

# REAL RETURNS FOR SUSTAINABLE COMMUNITIES WHITE PAPER

*Linking Communities and Investors  
for Sustainable Development*



Field Survey and Study: Findings  
2010-2011

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## INTRODUCTION

The Real Returns™ sustainable development study began in the spring of 2010 as an applied project of three fellows from the first cohort of the New York University CleanTech Executives program.

CleanTechExecs is a new, innovative program designed to “address the Cleantech human capital bottleneck.” Funded by the New York State Energy Research and Development Authority (NY-SERDA), the program is built on the idea that nurturing and expanding cleantech start-ups and new businesses in New York requires more than cutting edge technology; successful cleantech businesses need exceptional executive and entrepreneurial skill as well.

CleanTech Exec’s first cohort was composed of a diverse group of professionals from various industries, including renewable energy, finance, marketing and information technology.

### The Real Returns Team

The Real Returns Team came together around a shared interest in applying emergent crowd-sourcing and group self-organizing methods they had used successfully in other change initiatives to address common hurdles including the perceived failure of market mechanisms to fund sustainable development.

Our team brings together experience in finance, media, communications, journalism, change management, social marketing, community engagement, crowdsourcing, community mapping, social innovation and whole-systems ecological design.

## EXECUTIVE SUMMARY

The Real Returns team developed a field survey to test the hypothesis that community-driven, self-organized, and whole-system design, coupled with a better understanding of the needs of potentially interested institutional investors could spur greater

investment in sustainable development projects. Survey participants included experts in finance, economics and policy, along with cultural and social thought leaders from arenas often overlooked by conventional economic or technology development.

This paper outlines the reasons why a rapid growth in community-centered cleantech and sustainable development projects is urgently needed, and presents our conclusions on best practices to achieve those ends.

Results of the survey, along with an independent review of current literature, support the hypothesis that conventional, top-down project development faces significant obstacles, especially when applied to cleantech or sustainable development projects. At the same time, the successful experiences of many survey participants in using democratic, self-organizing community engagement tools (including cutting-edge organizational development processes, crowd-sourcing and community mapping) to start sustainability initiatives in their communities suggests that a skillfully designed, holistic and well-structured community engagement process can circumvent many of the common roadblocks to sustainable development for the benefit of all stakeholders.

Furthermore, the responses of financial professionals surveyed support the idea that there is significant interest in cleantech and sustainable development among investors of different classes. In addition, respondents indicated that community-originated and designed projects may have an even greater appeal to project developers because an upfront process has the potential to mitigate or eliminate the political risk of NIMBYism associated with conventional project development.

What is needed now is a comprehensive, beginning-to-end process that ties best practices for community organizing and crowd-sourcing to investors to rapidly grow community-centered cleantech and sustainable development projects.

## OVERVIEW OF THE PROBLEM— WHY COMMUNITIES NEED LOCAL SUSTAINABLE DEVELOPMENT

During spring and summer of 2010, an underwater gusher from BP's Deepwater Horizon oil rig built by Halliburton spilled an estimated 4.9 million barrels of crude oil and barrels of highly toxic dispersants into the Gulf of Mexico—arguably the single worst ecological disaster in U.S. history. While full consequences will not be known for years, there is no question that the spill has transformed the ecology and economy of the entire Gulf region forever.

Oil industry apologists have for years optimistically used the prospect of ultra-deepwater drilling to argue that the world has “plenty” of oil left, and that those who worry about supply are misguided pessimists. But the very fact that thousands more such wells must be drilled to meet the 21st century's massive energy appetite—enormous costs and staggering environmental risks of doing so notwithstanding— is a sign of how desperate our energy situation has become. If the BP disaster proves anything, it's that the age of cheap and easy oil is indeed over.

### Peak Oil

A ever-growing body of research now supports the idea that the world has already hit global “peak oil”, and that within only a few years the rate of global production will begin to decline, even as the superheated economies of developing nations demand an ever-greater share of what is produced. <sup>(1)</sup> <sup>(2)</sup> <sup>(3)</sup> <sup>(4)</sup> <sup>(5)</sup> This decline points to greater supply cost of exploration and extraction for harder to get oil adding to rising demand pressures on price.

Even mainstream groups such as the International Energy Agency—though they may be loath to actually admit to a peak—are increasingly vocal about the possibility of a near-term supply crisis. <sup>(6)</sup>

### How serious is the crisis?

In 2005, the United States Department of Energy commissioned an independent report on the economic implications of peak oil. The resulting report, “Peaking of World Oil Production: Impacts, Mitigation and Risk Management,” (commonly referred to as the Hirsch report, after its lead author) concluded that without embarking on a full-scale, “wartime” mitigation action at least 20 years before global oil peak, the world would experience “severe” economic consequences, especially in the realm of transportation of people and goods. The report described the reality of peak oil as “a classic risk management problem.” <sup>(7)</sup>

Commenting on the report later, lead author Robert Hirsch said:

“This problem is truly frightening. This problem is like nothing that I have ever seen in my lifetime, and the more you think about it and the more you look at the numbers, the more uneasy any observer gets. It's so easy to sound alarmist..., but there simply is no question that the risks here are beyond anything that any of us have ever dealt with. And the risks to our economies and our civilization are enormous.” <sup>(8)</sup>

The report focused on large-scale, industrial substitutions strategies for liquid fuels, assuming a business as usual pattern of energy consumption, inter- and trans-continental transportation of food and other necessities, and non-stop global economic growth as a main indicator of national prosperity. Mitigation approaches included conservation and efficiency as well as massive ramp-up of non-conventional oil production and coal-to-oil conversion.

### Fossil Fuelishness

Critics have suggested that these mitigation plans are ill-conceived and misguided, and do not take the full scope of the problem into account. The idea, for example, that industrial economies can covert coal-to-oil on a large scale depends on highly

optimistic and largely unquestioned estimates of future coal supplies. In fact, more credible studies have suggested that coal may soon be in as short supply as oil, with supplies peaking within a decade or two, if not much sooner. In fact, a recent study by energy experts Tadeusz Patzek and Gregory D. Croft published in the journal *Energy* suggests that global coal production may peak and decline as soon as 2011.<sup>(9)</sup> While coal reserves remain in the Southern Mid-West and Appalachia, deep-mine coal extraction in this settled region is much more labor intensive, higher risk, and therefore more expensive than the open-face “strip” mining of the sparsely populated West.

