues may bring surprising “gotchas” for suppliers who are slow to adapt.

Again, there are also opportunities for all participants in the home and shelter supply chain to take direct advantage of government incentives to reduce their own carbon and environmental footprints. Undertaking lighting retrofits, installing solar panels, replacing bathroom fixtures and similar projects will reduce costs, and if communicated effectively, garner cheers from the local community and raise employee morale.

Two: Market Trends and Emerging Opportunities

In the section above, we discussed four macro-level forces fundamentally reshaping the landscape for the home and shelter supply chain. A changing climate and the need to reduce GHG emissions are changing the underlying conditions of our economic lives. As well, our energy future, at least in the transportation sector, will surely be more expensive, if not wholly disruptive. And ongoing concern about toxic chemicals in the body politic is fueling increasing public outrage and mobilizing citizen groups against suppliers.

In response, government policy in the coming decades will be increasingly active in attempting to deal with all of these issues. But it is an open question whether government efforts will ultimately be successful in their aims. Will GHG emissions be reduced in time, or will government have the wherewithal to mitigate the effects of a changing climate? If so, will its efforts benefit every community or will there be winners and losers? If supply and demand factors wreak havoc with oil prices, can government mitigate the potentially negative economic consequences that might follow?

In any case, market forces are already in motion toward solutions, driven by mounting awareness of these enormous challenges and the now common perception that government cannot be relied upon. That said, some government efforts are definitely helping to stimulate demand in some market segments, which is a good thing. More broadly, at the community level on down, new models for living are shifting attitudes and buying behaviors, as well, already motivating some dealers to stock greener options for builders and households.

As a whole, these market trends, whether just emerging or firmly established, represent real evolutionary change. They also offer business opportunities that independent dealers and distributors must embrace to better serve their communities, whatever the future holds, and to survive the competitive onslaught from out-of-town large-format chains.

Green Building

The green building movement writ large, within which we can include healthy building, natural building, PassivHaus, passive solar, and the more widely known green building guidelines and rating systems such as LEED, has experienced accelerating momentum over the last several years. It shouldn't be surprising: building in ways that seek to eliminate harmful health and environmental impacts while reducing operating costs is just plain common sense. According to EL Insights (reports.environmentalleader.com) the green

KEY POINTS:

- Established and strong trend, projected to account for 30% of building by 2015
- Green building in residential market in early stages of growth
- Range of opportunities for dealers and distributors

building market is forecast to reach \$173 billion by 2015. McGraw Hill forecasts green building could comprise up to 30% of the market in five years. There are several mutually reinforcing drivers responsible for its current success and accelerating growth.

First, awareness among those in the building and planning professions that the built environment is responsible for a very large proportion of greenhouse gas emissions, both in terms of the embodied energy associated with materials and products, (that's all the energy expended in producing and transporting raw materials, manufacturing the finished product, and distribution, etc.) and those from operations, lighting, climate control, etc. According to the US Energy Information Administration, the built environment is responsible for over a third of total domestic energy consumption and about a third of GHG emissions.

Many of these professionals are, of course, aware and motivated by a range of other environmental and health impacts that derive from land use, siting, neighborhood composition, automobile traffic, VOCs and other toxic emissions, forest stewardship, resource use, water, etc. All of these concerns led to the founding of the US Green Building Council, which has attracted over 120,000 building professionals into its ranks, all of whom are strong advocates for better, greener building. Related building practices, such as natural building, which focuses on use of natural materials and techniques, have their growing communities of committed practitioners and advocates, as well.

Second, government entities, as noted in the previous section, are equally aware of the GHG emissions and energy demand associated with the built environment, as well as other health and environmental impacts, and are encouraging and even mandating adherence to standards in their jurisdictions. As of now, almost 200 cities have a green building program in place. Many have been mandating adherence to LEED for new government buildings for several years, some mandating certain types of commercial and residential structures, with streamlined permitting and other "soft" incentives for green builders.



Dealers and distributors should become familiar with USGBC's LEED for Homes and other relevant rating systems.

Third, both home buyers and commercial developers see the wisdom of saving money in operations due to reduced energy requirements. Home buyers are also motivated by healthier indoor air, aesthetics of natural materials, higher resale value, and desire to reduce ecological footprint. In the commercial sector, large architectural firms and builders have been getting on board with LEED for years, and those that aren't are seen as dinosaurs. In the world of residential building, production builders now recognize that demand for green features will be there and are just getting started with LEED for Homes or local green building programs. There are other residential programs, too, such as NAHB's less stringent national program, and a host of well-regarded local and regional programs. When big builders start building again, they'll increasingly be following green guidelines of one sort or another. Those with projects already under their belts, such as Pulte Homes, have found that green homes sell faster. There are also growing numbers of custom home buyers who are driving demand for natural building methods, passive solar features and homes built to the PassivHaus standard, an ultra-energy efficient approach from Europe.

Green building practices are spreading quickly and inevitably. They're being adopted, demanded, mandated, and incentivized, with today's stringent guidelines becoming the future's new normal. And while green building programs are raising the bar, building codes are evolving along the same lines, raising the floor. Banks and mortgage lenders are beginning to show preferences for green projects, and even insurance companies are adopting requirements for green features in rebuilds. The media has made green building a cause célèbre, the subject of numerous TV shows, magazine feature stories, and movie star endorsements.

But with all this recent growth and notoriety, (even in the current slow economy,) there is still a long way to go. LEED for Homes is only a couple of years old, so it will take more time to catch up to the maturity of the commercial rating systems. Knowledge among practitioners in the home building arena, such as custom builders, production builders, remodelers and the trades, must continue to spread. The supply chain, from manufacturers to dealers, must make available



Identifying green building products in the yard is good retailing practice.
Photo credit: Jay Tompt

more products and materials that meet USGBC or local green building criteria, or otherwise contribute to a reduced household footprint.

The green building movement represents one opportunity that current suppliers in the home and shelter channel need to embrace and own. It is the shape of things to come, but if independents are to win, or even survive, in this arena, some thoughtful action is required:

Step one: develop internal expertise by having key staff trained in a relevant green building system. Attend GreenBuild, the USGBC national conference and expo, or regional conferences and learn from national and local experts. Enhancing knowledge within the organization is critical for establishing credibility in the market and it brings additional benefits, such as improved employee morale and loyalty.

Step two: get involved with local green building professionals through your local program or USGBC chapter. Get to know them, ask them about their projects and learn about their needs.

Step three: evaluate and stock relevant products. Make sure there is thorough product knowledge among merchandisers and floor staff before investing in inventory. Don't be sold by chummy manufacturer's reps – do your homework.

Step four: clearly identify green products on the shelf and on the floor, along with contextual signage so that green builders and tradespeople find what they're looking for. In-store signage also supports floor staff with "just-in-time" information and contributes to the brand experience.

Step five: host workshops or presentations on green building issues led by local experts for staff, pro and household customers. This enhances your role and reputation as the go-to source for green building supplies and expert advice.

Step six: communicate to your community what you're doing and why it's important. Share what's working with your local business network.

ACTION ITEMS:

- Get key staff trained in LEED or other system
- Network with local green builders
- Stock suitable green products and materials
- Identify products in store and yard
- Host events
- Communicate your efforts

For merchants, the rubber meets the road with product selection and solid retailing practices. To understand the products and materials that are relevant for LEED, you must be familiar with the rating system. In many cases, “LEED products” will simply be greener versions of products and materials already widely familiar, like zero-VOC paint. There are also relatively new building practices that will be less familiar and may require more study, such as green roofs, structural insulated panels (SIPs), and ground source heating. But these new building practices, too, can present opportunities for long-term success for some dealers. To understand what’s in demand by your customers, or should be, you must ask and/or educate them. And to gain visibility with what’s coming down the pike, you must develop relationships with worthy manufacturers and innovators farther upstream in the supply chain. Other green building practices, such as PassivHaus or natural building, may call for different products and materials, but there will be overlap with those chosen for LEED. Product certifications have come into prominence of late and are valuable for identifying products, developing category knowledge, and verifying manufacturer claims. Lifecycle analysis is another tool that will help to determine LEED worthiness, but few manufacturers put their products through the process. Local proximity of manufacture also earns LEED credits, so sourcing close to home is a good thing, too.

The long-term goal for the USGBC is to have all new construction reach ever closer toward zero energy and zero negative impacts, and all existing buildings retrofitted to the highest performance standards. Over the next twenty years, the pace of innovation will quicken in response to increasing demand on the one hand, and government regulation, adoption, and incentives, on the other. Dealers and distributors who make the commitment, all other factors being equal, should continue to do well, and do good for their communities.

Energy and Water Retrofitting

KEY POINTS:

- Strong growth and established long term trend in energy retrofits – market approaching \$35 billion, soon
- Long term demand growth for water efficiency retrofits in water stressed regions

Until recently, the main thrust of the green building movement has been focused on new construction. This is essential, of course, because in order to significantly reduce GHG emissions and energy consumption nationwide, buildings must be as efficient as possible. However, most buildings currently standing – about 125 million - have not been built with energy or water efficiency in mind. In fact, most commercial and residential buildings are still energy and water hogs.

When it comes to reducing GHG emissions, energy conservation is the low-hanging fruit. This is one of the main drivers behind the current government incentive program for retrofitting commercial and residential buildings, including \$5 billion in grants to states to fund free weatherization for low-income households. According to SBI Energy (www.sbireports.com), the market for residential energy retrofits will be worth \$35 billion in just a couple of years. This has the potential for creating local jobs in an arena that will help the trades and boost the home and shelter supply chain.



Thermal image showing house built to energy efficient PassivHaus standard in foreground and conventionally built house in background. Photo courtesy Passivhaus Institut, Germany



Retrofitters installing efficient windows. Photo credit: Triple Pundit

To get the full benefit of this activity in the near term, dealers and distributors must build relationships with those in the community who are doing the work and supply them the products and materials they need. There are a growing number of new outfits, such as ReCurve (www.recurve.com), specializing in both the energy audit and doing the retrofit. There are many householders and independent tradespeople undertaking projects, too. Many of the products and materials should be quite familiar – insulation, weather stripping, caulks and sealants, super-efficient windows, etc. Merchandising super-efficient home heating and cooling systems might be opportunities for some. Lighting retrofits are big in the commercial arena, with LED and fluorescent systems going into warehouses, offices, retail, etc, but in many cases require specialist knowledge and are often undertaken by specialist firms. Residential needs are more easily met. Solar, both photovoltaic and thermal water heaters, may work for some dealers who can offer installation or have relationships with installers. In all cases, prominently identify rebates and other solutions that save money for the customer.

In addition to energy, there is growing activity around water efficiency retrofits, including rainwater harvesting and grey water systems. These kinds of projects

ACTION ITEMS:

- Understand government and agency incentives
- Align with retrofitting outfits
- Merchandise appropriate products, systems and components
- Evaluate expanding business model to include offering energy or water retrofit services

currently enjoy some limited financial incentives, most often in the form of rebates from water districts. While rebates for high efficiency toilets (HETs) have been around for awhile, look for more interest in water-free systems such as compost toilets. In coming years, there will be more building code support and more demand for grey water systems. Until recently, grey water systems have been primarily the domain of natural builders, permaculture practitioners, and off-the-grid homesteaders. A typical household system recovers the water used for laundry and kitchen needs, and redirects to the garden. Systems will become more accessible for DIYers (or GIYers) in the next several years because the huge potential for reducing water system demand has captured the attention of innovators, entrepreneurs, and water district planners.

Rainwater harvesting, with lots of history in places like Texas with perennially constrained water resources, will become increasingly important in new regions susceptible to drought and changing precipitation patterns. Whole house systems would include large storage capacity either above or below ground. Rainwater systems in urban and suburban locations provide an additional benefit to the community, since they reduce storm water runoff. In general, systems that divert water to the land, where it can soak in and recharge aquifers, reduce the stress on municipal water management infrastructure. And because pumping and treatment of municipal water supplies consume energy, households and communities that embrace rainwater harvesting will also reduce GHG emissions.

In the longer term, the entire retrofit category represents new opportunities for motivated dealers, perhaps through enlarging current product mixes or evolving business models to embrace more complicated products and related services.

Green Roofs

KEY POINTS:

- Emerging trend with projected 25% compound annual growth rate
- Strong interest by municipal governments
- Mostly commercial building but may reach into residential market in a few years
- Many benefits to building owners and to urban communities

The excitement and momentum of the green roof market, a niche in the wider green building industry, is such that it requires special attention. A green roof, also called “living roof”, is exactly what it sounds like – plants growing on the roof. (We should include in this category living walls, which is the same idea, but applied vertically.) The practice has been big in Europe for many years and has caught fire in the US only recently. It delivers an enormous return on investment for building owners - reduced energy costs, radically extended roof life, sound insulation, filtered grey water for toilets, perhaps, and if desired, a food source. The community enjoys reduced and filtered storm water runoff, expanded habitat for birds and insects, reduced heat island effect, reduced CO2 emissions, improved air quality and more green space. There are so many good reasons to support green roofs, especially in urban areas, it can't be ignored. And now it isn't.