The West has provided most U.S. coal for electricity generation since the 1970s, but reaching Eastern reserves will be like deep water oil, more expensive, higher risk, labor intensive and polluting. Mountaintop Removal the alternative widely used in West Virginia, is cheaper, but devastating to settled communities, water safety, and long-term health of aquifers.<sup>(10)</sup>

Natural gas companies claim to have found large new sources to exploit in shale deposits around the country. However, in order to access those deposits, the companies must engage in a dangerous technique called hydrofracking that now threatens drinking water in communities all across the United States.<sup>(11)</sup> Furthermore, some experts now question whether these shale deposits offer nearly as much gas as the companies promise, as evidenced by early rapid decline rates of most wells.<sup>(12)</sup>

Oil, coal and natural gas are not the only resources facing constraints; there is increasing evidence of a growing freshwater crisis around the world—a crisis that will only be exacerbated by climate change.<sup>(13)</sup> The fact that virtually all of the “unconventional” fossil-fuels require large amounts of water to extract or process only casts more doubt on the wisdom of attempting to replace one non-renewable fossil-fuel resource with another.<sup>(14)</sup>

Increasingly, the evidence suggests that the world is facing fundamental limits to an economy based on extractive industries and non-renewable resources.

All fossil fuels are limited and their extraction polluting and costly, therefore attempts to keep the current energy regime and the economic model it supports going through simple substitution is likely to fail.<sup>(15)</sup>

Furthermore, in light of the rapidly unfolding global climate crisis, attempting to burn all of our remaining coal supplies – or buying into the ‘clean coal’ hype in an attempt to keep the system running for a little longer amounts to a global suicide pact.<sup>(16)(17)</sup> None of these “solutions” removes one gram of CO<sub>2</sub> from our energy production and use, nor do they provide a stable commodity price per kilowatt hour.

Given the potential severity of coming energy shortages and the slow response of national authorities in large part due to special interest obligations of national politicians arising from the current campaign finance regime, it falls upon local groups—citizens, their businesses, community associations, institutions, and NFPs—in cities, towns, and neighborhoods to organize, prepare themselves, and instruct their elected officials for what the Hirsch Report calls “a classic risk management problem.” Unfortunately, history shows that many past societies have ignored analogous environmental and resource risks at their peril, as extensively documented by Jerrod Diamond in his book *Collapse* and Joseph Tainter in *The Collapse of Complex Societies*.<sup>(18)(19)</sup>

Apart from wholesale, catastrophic collapse of societies and empires recent centuries provide numerous examples of less comprehensive yet nonetheless devastating collapses that arose, at least in part, from the failure of politics between business owners and central authorities to address imminent ecological and resource crises arising from large-scale business supply-chains threatening ecology until it was too late. While social collapse of the Mayans may seem farfetched, examples closer to our situation range from the Irish potato famine, which left one-third of the Irish population dead (caused by blight attacking a too narrow range of potato species bred for a deep-seated large-scale

intensive agricultural economy—an economy largely established by and serving foreign investors) to the collapse of canal and railroad transportation systems that ended up costing States significant amounts of taxpayer money to mitigate unwanted outcomes for workers, communities, and even private shareholders. The challenges now facing the US transportation system dependent on internal combustion engines and underlying our entire economy reflects some of the same failures of managers and politics, today driven by campaign finance, to address “classic risk management problems.” The economic conditions faced by property owners in Detroit due to the failure of Big Auto to respond to changing global business and environmental conditions reflects this pattern once again. Expected price rises for petroleum as demand heats up around the world in large developing economies are expected to further shock incumbent systems in a range of industries dependent upon hub-and-spoke global supply-chains.

## Global Climate Change

The United Nations’ International Panel on Climate Change (IPCC) now suggests that in a business as usual scenario, anthropogenic (human-caused) climate destabilization, largely arising from the release of carbon into the atmosphere through the burning of oil, coal, and natural gas, as well as global deforestation, “could lead to some impacts that are abrupt or irreversible, depending upon the rate and magnitude of the climate change.”<sup>(20)</sup>

According to the IPCC report, business as usual industrial growth along with increasing emissions will likely result in increases in extreme weather events, rising sea levels, and ever increasing extinction of species (20-30 percent of known species at risk). Many millions of people are expected to experience coastal flooding. Dry regions are projected to get dryer, wet regions wetter, with increase in both drought and flood risks. 2010 is on track to be the hottest climate year ever.<sup>(21)</sup>

Beyond the collective ethical responsibility for individuals and communities to lower their carbon

footprint to mitigate the severity of destabilized climate, communities also need to prepare themselves and their elected officials for unavoidable adverse climate events as well. Logic suggests that in addition to infrastructure upgrades and careful planning, the potential adverse effects of climate change on the global economic system provide yet another argument for building resilient local and regional economies.

## THE SOLUTION: SUSTAINABLE DEVELOPMENT OF LOCAL AND REGIONAL ECONOMIES

What the confluence of these forces suggests is that it probably will not be possible for the world to maintain business as usual, if business as usual means ever-growing resource consumption, reliance on scarce, in demand, and price volatile fossil fuels at the heart of a large complex economy.

What is the alternative? Numerous energy and resource experts from across the political spectrum have suggested that in addition to a full-scale wartime efforts to scale up the deployment of renewable and cleantech technologies, the converging crises of peak oil and climate change will require the world to return to far more local and regional economies, especially around basic goods, food and energy. We must take a more inclusive approach to cleantech – which must be “green tech” and renewable.

As energy investment banker and Bush Administration energy consultant Matthew Simmons put it,

“We need to think on a grander scale. We have to find, for instance, far more energy-efficient methods of transporting products by rail and ship rather than trucks. We have to liberate the workforce from office-based jobs and let them work in their village, through the modern technology of emails and faxes and video conferencing. We have to address the distribution of



food: Much of the food in supermarkets today comes from at least a continent or two away. We need to return to local farms. And we have to attack globalization: As energy prices soar, manufacturing things close to home will begin to make sense again.”<sup>(22)</sup>

In addition to large opportunity to reduce overall energy consumption—especially in the transportation sector—many of the most promising new cleantech or “green” technologies have greatest transformative potential at the local level. Distributed generation and microgrid technology allows for local generation of power, and can increase both efficiency and grid resilience.<sup>(23)</sup> Solar, wind, geo-thermal, and tidal power must all be designed to fit local conditions; at the same time, unlike centralized fossil fuel sources, they are distributed in nature and can be phased in by institutional, private and cooperative investment. These smaller-scale distributed power sources can also be more responsive to evolutionary change in component technologies and therefore more resilient than centralized systems requiring tremendous investment to update to improved generations of technology. These high costs serve as disincentives to investors to make upgrades when improved technologies become available on the market. They instead spend their money using politics to delay inevitable technological advance of dynamic capitalism with legislative blocking tactics. Biofuel insofar as it is reasonable (a debatable matter given the high energy inputs it requires) only makes sense when it is consumed near to the point of production.<sup>(24)</sup>

### **What is the potential for new projects and enterprises?**

Projects for sustainable development at the community level could include incubation of local and regional food systems, local manufacture of goods, community composting and biogas generation, redesign of water infrastructure, transportation, transit oriented development, distributed generation of renewable energy, adoption of energy effi-

cient building retrofits for existing buildings and high performance new construction, sustainably managed forestry programs, bioremediation of brownfield and superfund sites for community redevelopment, and others.

However, the ability for communities to attract investment capital for distributed and smaller local projects is thwarted in the United States by subsidized protected incumbent energy producers. Incentives to attract private investment in each state for market-based solutions for distributed and infrastructure projects are routinely blocked by simple campaign finance mechanisms which protect incumbent producers from new competition and dynamic markets. These mechanisms stick consumers with higher bills, represent an upward redistribution of consumer wealth, and prevent new entrepreneurs from attracting capital and gaining a foothold in markets for new technologies.

As an illustration of these simple mechanisms, in 2010, Senate committee head Alaska Senator Lisa Murkowski has blocked US carbon emission reduction legislation for the entire nation. Murkowski’s top campaign contributors include Exxon Mobil, Constellation Energy, and Edison Chouest Offshore. Murkowski received 80% of her campaign funds from electric utilities and oil and gas interests. Climate legislation was taken off the legislative table for the 2010 congressional session.<sup>(21)</sup>

While this delay gives coal plant investors more time to depreciate and phase-out their outdated coal-fired assets without affecting their profitability pro formas, it blocks realignment of incentives that would drive new long-term investment into market solutions for a new class of entrepreneurs and workers in renewable energy. Because of the entrenched power of fossil fuel corporations, addressing the problem head-on at the centralized legislative level has proved challenging. However, by acting at a local level to diversify and move toward distributed energy solutions that do benefit local economies and voters, the relative power of



climate-change denialist policy-makers and their backers would in theory be reduced.

Taking local action to moving beyond centralized energy systems would thus also mitigate the pernicious effects of centralized political power that goes along with those systems—power now used to block popular legislation reflecting new economic realities. Beginning to move toward community-based and locally-owned distributed energy solutions thus has the potential to create a virtuous circle, making our energy system and economy more competitive, resilient, easily up-gradable, and therefore sustainable.

## THE QUEST

Given the need for the rapid implementation of local and regional sustainable development projects, the Real Returns sustainability project focused on three questions:

- What prevents communities from organizing and funding initiatives that help them become more resilient, healthy and sustainable?
- How can we reduce transaction costs to attract patient capital and long-term investment to worthy local based projects?
- What services can our team provide to expedite progress in diverse locales?

## The Survey

To address these questions, our team conducted a wide-ranging survey of stakeholders in community development, real estate and energy project development. Respondents included mayors, planners, trustees, town council members, commissioners, renewable energy program coordinators, activists, visionaries, project developers, CEOs, and consultants in solar, wind, water, sustainable agriculture, as well as structured and project finance experts.

We conducted the survey over roughly three months in the spring of 2010. The team asked participants about their experience with sustainable development and development in general as well as their experience with community engagement processes. We concluded our interviews with free-form questions relevant to respondents' respective expertise.

Except in cases where the respondent gave explicit permission to be quoted, responses were given anonymously. We coupled survey results with independent research as well as insight obtained from the CleanTech Executives program to reach our conclusions.

## RESULTS: WHAT DOESN'T WORK?

Just as the old model of highly centralized, extractive energy policy is patently unsustainable, conventional practice for project development—including

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ing building and real estate as well as energy and infrastructure projects—is largely dysfunctional, slow, and surprisingly ineffective.

The survey revealed that more often than not, project development is top-down, technocratic and developer-led rather than collaborative and community-led – an observation that applied to cleantech projects as much as any other. Boards, politicians and communities are frequently reactive to the developer's poor communication and block many initiatives or slow them down with costly legal challenges. Lack of dialogue shortchanges innovation and the development of elegant whole-systems outcomes that successfully address a multitude of issues.

These perceived political risks can, in turn, discourage potential investors, especially for smaller projects. Furthermore, without clearer visibility into return on investment for cleantech and sustainable development, many investors remain skittish.

## How to Engage Communities?

Developers are increasingly aware of the need to engage local communities, especially with projects that have potential to create public opposition. As one European real estate developer put it, dealing with political issues is “the single most challenging element to address on programming for a project . . . it is critical that the project is viewed as positive for the common man.”

At the same time, he described his engagement process as “having a machine in place,” involving extensive P.R. and political outreach. He also expressed cynicism about grass-roots activism: activists, he said, claim to be environmentalists until they are paid off. “They latch on to boiler plate, reflexive comments,” he said, “because they make their money from stirring up their own supporters.”

The perceived difficulty in engaging community is one possible reason that many project developers try to avoid the process altogether. One solar power developer, for example, said that his company spends at most five percent of its time on community engagement for large projects, and none for smaller ones. When he does engage communities, his advice is to “figure out who decision-makers are as quickly and efficiently as possible. You can waste time talking to folks who do not have the juice to make something happen.”