Chicago City Hall green roof. Photo: Creative Commons

ACTION ITEMS:

- Network with practitioners, learn needs
- Short term, dealers and distributors with related experience should exploit early opportunities in sales, distribution and installation
- Long term, investigate manufacturing opportunities

Major cities from Chicago to Austin, Portland to Philadelphia, New York to the District of Columbia, are getting on board with aggressive programs to green their rooftops. Chicago is by far the leading city with over 500,000 s/f installed. Washington DC announced a goal of having 20% of their buildings fitted with green roofs by 2020. There are a small but growing number of financial incentives for building owners, such as rebates and tax incentives from utility districts, municipalities or federal government. Some cities have, or are considering, making green roofs on some building projects mandatory. What's at stake for cities is saving millions of dollars in managing urban storm water runoff, as well as reduction in summer air conditioning load on the power grid.

The USGBC is also behind the push for green roofs, and the number of professionals advocating for the practice is rapidly growing. With green builders pitching it, and municipals investing in it, the combination is accelerating market adoption. Currently, the green roof market is expected to grow at nearly a 25% compound annual growth rate for the next few years, according to BCC Research. This is nearly all commercial building, but the residential market should get started in a few years.

As early as it is in this market niche, there are opportunities for the savvy independents to start getting involved. New product innovations are coming to market that are contributing to better systems with greener materials, built faster with easier maintenance, etc. The solutions on offer will continue to mature for both commercial and residential applications. Installation services and distribution are the two areas in the short term to consider, especially for those in complementary businesses, such as irrigation, landscaping, plant nurseries, roofing, etc. Longer term, expect the residential market to blossom, especially where the benefits meet acute need, such as in suburbs subject to intense heat waves in summer and cold winter weather. Some may do well to develop manufacturing opportunities.

Gardening and Urban Ag

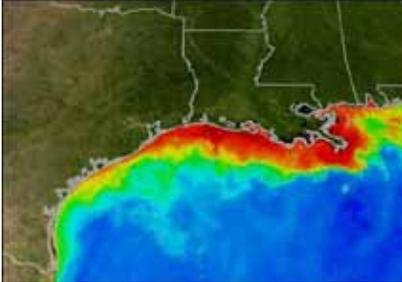
KEY POINTS:

- Strong growth in urban core, with long term growth in suburbs
- 40 million families now have food gardens – 20% growth in 2009
- Gardens and urban farms vital for food security
- Mostly organic or similar practices

Partly in response to the Great Recession, partly to increased awareness of the big sustainability issues, partly to the rise in farmer's markets that have reintroduced urbanites to where their food really comes from, households and community groups are engaging in a massive "Forward to the Land" movement.

Unlike the "back to the landers" of the 60's, these folks are not hippies withdrawing from established society in order to create an idyllic pastoral existence. Instead, they are from all walks of life drawn to their little patch of land by fundamental human desires for a direct relationship with their food, connection with natural cycles, reliance on the self and community. For some households, and even whole communities, it is driven by a very real need to secure access to fresh, healthy food – about 17 million households are food insecure, according to the US Department of Agriculture. Whatever the motivation, it's happening in growing numbers and creating new models for urban and suburban life. And, in the long run, it is essential for making community life sustainable and resilient, come what may. For independents in the home and shelter supply chain, this is a movement in which they can and, I would argue, must play a leading role.

Some background: The last generation saw dramatic shifts in agricultural patterns and demographics. The small, independently-owned family farm has been in serious decline, while the corporate-owned factory farm has grown to dominate the nation's food system. According to FarmAid (www.farmaid.org), only a handful of companies control the markets in most agricultural categories, from beef to seeds. Industrial agricultural practices include massive acreage most likely planted in a single genetically modified crop, such as corn, with heavy use of synthetic fertilizers and pesticides, such as RoundUp. The side effects include genetic drift and "super pests", eutrophication of waterways, including the giant "dead zone" at the mouth of the Mississippi, and high rates of health problems among farm families and



The hypoxia zone, also known as the “dead zone,” at the mouth of the Mississippi, caused by agricultural runoff. Image courtesy, NASA

adjacent communities. Soil fertility, generally speaking, has been dramatically reduced over the last many decades, sparking a vicious cycle of ever more synthetic fertilizer being applied.

The food supply chain has morphed into a highly packaged, highly vulnerable, corporate supermarket dominated distribution system, with the bulk of the buying public now concentrated in urban and suburban environments. The linkages of this food supply system concentrated, lengthened, and strengthened as metro areas sprawled into vast suburbs, and then into exurbs. The average distance traveled for a food item is about 1,500 miles.

All of this is common knowledge by now, as is the fact that it has also been slowly changing over the last several years. There’s more certified organic acreage than ever before, but is still only about 1% of total agricultural acreage. At least some organic food options can be found in every city and in many supermarkets. According to the Earth Policy Institute (www.earth-policy.org), the number of farmer’s markets has risen from about 1,750, 15 years ago, to about 6,000, today. Even the number of small, independently-owned farms has grown slightly in recent years.

Lately, though, the pace of change is quickening and shifting closer to home, at least for suburban and urban communities. The National Gardening Association reports that the number of households growing at least some of their food at home increased nearly 20% in 2009, to over 40 million households. They also say that 1 in 5 schools nationwide now have a garden, with more joining their ranks every year, partially driven by parent concerns over childhood obesity and unhealthy school lunch programs. The term “locavore” has entered the lexicon as many people, especially in urban areas, are seeking to buy food grown closer to home, or simply grow their own. Community garden projects are also springing up all over, even in the urban core. All of this has fanned the imagination of architects and entrepreneurs who see potential for creating large-scale vertical farms within the shells of skyscrapers.

While those head-in-the-clouds visions get too much media attention, there are some real changes happening on the ground. Nearly every big city has community plots with lengthening waiting lists and multitudes of vacant lots being transformed into micro farms. Of course this is big in San Francisco, Seattle and Portland, and in smaller university towns, but this is a serious movement nation-wide. There are about 600 small scale-farms in New York City, reports Time Magazine. Bloomberg reports 500 farms in Detroit. And it's the same story in nearly every old-line big city with vacant lots, food deserts and active community groups. One of the major benefits of all this food-growing activity is, of course, more fresh, nutritious food available, and more often, for those most in need. There are numerous additional benefits that accrue to the community, such as jobs and job training, neighborhood beautification, reduced storm water runoff, and relieved heat island effects.



Backyard vegetable garden. Photo credit: Jay Tompt

ACTION ITEMS:

- Understand latest trends, including micro livestock and aquaculture
- Merchandise across range of needs
- Avoid synthetic fertilizers, toxic pesticides, and GMO seeds

Whether the operation is backyard plot, community allotment or full-on urban farm, there will be a range of common need, as well as new needs arising from uncommon or innovative practices. Almost all of this activity will be inspired by organic methods, so toxic pesticides, synthetic fertilizers and genetically engineered seeds are out. Composting and vermiculture supplies, heirloom seeds, drip irrigation and rain barrels, if not more elaborate rainwater harvesting systems, will be in demand, as will greenhouses, cold frames, tools and equipment. Even in urban areas, demand is growing for micro livestock like chickens, bees, and even rabbits.