However, the instinct to avoid community engagement upfront can bog down or stop a project later on. A town council-member from an upstate

New York community that banned wind-turbines described an increasingly common scenario in which wind developers quietly began leasing farmland in the community without local involvement. When the community found out, they protested and the town banned wind power.

“I’m in favor of wind energy,” said the council member. “But really, no one put out a particular, concrete plan on the table for us to look over. With no particular plan, I couldn’t vote any other way.”

Other upstate towns have banned wind-turbines as well. One renewable energy program coordinator in another upstate region described the pattern more starkly: “The big wind guys had some prime wind sites and they didn’t tell anybody about it and it pissed some people off, and now the towns

are just totally opposed to even small wind development.”

This unproductive approach to project development mirrors what the Project for Public Spaces, an independent community planning and education group, describes as

the “discipline-driven approach” to project development. According to PPS, the discipline-driven approach typically begins with narrow goals and is either developer or politically motivated. The discipline – in the previous case, wind development – defines the scope of the project. The project is heavily dependent on professionals and “experts,” is expensive, results in static designs and creates community resistance.

## Communities Want Sustainable Development—But How to Get There?

On the other hand several community leaders we surveyed told us that their communities *are* seeking – or are at least interested in – sustainable development projects, and believe that such projects

could both raise the quality of life and benefit the community economically.

However, community leaders face an information gap. There is a perception that both technology and incentives are shifting rapidly; accumulating knowledge on either is difficult. Most smaller communities lack the capacity to engage in independent research; most don't have any idea how to fund initiatives either. Regarding locally based, cooperative infrastructure projects that could offer a stable long-term tax-advantaged return to investors, respondents made statements like "we can't find venture capital for these projects." Or, "Wall Street has forgotten about us."

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As the mayor of a village in New York expressed it, "we are unfamiliar with many of our options. Our staff is small. There is nobody to do research," on the possibilities. Furthermore, no one had ever shown this mayor how to link development to funding sources, or demonstrated how sustainable development actually provides positive revenue opportunities and new enterprises to his community rather than being simply a drain on public finances for the sake of "being green." The idea that a cleantech or sustainable development project might actually provide revenue, or other financial incentives/offsets such as carbon credits or job creation to his municipality rather than further drain its already-strained budget was news to him.

The resulting lack of development progress can be dispiriting, especially to sustainable culture activists, many of whom we talked to—especially long-time veterans—expressed dejection and suffer burnout. Years of patient coalition building generating widespread community and even political support can be overturned quickly by greed, power and short-term (rather than sustainable long-term) profit motives.

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## **The opportunity cost of old ideas providing nothing new**

The cost, in terms of lost opportunity, is vast. For example, according to the Rochester Business Alliance, the city of Rochester, New York has nearly 3,000 acres of brownfields (unused former industrial sites that must be cleaned up from years of toxic contamination). <sup>(26)</sup> Often located close to neighborhoods, such sites provide significant opportunities for sustainable development projects including not just renewable energy but urban redevelopment for more walkable and transit-friendly neighborhoods, local businesses or even urban farming. But in spite of the potential, brownfield cleanup is painfully slow. According to the alliance, the city manages to clean up only 10 acres of brownfields a year. <sup>(27)</sup>

Private capital is not attracted to these projects despite what were believed to have been adequate tax incentives to spur a market solution for development from top-down corporate investors. Over the last 20 years however, these corporate investors have had direct access to an ever widening opportunity set for investment around the world, in what are widely perceived to be higher long-term growth consumer markets to which they must be seen to respond. Rochester is a perfect example of an up-state New York community whose long-term wealth and sustainability has been systematically transferred to other regions of the country, despite important community development assets like the University of Rochester and Rochester Institute of Technology. Syracuse, Albany, and Buffalo also share some of the same characteristics, as do communities all across the Mid-Atlantic and Great Lakes Regions.

## **Issues for Project Finance**

Conventional infrastructure and industrial projects are typically funded through a system of project finance, in which fixed-interest investors, or sponsors, partner with banks to make long-term loans to project authorities set-up specifically for the purpose of administering money and managing

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newly built assets. Loans are paid back over time through the cash-flow generated by the project, which often afford tax-advantages as well to investors when eligible by tax code to do so.

In principle, there should be no reason why sustainable development projects—whether wind-turbines, solar panels, walkable developments, public transit, water purification, waste or biomass processing, or even community food production should not be able to provide revenue opportunities to authorities that can secure project finance, as long as the projected return on investment creates a positive cash flow, with sound project governance and asset management expertise in place.

### **More certain returns than available from US equity and public debt markets**

Project finance professionals we surveyed did express interest in sustainable development projects. According to one professional, after being burned by two consecutive speculative investment bubbles (the dot.com and credit bubbles) in U.S. markets, many institutional investors—especially overseas investors—are seeking new vehicles for long-term, stable returns with a more modest but certain return on investment—the kind of returns that local, sustainable infrastructure projects could, in theory, provide.

However, “long-term investors have no appetite for early stage equity risk at the beginning of a venture, or political risk”, according one professional. They seek long-term asset cash-flow and tax-advantage based investments, not investments relying on equity market-based IPO (initial public offering) or corporate sale exits as central to the business model. For any infrastructure or development project, a developer or investor always faces the possibility that local opposition could bog-down or derail a project, raise transaction costs, and delay positive cash-flow, an important determinant of a project’s viability as a long-term investment.

Finance professionals suggest that delays in the US in aligning incentives toward new sustainable de-

velopment and infrastructure away from outdated incumbents represent a lost opportunity for international sovereign wealth, pension and insurance funds who are now seeking these long-term investments and returns elsewhere in the world.

### **Methods to mitigate risk and lessen transaction costs**

A key hurdle to attract capital into community-based distributed cleantech is lessening transaction costs and standardizing practices for smaller-scale locally-based projects. In order to mitigate such risks, our survey findings demonstrate that developers and investors must engage in expensive public relations campaigns and/or complicated political favor-carrying with local politicians – efforts which are counted as transaction costs toward getting a project done. For smaller, community-scaled projects, investors frequently perceive such costs as being too high relative to expected volume of cash-flow from the investment. Even with incentives that can generate high project ROI, the relative size of cash-flow from a small project can be prohibitive relative to the relatively fixed costs for origination which can be the same as for large projects. Even very high ROI investments may be rejected because of expected high transaction costs relative to the expected volume of cash-flow from a small project. The same is true for high ROI projects for which time to positive cash-flow can be protracted because of local politics.

### **ROI Visibility**

Structured finance professionals expressed the additional concern that many cleantech or sustainable development projects lack sufficient data to support long-term investments. Without clearer visibility into projected returns on investment, investors are likely to remain skittish.

“Data drives visibility for investors,” said one professional, “we haven’t reached the point where we have the hard data to support decisions and drive demand.” While retrofit programs using a wide range of new building material components and

service offerings are now broadly available, the net results of these programs and the value of specific components remain opaque to long-term investors.

In addition, adoption of retrofit incentives remains uneven across the country from state to state and economic region, so potential financial benefits that could accrue to long-term returns are not yet being systematically realized by current approaches to programs. Energy generation replacement projects using renewable sources while demonstrating constantly improving kilowatt per hour cost metrics in the US and abroad are also in their infancy and as yet have limited marketshare in the US power markets. They face significant long-term opposition from incumbent providers who use concentrated political power to slow down awareness, public opinion, and widespread adoption using legislative and regulatory blocks, and “Astroturf” propaganda. (28) (29)

Based on the responses of participants, greater visibility for institutional investors into the economics of all of these projects would greatly enhance the interest, understanding of opportunity and risk, and flow of money into the sector.

### **The Need for a Different Approach**

In 1999, the State of Delaware passed a law deregulating electricity markets, with rate caps to be phased out by 2005. When the time for phase-out arrived, electricity prices for Delaware, an importer of energy, skyrocketed, prompting the legislature to pass a law requiring the state to produce more of its own energy. Under that law, the state’s public services commissioner issued a request for proposals to energy companies for a new power plant.

Peter Mandelstam, a wind energy entrepreneur and founder of the wind energy company Blue Water Wind, responded, as did Conective and NRG, traditional energy companies with deep pockets that wanted to build either coal or natural gas plants.

To win the project, Blue Water Wind spent two years engaging with the local press and community.

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According to a Blue Water Wind executive we surveyed, the company’s community engagement included over 600 town hall meetings, educational outreach to schools, detailed visual renderings and countless local talk radio shows. In the end, Blue Water Wind won community backing and the bid to put in an offshore wind farm for 600 megawatts of power.

According to the executive, a significant argument in favor of the project over the conventional utilities was that Blue Water could guarantee stable prices for wind power over 30 years, thus helping to mitigate the risk associated with fossil-fuel price volatility. The success of this argument would seem to validate a finding of our survey—that many investors and communities are attracted to inherently stable returns cleantech and sustainability projects can offer.

A more important factor in Blue Water’s quick, surprising success—a success that stands in sharp contrast to the infamous Cape Wind project—lies in the nature of community engagement. In sharp contrast to the Blue Water Wind project, the Cape Wind project in Cape Cod, Massachusetts faces nearly 10 years of delay, largely because of community opposition.

The project, which was to be America’s first offshore wind farm, was initiated in 2000. After nine years of bruising political and public relations battles – battles which angered powerful figures and alienated members of the community – the Federal Government finally approved the wind farm. The battles are likely not over even though construction is underway; opposition groups have vowed to continue fighting the project in court.

While there were many differences between the Blue Water and Cape Wind projects, a key distinction arises from the fact Cape Wind was conceived of in response to an available resource—the waters off Nantucket Sound are a prime wind location—rather than to a request from the community.

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By contrast, Blue Water Wind approached Delaware in response to a request for proposals from the state, then built a relationship with the community; in effect, it offered a solution that made sense based on both community needs and the available wind resource.

The prescient move by Delaware's legislature to enact a straightforward requirement to produce more of its own energy in state is a stellar example of a market mechanism that will result in Delaware's leading the nation in successful off-shore wind generation, ahead of Massachusetts. Delaware has already begun new job creation for Blue Water Wind, and will cultivate new economy skill-building for a wide range of knowledge workers, skilled labor, emergent support services and supplier networks ahead of the rest of the nation. In addition, the project's success increases the likelihood that Delaware will become a source and exporter of technical and field expertise to the rest of the US, or the world, in the same way that Pittsburgh served the world for decades with a nuclear energy workforce.

Delaware, of course, as an importer of electricity, does not face the political blocking of alternative energy as will states with strong oil and gas lobbies. Delaware could achieve this goal because being an importer of electricity, they did not have coal producers as powerful political donors in-state who block change in other states where they do business. Every state that allows this blocking of competitive forces for alternative and renewable energy is setting back sustainability investment for their communities and majorities solely to protect the interests of a small number of shareholders, and their incumbent energy sector employees. These employees will ultimately work in renewable energy as coal-fired plants are phased out, but they will be late entrants to the job search and skill-building race.

## BEGIN WITH THE NEEDS OF THE COMMUNITY

In 2006, the visionary ecological designer and activist Rob Hopkins founded the first "Transition Town" movement in Totnes, U.K. Transition Towns is a grass-roots sustainability tool-kit for communities with a strong focus on inclusive participation. Hopkins participated in our survey and talked about what makes the Transition movement different.

"It's been four years, roughly," he says. "What's come out of that process, the Energy Descent Action Plan is a kind of Plan B for the area; a kind of resilience plan based on bottom-up responses and looking at social enterprises as a key driver in terms of community ownership of the development and assets. Really, we are looking at re-localization from practical point of view rather than a theoretical one."

Now, the Transition Town movement has been "officially" adopted by over 300 communities worldwide, with thousands more in the process of development—or as Hopkins says, "mulling" the process. Because each community develops its own plan, there is no one set of initiatives in the Transition Town network. Successful projects include developing an educated network, cultivating community gardens and local currencies as well as mobility, energy and food co-ops.

The Transition Town approach is characterized by a community-led, bottom-up approach to sustainability. Rather than attempt to influence national policy for change, the Transition movement focuses on creating momentum behind local initiatives that build community resilience in light of an uncertain resource future, especially in areas where people own land and homes rather than dense urban centers.