Aquaponics, the practice of raising live fish, like perch or tilapia, within an integrated food growing system, is a new practice that delivers multiple benefits. The waste products from the fish provide nutrients for the plants, which filter the water returned to the fish habitats. Fish and plant can also be harvested for food. Systems require containers, such as food-grade 55 gallon drums, plumbing, pumps, etc.

This movement should be good news to independents. Dealers and distributors with expertise, good service, and willingness to engage and educate their communities will do best. And those not currently serving this segment might think about expansion, especially if the local market lacks a good independent option.

Localization

From the beginning of this paper, there is a strong local theme that should be apparent, by now. It's aimed at informing, inspiring and empowering local businesses to become green leaders in their communities. *Increasing* local sustainable development is also a key strategy for creating long-term resiliency and competitive advantage in a transitioning economy. Localizing and diversifying the economy creates buffers to macroeconomic shocks, such

KEY POINTS:

- Localization promotes local prosperity and creates resiliency to economic shocks
- Independents and their communities are vulnerable to impersonal, out of town corporations
- Organized citizen groups and ad hoc household groups working for local solutions

as those we outlined in above sections, as well as opportunities to increase prosperity and improve quality of life.

The foundation on which every sustainable, prosperous, and resilient community is settled, is a stable and affordable supply of healthy food, clean water, building materials and other necessities. If those basic needs aren't met locally, or readily imported, a community is impoverished. A local economy that is diversified in its production of local needs, will better withstand financial meltdowns, oil spills, or other macroeconomic calamities. From a policy point of view, regional and city leaders should be encouraging local innovation and entrepreneurship, especially those ventures that lead to diversifying the economic base, loosening the linkages with national and multi-national corporations, and strengthening those with and between local alternatives. Ideally, this should be pursued in ways that regenerate natural and community capital. Underlying this is a responsibility that bears on all local community leaders, including business, government, schools, and spiritual traditions to work together to become better prepared for drought, heat waves, hurricanes, extreme weather, wild fire and their consequences.

The local enterprise struggling against billion-dollar, out-of-town corporate competitors should be eager to promote this view because their "local" advantage is inherent. But there are several more aspects to consider. First, all local businesses and the local economy gain from local patronage. Second, sourcing product and services from local providers reduces exposure to decisions taken by impersonal economic actors, increased costs due to fuel prices, logistics issues, carbon taxes, tariffs, exchange rates, store closure, etc. Third, there is a wider movement to re-localize economies through the actions of local citizen groups and governments, both of which are natural allies. Fourth, locally sourced green products and materials earn LEED credits and attract green builder customers.

Intuitively, local businesses know that buying local is good. Local households, tradespeople and builders bring in the bulk of the revenue for an independent dealer, and to the extent that those dollars are used for payroll to local folks and



A typical Main Street retailer threatened by national retail chains. Photo credit: Jay Tompt

pay expenses to local suppliers, those dollars continue to circulate in the local economy. Dollars spent with corporate-owned national chains, leave a much smaller portion of those dollars in the local economy. That local spending circulates longer locally is known as the Local Multiplier Effect and naturally, in towns with strong “shop local” campaigns, it’s higher than those without one. On the other side of the coin, corporations headquartered outside the region extract some of that region’s financial wealth to pay overhead, distribute dividends, or retain for future investment, probably somewhere else.

There is another vulnerability for the local economy heavily dependent upon imported goods and services from large corporate chains or manufacturers. Impersonal decisions made elsewhere can close stores or factories, disrupting supplies, raising unemployment, and leaving large-footprint, un-productive, hard-to-repurpose building shells and asphalt parking lots. Other circumstances like dramatic spikes in fuel prices, supply disruptions overseas, or extreme weather events can also leave a local economy and its home and shelter



Abandoned big box store, typical in many communities through the United States. Image courtesy, Switchboard blog, Natural Resources Defense Council.

businesses exposed. Goods sourced from abroad or the other side of the country may be especially prone to disruptions like these.

Unfortunately, the home and shelter supply chain is heavily dependent upon imports, a consequence of a generation of globalized manufacturing. The best known brands in the business all used to be manufactured in the United States. Today, a large percentage of these goods are produced in China or other foreign manufacturing centers, as are the vast majority of manufactured goods and materials found in distributor catalogs. The big box retailers dominate the landscape, their business models specially designed to profit from low-margin, high-volume sales of container loads of imported goods distributed in airplane-hanger scale retail warehouses.

A natural conclusion to draw is that independent businesses who work to promote localization of the economy and develop local suppliers would be working in their enlightened self-interest. Indeed. And they wouldn't be working alone - there is a growing localization movement across the country full of community spirit and positive momentum. There are a few organizations worth mentioning here. One is the Business Alliance for Local Living Economies, or BALLE (www.livingeconomies.org), which has about 80 networks and 22,000 business members. Another is American Independent Business Alliance, or AMIBA (www.amiba.net), with a network of about 60 alliances and affiliates. Both of these organizations are networks of local businesses who have come together to promote local economic prosperity and pool resources for advertising, solar panels, green collar job training – or whatever makes sense for their local economic circumstances. They both offer guidance on getting new alliances started in a community and launching shop local campaigns.

Local households and individual citizens are joining together, too, in small ad hoc groups, and in larger more organized efforts, to plant food, capture rainwater, or bend the ear of the city's director of sustainability. The Great Recession and the lessons of Hurricane Katrina have both impelled and inspired

ACTION ITEMS:

- Get connected with local citizen groups
- Actively seek out local suppliers
- Short term, join “shop local” campaign
- Long term, work to re-localize manufacturing of essential goods

people in neighborhoods, towns and cities to begin creating buffers against unemployment, natural disaster, local food supply disruption, and so on. If they don't, who will? It's the kind of industriousness and self reliance that both Adam Smith and Henry David Thoreau would endorse wholeheartedly.

Movements like the Transition Initiative (www.transitionus.org) offer a framework that makes it easy for people to get themselves and their neighbors, educated, organized and doing projects. There are already 323 Transition Initiatives around the world, mostly in the UK, and including 75 in the US. Groups often attract specialist talent, undertake quite serious projects, and influence local government decisions. A common goal shared by each Transition Initiative is development of an Energy Descent Action Plan that incorporates input from local civic leaders and citizens and lays out a 20 year scenario for creating community resiliency and independence from fossil fuel. But there are multitudes of unaffiliated local groups, both experienced and just starting up, working on many of these same issues, such as buy local campaigns, local food production, community tree planting, retrofit programs, grey water workshops, etc.

Local independents will find natural allies, customers and collaborators in all of these communities, including the local green builder community. That brings us to the final point to make here about localization which is that LEED includes credit for locally produced products or material. Natural builders prefer building with local materials, in any case. Local is another good reason for green builders and locavores to buy.

These benefits taken together make a convincing case for sourcing as locally as possible and participating in efforts to build resiliency into the local community. The longer-term challenge of developing domestic and local manufacturing capacity remains. Urging existing “national” brands to re-invest in domestic capacity may have some effect. Participating in entrepreneurial ventures to manufacture import substitutes or essential goods might make sense, too. Over the next generation, these efforts may very well play the decisive role in developing resilient, green, and profitable new business models for players in the home and shelter supply chain.

Shifting Household Priorities

KEY POINTS:

- Long term trend toward socially and environmentally responsible companies and products
- Strong attitudinal trends toward non-toxic, energy and resource saving, money saving, simplicity, self reliance and community focus
- More “staycation” and “green it yourself” projects

We began above considering global-scale issues, macroeconomic factors, and trends pointing to rising opportunities in green building and related home and shelter categories. We also see that as local businesses we are woven into the fabric of our community’s livelihood and contribute to a more resilient, prosperous community. When we look at households, we see that economic priorities are shifting toward simplicity, resource conservation, long-term security, community activities, self reliance, and sustainability.

The economic conditions of the last decade have led to increasing interest in simpler, money-saving solutions, such as with “staycation” and “green it yourself” projects. In every downturn, households do more projects on their own and in this one folks are doing green projects on their own. More people are planting food gardens and supporting urban farms. Increasing awareness about toxic chemicals is driving people to seek less toxic alternatives in almost everything they do. The USGBC reports that indoor air quality is a top concern for home buyers. The realities of drought, extreme weather, and economic hardship are leading people to become better prepared, knowing that ultimately they’ll have to depend on themselves and their neighbors. Our society is trending toward more GIY, gardening, detoxifying, and more personal responsibility for one’s own survival, economic or otherwise.



Parents working in school garden. Photo credit: Jay Tompt



Typical “green it yourself” project – rain barrel installation. Photo credit: Jay Tompt

Over the years, there have been numerous market research studies purporting to describe the “green” consumer and predict its buying behavior. An internet search reveals dozens, (studies, that is, not green consumers!), and they get most of it right. Study after study, based on a variety of methodologies, track a strong, growing preference toward products and companies that do good and have least negative impact. But this has been reported for years and there has been no “hockey stick” demand curve for “green” products - the part these studies mostly get wrong.

There are several reasons there’s been no hockey stick. One is price and performance – some new green products are expensive relative to what they do. Like many new products, some may not work very well or in the same way – a sometimes unfair criticism generalized to anything green, since as large a proportion of new “not-green” products don’t work very well, either. Actually, over the last couple of years, there has been steady innovation and more excellent green products available than ever before, poised for success should a robust economic recovery abide. Another reason is convenience – green products are not ubiquitous. If the product is not on the shelf, it will not sell. Choice – there aren’t that many green alternatives compared to not-green products. The agri-board product is fantastic but the wrong color, for example. Another factor is that many folks reach a threshold where they cease to be a “consumer” altogether, preferring to reduce, reuse and recycle, buying new only when utility or overwhelming desire requires, and then with an eye toward deep sustainability.

All that said, there is every indication that demand for green products will continue to grow steadily, and those that perform well for a fair price will sell best. The stronger the economic upturn, the higher this shift in demand will be. But there’s more to this shift in household economics.

Increasingly, people are interested in gaining more skills in self reliance and doing green projects around their homes and communities. There is a hunger for knowledge in all areas of greener living, which is something the home and shelter supply chain can embrace with credibility and deliver in spades.

ACTION ITEMS:

- Get connected with local citizen groups, especially permaculture practitioners
- Merchandise according to local needs – gardening, micro livestock, non-toxic alternatives, grey water and rainwater systems, etc.
- Create opportunities to provide advice and education

Merchandisers who can plug into one or more of their local communities of practitioners – gardeners, permaculturalists, urban farmers, bee keepers, natural builders, retrofitters, green roofers, energy consultants, etc. – will gain a wealth of understanding, do a service by stocking some useful items, and make some new customers. Dealers with highly developed organizational knowledge should be encouraged to develop in-store educational signage and host workshops, deepening community connections and establishing community leadership.



Putting it all together. Photos: Jay Tompt and Jane Brady.

Three: New Models for Sustaining Business

The above analysis provides a framework for thinking about potential future opportunities and threats in an era of unknown but inevitable change. Climate chaos and dependence on foreign oil leave us vulnerable to disruptions due to extreme weather, conflict, or skyrocketing prices. Either could lead to further economic slowdown or worse. Concerns over toxics will lead to more regulation, activism and litigation. Those same concerns are boosting demand for non-toxic alternatives. Government activity will lead to a greener economy in the long run. Various private sector activity is already growing strong - green building, retrofits, green roofs, alternative energy, rainwater harvesting, urban agriculture, etc.

KEY POINTS:

- Eco-efficiency lowers costs and boosts brand
- Add new product categories
- Include value-added services like installation
- Invest in local manufacturing
- Add educational and training programs to the mix

Going forward, firms should take measures to withstand the shocks that may come and pursue the opportunities to provide the goods and services the community needs to become resilient, sustainable and prosperous. Diversifying sources of supply and sources of income is a basic strategy for resilience. This may include adding new categories or services, finding suppliers less exposed to certain risks, and directly investing in new or strategic manufacturing capability. Investing in eco-efficiency is another strategic direction, which can reduce costs and enhance the company brand. The “traditional” industry associations and coops should be motivated to understand these issues and take action, as well. Localization is also a viable strategy: promote local shopping, develop local sources of supply, and participate in community efforts.

Whichever resiliency strategy is pursued, firms that stay close to their customers, seek to learn, and keep pace with industry innovations, will be positioned to take advantage of business opportunities as they present themselves, green or otherwise. For example, those who have thoroughly immersed themselves in the green building market, will know what to stock, how to sell it, and to whom. They’ll sell more than those who passively take it for granted. The same is true in retrofitting, green roofs, urban farming and household products. Knowledge is empowering.

Some dealers will be smart to expand into new product categories and some may transform their businesses in unexpected ways. A dealer that sees itself as a provider of “home and shelter” services may evolve to focus on modular building systems and components. A goal to become the number one provider of energy efficiency solutions may lead one day to becoming the number one provider of home-scale fuel cell power generators. A bold vision can be a powerful driving force in developing a coherent strategy and successful outcomes.