Developing a Transition Initiative, Hopkins says, should feel "more like a party than a protest march." It is this playful, creative and optimistic spirit that Hopkins believes has been central to the



success of the movement. Asked if any Transition Initiatives had stalled or failed, he could only come

***“It’s not a process that’s designed around the idea that the way you get people to change is by shocking them enough, making them feel sufficiently miserable that they do stuff . . . the energy that drives Transition is not gloom and doom but engaged optimism.”***

up with a handful of examples.

“The obstacles you come up against are, how do you sustain momentum, how do you finance things beyond the basics. But I think a lot of it comes down to group process, not only are people keen to do Transition, but do they actually have the skills . . . the ability to hold meetings without falling out with each other, that kind of stuff.”

To counter burnout, the Transition Town movement “designs celebration” throughout, and maintains a “Heart and Soul” group which includes professional counselors to provide support for those engaged in the work. “It’s not a process that’s designed around the idea that the way you get people to change is by shocking them enough, making them feel sufficiently miserable that they do stuff. Instead we say, ‘hey, this is an opportunity to do something really historic’ . . . We say that the energy that drives Transition is not gloom and doom but engaged optimism.”

Another group that has had remarkable success with a community engagement process is the Project for Public Spaces. PPS is a non-profit, community-centered organization founded by Fred Kent in 1975. It was inspired by the work of William H. White, a longtime journalist, author and observer of public spaces and the urban environment.

Since its founding, the Project for Public Spaces has completed projects in over 2,500 communities

in 40 countries and in all 50 United States. PPS calls their innovative community engagement process “placemaking.” Through a carefully designed process that involves engaging and inspiring local stakeholders with what is possible, on-the-ground observation and group mapmaking, PPS helps communities design public spaces that are more alive, human, vibrant and ultimately prosperous. Well known results of PPS’s approach include the rehabilitation of Bryant Park in midtown Manhattan, the redesign of Rockefeller Center, and the community planning and design of Discovery Green, the first downtown park in Houston, Texas. <sup>(30)</sup>

## **Cultural and Community Asset Mapping**

Wendy Brawer, a Real Returns team-member, is also the founder and director of Green Map System, an award-winning community-engagement and social mapping network that has taken root in 700 cities, towns and villages in 55 countries. It offers an adaptable framework, globally designed universal iconography and resources for youth, community, and professional mapmaking, including the Open Green Map, an interactive platform that is open to public viewpoints and available in desktop, mobile, and widget formats. Each locally-led Green Map project team determines their own process and goals as they identify, promote, and link their community’s green living sites, natural, cultural and social resources, benefiting residents, visitors and those seeking best practices to replicate in new locations. With over 550 published editions, it’s clear that by visually displaying the collective place-wisdom of a community, Green Maps allows for an organic, emergent process of creative co-design that can have dramatic results. The impacts are as diverse as the communities involved - in Indonesia, Green Mapmaking helped tsunami victims remember and rebuild; in Tokyo it sparked a successful community initiative to advocate for and build a citywide bike path network, in Manhattan it helped double the composting rate at the largest drop off center for food waste, and in virtu-

ally every participating locale, this ‘public relations service for the hometown environment’ helped build awareness, communication and organizing skills leading to significant beyond-the-map impacts.

The Martin Prosperity Institute at the University of Toronto provides another example of how mapping can be used to engage communities for positive change. The institute describes the process as cultural mapping. Survey participant Kevin Stolarick, the Research Director for the Institute, says “we take an integrated view of prosperity, looking beyond economic measure to include the importance of quality of place and the development of people’s creative potential.” Whereas a conventional city planner might ask “what is the best use of land,” as described by Stolarick, cultural planning is much broader.

Using tools like Green Map, Community Placemaking or cultural mapping can be a vital way to engage communities and help them dream, imagine and visualize a different kind of future.

### **Other Community Engagement Tools**

Over the last few decades, a number of individuals and groups have developed community engagement and change processes, including Open Space Technology, Appreciative Inquiry, Future Search and World Café. While each of these approaches has unique elements, each is based on the belief that given the right conditions, groups of people can self-organize to solve collective problems and build healthier, more creative and collaborative futures. As such, these approaches share many features of the crowdsourced and cultural mapping of Green Map System and the Martin Prosperity In-

stitute as well as the community placemaking techniques of the Project for Public Spaces.

Each of these techniques and approaches has a long track record of success in different contexts, from corporate restructuring to non-profit visioning, to community action.

For our survey we interviewed several change management/ community engagement specialists who gave numerous examples of how they facilitated community change using one or more of these techniques.

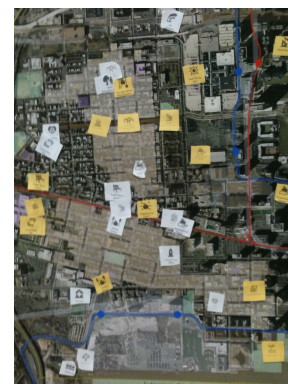
In one remarkable account, the Open Space Technology approach was used to build a sustainability movement almost from scratch in the town of Asheville, North Carolina. After only one Open Space event, the community organized itself into a number of sustainability groups that had not existed before. These new

groups applied for and received an EPA grant for an education and building retrofit program. Most importantly, because representatives of the city council participated in the event, they were able to



**Appreciative Inquiry/World Café community engagement event for the “Farms in City” project, Jersey City, New Jersey, August 2010**

**Community mapping for the “Farms in the City” project in Jersey City, New Jersey**



establish one of the nation’s first PACE programs – a municipal bond program in which the city bears upfront costs for building efficiency retrofits or renewable energy.

City council members were able to draft resolution language based on the inputs of a wide range of community participants in the Open Space event that received broad community support and swift resolution in council voting.

In another example of the powerful results that can arise from the application of new community engagement models, the Real Returns team collaborated with local activists in Jersey City, New Jersey in August of 2010. City planning officials were present, eager to participate in the collective community asset assessment using social mapmaking and collective engagement techniques.

The designed engagement culminated in a day-long World Cafe summit that integrated Green Mapmaking for 70 participants representing dozens of local community groups. Participants were united by a passion for healthy fresh and locally produced food in their communities, social equity and food security, environmental and sustainability education in their schools, and good local jobs or new enterprise creation to meet community needs they themselves identified.