Whatever the next generation brings, the independent will likely be faced with tough circumstances and difficult decisions to make. For most, business as usual is not going to be good enough. So, let’s look at some practical pathways to achieving resiliency and long-term profitability.

Greening Operations



Installing solar panels saves energy costs and boosts brand. Photo: Creative Commons

Some firms will see multiple benefits in reducing the eco-footprint of their business, including resiliency. Energy retrofits that incorporate clean energy generation, LED lighting, insulation, etc, will save money that can be reinvested elsewhere in the business. A deep retrofit can be a marketing investment, demonstrating radically efficient technology and the firm's leadership by example. Being a low-carbon supplier may help win a government contract or other large customer. Other projects might include:

- replacing on-site and local vehicles with biofuel or plug-in hybrids
- developing alternative transport strategies – super-efficient diesel hybrids, biodiesel fuel production, electric vehicles, rail and barge
- shortening the supply chain and shifting to suppliers that have reduced their own eco-footprint
- installing rainwater harvesting and greywater systems
- turning landscaped areas into forest food gardens
- replacing a corner of the parking lot with a vegetable garden
- reducing landfill waste to zero
- providing recycling for batteries, fluorescents, paint, etc.

These kinds of activities shrink the eco footprint of the extended business system, help protect against shocks, and position for new business opportunities.

A good way to get started is by following a simple and straightforward management process – assess, set goals, design programs, implement, and measure results. Funding sources may include rebates and tax credits, development grants, and loans from your community bank. Competitors like WalMart have taken steps that independents can learn from, too, including their Supplier Scorecard. Involving the entire firm in the process is essential. Create a green team. Giving them the resources to learn and the space to collaborate will create excitement, lift morale, and may unleash collective genius. Proudly share progress with the community.

Re-thinking Categories



Selling cargo bike may be a winning merchandising addition for some retailers. Photo by WorkCycles, Amsterdam, 2005 Creative Commons

Starting a new category, or reinventing an existing one, takes considerable effort. The place to start is where you are. Create a program to identify the products already stocked, their certifications, and their applicability for green building or related practices. Once benchmarked, identify existing categories in need of a makeover and potential new categories that might complement. Try thinking creatively, too, and evaluate categories that may seem untraditional at first glance - they may present interesting new growth potential and new income streams.

Electrical is an important traditional category that can lead a green merchandising strategy. In an era of growing demand for energy efficiency, a comprehensive, well organized, electrical department can be a green goldmine. One approach might be to stipulate EnergyStar only, where applicable, and stock a wide selection of LEDs and efficient lighting, alternative energy gadgets, energy saving products, etc. End cap displays based on topics like residential lighting retrofits, small-scale clean energy production, or triple glazed windows can both educate and motivate customers. A strong eco-electrical department can be the foundation of marketing campaigns or for repositioning the store brand.

When evaluating new categories, examine company strengths – a firm experienced in plumbing and irrigation might easily leverage that experience for rainwater harvesting and grey water systems. Firms may find that there is a staff member who's a genius urban gardener and choose to expand in that direction based on that strength. Or maybe it's just plain old fashioned lust for really cool stuff, like prefab shelters or electric cargo bicycles. If there's passion and knowledge, almost any new category can work, whatever the current product mix.

Before new categories are introduced, merchandiser and staff education must be the highest priority. The enthusiastic but inexperienced customer needs dependable information and advice, so it's important that the merchandiser

bought the right product and the sales associate fully understands it. Good advice empowers green-it-yourselfers to undertake more projects and contributes to the store brand as the “go to” resource. More importantly, the experienced and informed customer is to be respected. Losing credibility with a pro customer at the point of sale because of inadequate product knowledge is counter productive at best. On the other hand, earning their trust with competence will result in loyalty and positive “word of mouth.”

New categories also need to be launched in ways that connect with core customers. To be successful in supplying green building products, or in pursuing any of the opportunities discussed so far, being connected with those communities of practitioners is essential. Getting their participation in your process from the beginning will earn trust and identify the products and materials of most interest. Launch parties and fanfare are always good opportunities to honor their contributions and share your progress with the wider community. Throughout the store and yard, abundant signage should promote, identify and educate. For the internet savvy, social media sites may serve as a way to maintain ties with practitioner communities.

Value-Add Services

Adding services to the mix might be a wise strategy for some dealers who lack long-term potential with merchandise alone or otherwise see a need they can fill. Generally, installation coupled with good service offers growth potential with numerous product/technology directions to follow. Simple installations might include rain barrel, solar thermal space heater, solar attic fan, HET toilet. More advanced installations might include grey water system, solar water heater, aquaponics system. Higher value-added services like conducting home energy audits or doing retrofit work may make sense for some dealers, too. While these kinds of services can be delivered by third-party partners, having direct control over the customer experience is better – it builds the relationship, returns



A neighborhood electric vehicle (NEV) can function as a local delivery vehicle. Photo: Jay Tompt

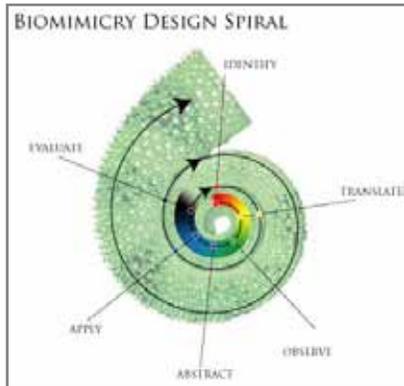
valuable feedback, and maximizes profit margin. Repair, refurbishment, and tool and equipment rental are other areas worth evaluating, and which can, in turn, inform merchandising decisions.

Delivery, especially when coupled with internet ordering, can keep customer connections alive when circumstances would otherwise not permit. In times of high fuel prices, local deliveries to jobsites and homes may keep sales going. Using current, off the shelf, and free technology, one could imagine staff doing live, mobile video shopping for select customers, up-selling and cross-selling, then loading up the electric delivery vehicle. Besides being a potentially valuable service, it offers a convenience that may be a competitive advantage versus a national chain.

Manufacturing

There are at least three reasons one might consider investing in manufacturing. One, is to secure an alternative source of supply for products or materials most needed, but most vulnerable. Another is to meet demand that is otherwise unmet. The third is to diversify the business in the face of national competitors and remote global supply chains.

There are a couple of risk-sharing models worth considering. One is the cooperative. Regional dealers and distributors might, for example, join up to start manufacturing and distributing furniture made from local materials – perhaps sustainably managed woodland, or engineered lumber made from local agricultural waste and bio-based adhesive, or reclaimed barn wood. Another model is the joint venture or strategic partnership. There may be regional manufacturers willing and able to make new parts or assemble new systems, given investment in tools and training, and a worthy distribution partner. There are many areas of green building or household sustainability where there's room for innovation such a venture may pursue. Grey water systems are a good



Biomimicry looks to nature for engineering solutions. Graphic courtesy Biomimicry Institute.

example – a user-friendly green it yourself kit could sell well in the residential market. The internet provides a wider market for local innovations, too.

Re-establishing sustainable production of useful goods and materials brings numerous benefits to communities, so it's possible that funding for exactly such a venture may be found from development agencies, foundations, and non-profits. Public/private partnerships and non-profit/for-profit partnerships both offer innovative pathways to getting ventures off the ground. Both can be sources of expertise, as well.

A manufacturing strategy pursued, either by a home and shelter business or by the greater community, should consider new theories of production, along with stipulating a small ecological footprint. Biomimicry (www.biomimicryinstitute.org) is an approach that seeks to find engineering solutions by learning how the problem has already been solved in natural systems. Another, and very compatible approach, is Cradle to Cradle (www.mbcc.com), the idea that promotes design of zero negative impact products made from industrial "nutrients" that are constantly reused to make new products with zero waste generated. A high standard, but solar powered firms that manufacture products from resources saved from the waste stream, and are in turn recycled or composted, reach toward that goal.

Evaluating these innovative manufacturing approaches may, in turn, illuminate natural and comparative advantages unique to a specific region. Whether one looks at the bioregion, watershed, foodshed, or metro area, there may be natural resources, valuable waste streams, universities, re-purposable plant and equipment and other forms of capital ready to be put to work. A rich tradition of furniture making might be revived. Agricultural waste might become feedstock for innovative interior wall panels, replacing the need to import drywall from China. Development agencies, non-profits, or a team of local green MBA students, might be tapped for doing the research.

Education



A "green it yourself" compost toilet can be a popular workshop for drought prone regions. Photo courtesy The Humanure Handbook, www.humanurehandbook.com, Creative Commons

Successfully transitioning to a low carbon, less polluting economy is going to take innovation and education. Architects, designers, and building scientists are demonstrating what's achievable, and the knowledge is finding its way to developers, builders and buyers. Over the next twenty years, the home and shelter supply chain can play a leading role, but only to the extent that it spreads adoption of solutions that reduce ecological footprint and increase community resiliency.

Most merchandisers in the home and shelter supply chain pride themselves on their product knowledge. The best independents have earned for their part of the industry a reputation for expertise and good advice, especially when compared to national chains. Success in transitioning to the next economy will come with more of the same. Developing organizational knowledge in the areas outlined above will yield several benefits. First, the expertise is required to understand the markets, technologies, products, applications, and so on. Second, a staff that is constantly learning will be motivated, empowered, and more productive. Third, internal expertise can be turned into on-site workshops that create new customers and build reputations.

While people are being drawn to live more greenly and self-reliantly, whether as households or as part of a localization group, there remains a powerful thirst for knowledge. In fact, there are courses popping up all over the country on one sustainable living theme or another. Permaculture practices are spreading rapidly due, in part, to the common-sense appeal of its holistic, systems-based approach to designing sustainability and resiliency into households and communities. It heavily emphasizes ethics, low energy input, natural systems, and designing for high yield. Permaculture takes in the big picture, so typical permaculture projects include all those we've noted above and many more.

Practitioners are keen do-it-yourselfers eager to learn how old-timers did things and they represent valuable allies for the independent dealer. Try turning your

operation into a model of sustainability in partnership with a local permaculture group. They can conduct hands-on workshops on the property covering a variety of topics: soil remediation, forest food gardening, compost tea brewing, urban agriculture, rainwater harvesting, green roofs, grey water systems, natural building, etc. The store site gets a reduced eco footprint with working demos of GIY projects, produced by paying permaculture students, who are now newly trained customers eager to emulate what they've learned.

Since education contributes to the goals of non-profits and government agencies, the potential for mutually beneficial partnerships exists here, too. Funding may be available, as well as in-kind support, for green collar jobs training, for example. Perhaps a dealer with an educational wing delivering high-quality green building training for a modest tuition can help keep the local workforce employed in the best jobs when time are good, and have them back in the classroom when times are slow, preparing for the next upturn.

Conclusions

The aim of this paper is to provide information, analysis and encouragement to help independents in the home and shelter supply chain become green leaders in their communities. Most independents are trusted sources for supplies and advice, a position that can be used to help people make their homes and neighborhoods healthy and sustainable, even when times are tough. This role is incredibly powerful and can be the critical element for every community in their successful transition to the next economy.

We identified the long-term macroeconomic forces reshaping the industry and the opportunities arising in response, following the thread from the planetary down to changing household attitudes and behaviors. There is much more that can be said about these issues and there are other important issues that we did not address. For example, competition from national chains is an existential threat to many independents, especially since they're developing their own strategies to meet green product demand, reduce carbon footprint, and even appear to be more "local." The weight of evidence suggests that green building and related practices will eventually become the new normal, so there's no point in being left out. If the current configuration of the supply chain is not meeting those needs, new competitors and innovations will fill the gaps, weaker players will be marginalized and put out of business. Finally, localization strategies and community engagement can help create resiliency in the face of potentially large-scale macroeconomic crises, and can offer a competitive edge versus national chains and new competitors.

Transitioning to the next economy will require preparation, study, collaboration, planning, investment and action. But it should be a labor of love, because the rewards will be positive, personal, and long-lasting. First of all, surviving in business means keeping people in the community employed. Secondly, because the transition is toward a cleaner, less toxic, less vulnerable economy, which is where customers want to go anyway, there's a double win for playing a leading role. Doing good and doing well. Finally, leaving the world a little bit better than you found it brings its own reward. May the next generation of home improvement enjoy healthier and more prosperous times!

Resources

The following are websites and articles that were either quoted directly or provided background for each section. This can only be a partial list and I encourage everyone to do their own research and form their own conclusions.