Initial results of the meeting included the political mobilization of participants to oppose an unpopular but swiftly-moving construction development, the national promotion of local urban farming initiatives as finalists in a national magazine contest, a new agenda for city planning and new connections between once disparate community activist groups.

As a pilot project receiving national media attention, the Farms in the City event serves as a test for a wider initiative in Jersey City to address broader sustainability concerns of water, waste, distributed energy generation, green spaces, personal transport, efficiency retrofits, conversions of disused buildings, and brownfield remediation.

## THE MISSING PIECE: FINANCE

According to a December, 2009 report issued by the Social Investment Forum, a membership association for organizations involved in socially re-

sponsible or sustainable investing, “A broad swath of investors in the United States are practicing investment strategies that consider various corporate environmental, social, or governance (ESG) criteria in addition to traditional financial analysis.”

For its report, SIF surveyed investment consultants about prevailing attitudes on ESG. “The salient finding that emerges from this survey,” it reported, “is the nearly unanimous view that client interest in ESG and responsible investing issues is not a passing trend . . . Respondents cited several factors they thought will drive this growing client interest including climate change and impending climate regulation, a growing public interest in ‘green’ issues and social responsibility, and foundations’ embrace of mission-related investing.”

However, the survey also concluded that “investment consultants are still cautious about raising ESG issues with their clients,” and that several consultants suggested that “investment consultant firms in general, need to boost their in-house staff expertise on ESG issues to better cater to the growing client demand they anticipate.”

Our own survey revealed that in addition to investment consultants, most cleantech consultants are focused on engineering, rather than business or community orientation. They work within established technical parameters and do not advise their clients on the community engagement, local municipal or state politics issues that surfaced as important success factors for projects in our survey. They normally are equipped to offer technical assessments to project developers or property owners from within an individual cleantech specialization like solar or wind. They do not usually have the business expertise to recommend new management structures to clients, establish governance authorities, or structure new financial vehicles that would meet the long-term needs of varied classes of investors and communities with needs for distributed infrastructure.

## New legal vehicles

The rise of the “B Corp” as a new, socially conscious business entity as well as the increasing currency of the term “social entrepreneur” support the perception of a growing demand for sustainability-focused business. Fourteen states have legislation for a new form of corporation that merges non-profit and for-profit tenets, the L3C low-profit, for public benefit LLC.<sup>(31)</sup>

Open source development has become a widespread way to develop new computer applications, products and other income-generation projects. Non-traditional legal forms including cooperatives, collectives, and credit unions are proliferating to meet the new enterprise needs of cash-starved and chronically disinvested communities. Local currency mechanisms, and other approaches to resource sharing, local self-determination, and interdependence are booming.<sup>(32)</sup>

## Venture capital and fixed-interest investor classes

The survey indicated that the differences between venture capital and long-term fixed interest investors remain important distinctions to clarify for local communities pursuing sustainability projects.

Interviews suggested that individuals in planning, economic development, and activist roles may not fully understand the appropriate use of these different sources of capital, along with the benefits and risks for each type. Venture capital investors have substantial return hurdles normally met only by IPO (initial public offering) or corporate sales at high equity market valuations. Long-term fixed-interest investors use actuarial and tax-based investment guidelines as the determining factor for their investment choices, and require stable long-term returns over the length of a predetermined period, rather than the possibility of high exits timed in volatile and speculative markets.

Fixed-interest investor profiles and investment guidelines make them suitable for infrastructure, project finance, or other enterprises tied to local

communities that require assets to generate cash-flow over the long-term. Equity investors will still favor enabling technologies, products, and services that will become the essential building blocks and components which underpin distributed energy, local infrastructure and community enterprise projects, rather than the individual local projects themselves. These enabling technologies will pursue marketshare in their respective technology niches around the world, and endeavor to maximize their shareholder value for venture investors in preparation for IPO or corporate sale.

Addressing these basic knowledge, information and management skill needs at local community levels across the country would make an important contribution toward standardizing approaches to raising capital and lessening transaction costs for smaller projects. Reducing transaction costs by standardizing practices would contribute toward reaching a wider range of capital sources.

## Cleantech ROI stacks-up against oil?

However, recent evidence from diverse sources suggests that at present cleantech or sustainable projects can approach or exceed “conventional” project development’s returns on investment.

Depending on location, large scale wind development is now increasingly cost competitive with coal and natural gas for electricity generation.<sup>(33)</sup>

Furthermore, wind power has the advantage of stable costs over the lifetime of the wind farm. According to the executive our team surveyed, the ability of Blue Water Wind’s ability to guarantee price over 20 years was a significant advantage in winning its Delaware contract; unlike fossil fuel generation, once built, wind farms are not subject to supply price fluctuations.

Solar power has also recently become much more cost competitive, with the cost of photovoltaic solar panels dropping by nearly half in recent years, while the generation efficiency is rising. Two researchers from Duke University recently reported that in North Carolina the cost of solar powered



electricity has now dropped below that of nuclear power.<sup>(34)</sup>

Critics claim that renewable energies are only competitive because of extensive government subsidies; however, according to a report by Bloomberg New Energy Finance, governments in 2009 gave \$43 to \$46 billion to renewable energy through tax credits, feed-in tariffs, and alternative energy credits—while giving \$557 billion to support fossil fuels in 2008, according to the International Energy Agency. In other words, renewable energy is now cost-competitive with fossil-fuel and nuclear energy even though government subsidies for fossil fuels are 12 times that of renewables.<sup>(35)</sup>

### **Assets, asset classes, vehicles, and new investment platforms**

Our survey found that investment professionals are interested in local sustainable development projects as a potential asset class. As one professional put it, “Local infrastructure projects like these are very suitable to our investor profiles.” Project finance professionals also said that they expected the sustainable development industry to “grow immensely,” and the key is to “build a platform” for growth.

What then is needed to increase adoption of clean-tech and sustainable development projects? “We need to get beyond the bias we have toward centralized energy sources,” and develop ways to get small projects funded, said one professional.

One possible way to do so is to develop criteria for pooling communities and municipalities to create new vehicles for investment.

### **Reduced risk and transaction costs**

Several professionals expressed interest in the idea of self-designed, community-originated and locally-owned projects, suggesting that such a process can remove asset speculation from deals. Keeping the asset under community and long-term investor control further protects projects from accumulation by private equity or corporate buyers for

speculation. Establishing a local public authority has the additional advantage of giving communities flexibility to fund ongoing projects as green technologies evolve and develop. These local authorities will also become local sources of knowledge workers and executive employment.

Most importantly, a community-designed process has the advantage of mitigating political risk; a self-designed project with zoning, permitting, approvals, and legal issues already resolved is potentially very attractive to investors.

Connecting a grassroots, systems-based community engagement approach with new tools and approaches to project finance could speed sustainable development projects while offering stable, ethically based returns for a broad swath of investors. A solar project developer in our survey expressed the value of new “outside of the box” origination methods that would help developers more easily obtain appropriate permitted sites free and clear of time commitments, high transaction costs and political delays. As more and more project developers enter the business, the more obvious and easier sites are becoming much more competitive to procure. This project developer believed that community- and systems-based methods that can originate new projects faster with less risk and lower origination costs could merit and therefore be paid for by a long-term carried interest in cash-flows for the life of the project.

Our interviews indicate that community engagement approaches when tried have resulted in fast action amongst participants to establish action networks and engage in political processes once they come together in a positive generative open-collaboration experience. New community leaders emerge and decision-making can be accelerated. In order to channel private capital toward meeting demand for sustainable energy and infrastructure for a wide range of projects in a more diverse range of community situations, these methods for reducing risk and transaction cost merit further practical application and development.

## CONCLUSION

The urgency of the world's sustainability predicament could not be clearer. The challenges posed by global resource limits—most notably peak oil, but also limits to natural gas production, coal and other fossil fuels, suggest that the era of cheap energy is over. Coupled with the challenges posed by climate change and economic instability in an era of energy decline, the end of this era suggests that our current fossil-fuel-based global economic model cannot continue as it has.

In sharp contrast to the rapid growth of economies based on heavy resource consumption, the future is likely to be increasingly resource constrained, but with the potential to be technology enabled when the right financing and management mechanisms are widely available to communities and municipalities from coast to coast. National and global mitigation efforts will be vital for the transition to lower-energy, non-fossil-fuel based economy; but in contrast to the preceding era, local and regional action is likely to be increasingly relevant, as the high-energy, long-supply chain model of economic exchange will be strained. Monotechnic solutions of the centralized long-supply chain model will be rightly suspect due to their now well observed lack of resiliency, and so-called efficiency only through cash subsidies and other hidden costs to the environment.

In order to survive and thrive, in the post-globalist era, with increasing energy costs, sustainable development and “cleantech” projects—including but not limited to the development and installation of renewable energy projects, building efficiency retrofits, building of mass and personal transit, higher-density transit-oriented development, local and regional appropriately scaled industry, local food, and green infrastructure—will likely play a much greater role in communities if they are to thrive economically and socially. These projects will also provide a new source of meaningful employment for a wide variety of skilled workers and managers in local communities.

Conventional project development—typically top-down, developer-led and politically challenged—is in many ways poorly suited to meet the challenges of regional and local economies in an resource-challenged future, when these communities have time constraints to make rapid transitions.

By contrast, practitioners from a broad range of disciplines have developed new tools that can be used to engage communities to help them move nimbly, self-design, transfer knowledge, share and advance best practices, reduce risk, and ultimately attract funding from investors for sustainable development projects that meet the ecological and resource challenges of the 21st century. Finding ways to creatively apply such tools to the needs of each stakeholder in the project origination, design, development and financing chain should be the urgent task of all ecological designers, entrepreneurs, activists long-involved in the sustainability movement, along with financial investment, legal, and professionals from all other effected sectors. Armed with new professional knowledge, methods, and roadmaps, we would all then be in a better position to select and instruct qualified elected and appointed officials to address these whole-system challenges.

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As seen at [www.ecoCultural.info](http://www.ecoCultural.info), Wendy has taught at New York University and Cooper Union and spoken at more than 50 conferences and universities worldwide. She was appointed Designer in Residence at the Smithsonian National Design Museum, and in 2009 she was named as one of Utne's "50 Visionaries Changing Your World". An everyday cyclist, she is part of an innovative new coalition in her community and on an international shared transportation advisory group. Wendy's new ventures include a partnership in an organic blueberry farm, and participation in the first cohort of the CleanTech Executive program at NYU-Polytechnic. Wendy can be reached at [web@greenmap.org](mailto:web@greenmap.org).

**Brett Barndt** integrates 20 years of marketing, new product development and change management to respond to communications and business challenges. He brings teams together from marketplace and design research, user experience, interaction design, creative, technical, editorial, design, instructional media, filmmaking and video production, media, conference, and events planning and social science disciplines to create new media products and solutions. He integrates program management with organizational design and development, and recruitment to ensure that clients are well-equipped to implement, execute and monetize their new products. He has led new product development launches of online and

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Brett is a member of Open Space Institute, Appreciative Inquiry NYSIG, Usability Professionals Association, Organizational Development Network and Ad Club of New York. He received his M.S. from Carnegie Mellon University, and B.F.A from Indiana University of Pennsylvania and is a participant in the first cohort of CleanTech Executives program at NYU-Polytechnic. Brett can be contacted at [barndtbrett@gmail.com](mailto:barndtbrett@gmail.com).

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He has participated in public discussions on urban planning and alienation on CNN and as a panel member for the National Trust for Historic Preservation's Historic Schools initiative. His blog, City of the Future, has been quoted worldwide in discussions of sustainability. He currently writes extensively about solving to the global water crisis for The Columbia Water Center, part of Columbia University's Earth Institute.

Lakis has designed permaculture projects in Pennsylvania and Mississippi and has given presentations on green business design, sustainable social structures, energy, food systems, climate, plants, water and soil for various venues including universities, non-profit organizations and teaching centers.

In addition to his permaculture training, Lakis has studied community engagement and placemaking with the Project for Public Spaces, and is a member of the first cohort of NYU-Polytechnic's CleanTech Executive program. He is a graduate of The Columbia School of Journalism and Colorado College. Lakis can be contacted at [lpolycarpou@earthlink.net](mailto:lpolycarpou@earthlink.net).

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