Climate Change

- 350.org – www.350.org
- “Climate Change”, New Scientist Magazine - www.newscientist.com/topic/climate-change
- Climate Prediction Center – NOAA - www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html
- EPA – www.epa.gov/climatechange/
- “Humans on Verge of 6th Great Mass Extinction Experts Say” - www.foxnews.com/scitech/2011/03/02/humans-verge-6th-great-mass-extinction-experts-say/
- NASA – climate.nasa.gov
- Pew Center on Climate Change - www.pewclimate.org
- U.S. Global Change Research Program - www.globalchange.gov

End of Cheap Oil

- Association for the Study of Peak Oil – www.peakoil.net
- Commodity Futures Trading Commission - www.cftc.gov
- International Energy Agency - www.iea.org
- “Peaking of World Oil Production: Impacts, Mitigation, & Risk Management” (The Hirsch Report) U.S. Department of Energy’s National Energy Technology Laboratory - www.netl.doe.gov/publications/others/pdf/Oil_Peaking_NETL.pdf
- “Peak Oil: What do the data say?” – UK Guardian - www.guardian.co.uk/news/datablog/2009/nov/13/peak-oil-iea-uppsala
- Post Carbon Institute - www.postcarbon.org
- US Energy Information Administration - www.eia.doe.gov
- “When will the oil run out” – UK Guardian - www.guardian.co.uk/business/2008/dec/15/oil-peak-energy-iea

- “WikiLeaks cables: Saudi Arabia cannot pump enough oil to keep a lid on prices” – UK Guardian - www.guardian.co.uk/business/2011/feb/08/saudi-oil-reserves-overstated-wikileaks

Toxic Chemicals

- California Green Chemistry Initiative - www.dtsc.ca.gov/pollutionprevention/greenchemistryinitiative/index.cfm
- Environmental Working Group - www.ewg.org
- Healthy Child Healthy World - www.healthychild.org
- HealthyStuff.org – www.healthystuff.org
- H.R. 5820, Toxic Chemicals Safety Act of 2010 - energycommerce.house.gov/index.php?option=com_content&view=article&id=2086:toxic-chemicals-safety-act&catid=171:featured-legislation&Itemid=93
- Pesticide Action Network - www.panna.org
- Precautionary Principle - www.sehn.org/wing.html
- REACH - ec.europa.eu/environment/chemicals/reach/reach_intro.htm
- Scorecard – www.scorecard.org
- Women’s Voices for the Earth - www.womensvoices.org

Government Policy

- Business.gov - www.business.gov
- California’s green building and green buying program - www.green.ca.gov
- Cap and Trade - <http://www.epa.gov/capandtrade/>
- EnergyStar - www.energystar.gov
- Environmentally Preferred Purchasing - www.epa.gov/epp/
- PACE – www.pacenow.org
- Product Policy Institute – www.productpolicy.org
- “The Story of Cap and Trade” – www.Storyofstuff.com/capandtrade/
- WaterSense - www.epa.gov/WaterSense/
- White House Council on Environment - www.whitehouse.gov/administration/eop/ceq/

Green Building

- Architecture2030 – www.architecture2030.org
- EL Insights – reports.environmentalleader.com
- Healthy Building Network – www.healthybuilding.net
- International Living Building Institute – www.ilbi.org
- McGraw Hill – www.mcgraw-hill.com
- NAHB Green Building Program – www.nahbgreen.org
- NauHaus Institute – www.thenauhaus.com
- Passive House Institute – www.passivehouse.us
- United States Green Building Counsel – www.usgbc.org

Retrofitting

- “Deep-Energy Retrofits” – GreenBuildingAdvisor.com - www.greenbuildingadvisor.com/blogs/dept/energy-solutions/deep-energy-retrofits
- ““Deep-energy retrofits’ take root in homes” - CNET News - news.cnet.com/8301-11128_3-20000306-54.htm
- Grey water systems – www.greywateraction.org
- H. R. 5019, the Home Star Energy Retrofit Act of 2010 - energycommerce.house.gov/index.php?option=com_content&view=article&id=1986:h-r-5019-the-home-star-energy-retrofit-act-of-2010&catid=169:legislation&Itemid=55
- Rainwater harvesting – www.arcsa.org
- ReCurve – www.recurve.com
- ReGreen - www.regreencorp.com
- SBI Energy – www.sbireports.com

Green Roofs

- “15 Living Walls, Vertical Gardens and Sky Farms”, Environmental Graffiti - www.environmentalgraffiti.com/ecology/15-living-walls-vertical-gardens-sky-farms/1202
- BCC Research – www.bccresearch.com
- Chicago Green Roofs - www.artic.edu/webspaces/greeninitiatives/greenroofs/main.htm
- GreenRoofs.com – www.greenroofs.com
- Green Roofs for Healthy Cities - www.greenroofs.org
- Heat island effect - www.epa.gov/heatisd/
- “What is a green roof?” – How Stuff Works - science.howstuffworks.com/environmental/green-science/green-rooftop.htm

Gardening and Urban Ag

- “Agriculture is the New Golf: Rethinking Suburban Communities” – Good - www.good.is/post/agriculture-is-the-new-golf-rethinking-suburban-communities/
- Aquaponics – “The Spotless Garden” - www.nytimes.com/2010/02/18/garden/18aqua.html
- “Can America’s Food Deserts Bloom?” Time Magazine - www.time.com/time/nation/article/0,8599,1900947,00.html
- Earth Policy Institute – www.earth-policy.org
- Farm Aid – www.farmaid.org
- National Gardening Association - www.gardenresearch.com
- “Street Farmer,” NY Times – www.nytimes.com/2009/07/05/magazine/05allen-t.html?_r=2&pagewanted=all
- Union of Concerned Scientists – www.ucsusa.org
- USDA Economic Research Service - www.ers.usda.gov/Briefing/FoodSecurity/

Localization

- American Independent Business Alliance – www.amiba.net
- Bay Localize – www.baylocalize.org
- Business Alliance for Local Living Economies – www.livingeconomies.org
- ICLEI – Local Governments for Sustainability – www.iclei.org
- Institute for Local Self Reliance – www.ilsr.org
- Local 2020 – www.l2020.org
- Transition US – www.transitionus.org

Household Priorities

- The Daily Green – www.thedailygreen.com
- Depave – www.depave.org
- “Green Light for Green Behavior” - www.consumerreports.org/cro/magazine-archive/december-2009/home-garden/green-behavior/overview/green-behavior-ov.htm
- LOHAS - www.lohas.com
- Natural Marketing Institute - www.nmisolutions.com
- Permaculture – www.permaculture.org
- Permaculture Research Institute of the USA - www.permacultureusa.org
- “Top Green Consumer Trends for 2009: Which predictions came true?” - www.huffingtonpost.com/robyn-griggs-lawrence/top-green-consumer-trends_b_322433.html

New Models

- Big Horn Materials - www.bighornmaterials.com
- "Business, Resilience and Transition" - http://permacultureprinciples.com/principles_business.php
- Carbon Disclosure Project – www.cdproject.net
- EcoHaus – www.ecohaus.com
- Fabprefab – www.fabprefab.com
- Fairfax Lumber – www.fairfaxlumber.com
- Green Depot – www.greendepot.com
- LEED for Existing Buildings - www.usgbc.org/DisplayPage.aspx?CMSPageID=221
- Madsen Cycles – www.madsencycles.com
- Metaefficient - <http://www.metaefficient.com/bicycles/longtail-bikes-a-review-and-buying-guide.html>
- New Living – www.newliving.net
- Solar Living Institute - www.solarliving.org
- Tensen Eco Buildings - www.tensenbuildings.co.uk.
- Woodland Building Supply – www.woodlandbuildingsupply.com