

## Local Resilience and National Security\*

David W. Orr

“We must squarely face the awful fact that our security will become ever more perilous.”  
Joshua Cooper Ramo

Many years ago diplomat and historian George Kennan pointed out the critical connection between our internal health as a nation and our security. But it is still widely assumed that our national security depends almost entirely on our capacity to project military power beyond our shores and borders but has little to do with how we design, manage, and maintain the environmental scaffolding on which the country rests.

In the face of emerging threats, however, national security analysis is beginning to catch up with a fast changing reality. Former CIA director James Woolsey, for one, has become a prominent voice for smarter energy and climate policies as the foundation for national security. The Center for Naval Analysis and other Washington policy organizations have identified climate change as a major threat to U.S. security. The authors of the 2008 National Intelligence Estimate described climate change as a significant “threat multiplier.” And President Obama in his preface to the 2010 National Security Strategy notes that “our strength and influence abroad begins with steps we take at home.”

This paper, however, begins where such analysis stops. It is grounded in two observations the first of which is that problems posed by the transition to a post-fossil fuel energy system and the climate destabilization to which we are already committed are not just two more problems on a long list of vexing issues. They are, rather, central to virtually every other problem we face. How quickly and how wisely we make that

transition will affect virtually every other issue on the public agenda for the remainder of the century and beyond. Energy and climate policy, in other words, are linch-pin issues, resolution of which will lessen or eliminate virtually every other problem on the public agenda.

My second observation simply acknowledges the fact that we are increasingly vulnerable to acts of organized and random malice, technological accidents, infrastructure failures, and disruptions from climate destabilization, and combinations of all of the above. In these circumstances the only sensible conclusion is to rethink security in ways appropriate to a much more complex world. The age of massed armies crossing borders has given way to more complicated security challenges posed by networks of terrorists with access to heinous weaponry and by our own climate chickens coming home to roost in the form of longer and more severe heat waves and droughts, rapid ecological disorganization, larger storms, and rising sea levels—consequences of a century or more of burning fossil fuels.

This paper explores one necessary part of the response to these new realities that aims to increase societal resilience from the bottom up. It is proposed as a one part of a three-part effort to reshape national security policy. I do not dismiss the ongoing need for conventional military strength. But the nation's armed strength and "soft power" while certainly necessary components of security, are not, and cannot be, the whole of it. A larger vision of security must include the internal resilience, health, and sustainability of the nation and its capacity for self-renewal. True security, in other words, is inseparable from issues of education, preservation of soils, forests, waters, and climate stability and our capacity to achieve broadly based sustainable prosperity.

In this perspective America is less secure than at any time in its history despite expenditures in excess of \$1 trillion per year for the defense budget and war appropriations. The challenges of the 21<sup>st</sup> century are larger, more complex, and longer-lived than any we have faced before. But the most salient trait of our time is not necessarily the threats posed by terrorist groups, or the ongoing economic crisis, or even that posed by rapid climate change.<sup>1</sup> It is, rather, our seeming inability to respond coherently, effectively, and quickly to solve obvious problems before they grow into national and global crises at which point they may not be solvable. An obvious example is our collective failure, over four decades to establish a farsighted energy policy despite verbal commitments of every president since 1973 to raising energy efficiency and to the development of renewable energy sources. That failure, in turn, has amplified many other problems now grown into crises including the unnecessary expenditure of trillions of dollars paid to unfriendly governments to buy oil that we waste because of inefficiency, foreign policy entanglements in politically unstable regions, the resulting military burdens—financial and human—of fighting wars to maintain access to energy that we otherwise would not need, a political system corrupted and paralyzed by too much money, the loss of jobs and economic vitality as a result of misplaced priorities, and on the horizon the looming threat of rapid climate destabilization.

The failure to establish a farsighted energy policy also drives other problems: a dead zone off the Mississippi River the size of New Jersey which is a result of cheap fossil energy and overuse of nitrogen fertilizers, the damage to fisheries in the Gulf of Mexico from the BP Deepwater Horizon blowout due to lax regulatory oversight which,

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<sup>1</sup>Scientists at The Tyndall Centre for Climate Change Research, for example, suggest that we may soon reach the “threshold between dangerous and extremely dangerous climate change.” [Philosophical Transactions of the Royal Society](#) 2011 **369**

in turn, is a result of too much money in politics, the growing problem of obesity and other health problems attributable to a complicated but obvious causal chain that begins with cheap energy and the excessive power of farm and food lobbies. The same pattern holds true across many other areas such as suburban sprawl dependent on cheap oil for transportation, manufacturing systems that average 3200 pounds of waste for every pound of product placed on a store shelf, a clogged transportation system dependent on highly inefficient cars, and a national energy system that is, by one estimate, only 13% efficient.<sup>2</sup> In these and similar cases there is a growing mismatch between the scale, seriousness, and long-term nature of problems and our capacity to act.

For comparison, in the decade between 1940 and 1950 the country reorganized the economy to become the “arsenal of democracy,” fought and won wars in Europe and the Pacific, created the United Nations, passed the GI Bill to integrate returning servicemen into a growing economy, expanded Social Security, took the first faltering steps toward racial integration, contained the spread of Communism, and created the Marshall Plan to stabilize the societies and economies of Western Europe.

In today’s gridlocked political environment, however, we would have done none of these things. The reasons are many but two stand out. The first is simply the lack of an organizing principle for both domestic and foreign policy. The clear threats of Nazism and Communism once galvanized sufficient bi-partisan consensus for action. Our present long-term threats, however, arise mostly from our own behavior, profligacy, and negligence, and from the growing complexity of the global economy, not from

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<sup>2</sup> Robert Ayres and Edward Ayres, Crossing the Energy Divide. Philadelphia: Wharton School, 2009, p. 64.

dependably loathsome external enemies. Long ago cartoonist Walt Kelly captured the essence of the problem in Pogo's words: "we've met the enemy and he is us."

A second reason for our inability to respond to complex and long-term issues is the lingering power of obsolete organizations, organizational structures, and policies that were designed to manage the industrial economy of the 19<sup>th</sup> and 20<sup>th</sup> centuries. In the industrial era governments, corporations, and civic organizations were organized hierarchically. Leaders led, everyone else was supposed to follow. Cause and effect were presumed to be transparent and linear ( $2 + 2 = 4$ ), and problems could be broken into their components much like mass production on a factory assembly line. That system worked miracles measured in gross material output, the expansion of the consumer economy and in the transformation of rural societies to mass urban industrial nations. As circumstances and technology changed, however, the flaws of hierarchical organization such as "groupthink," rigidity, fragmentation, and the lack of foresight became more costly and often proved fatal to organizations that could not adapt. In the faster world of seven billion people and tens of thousands of non-governmental organizations and global corporations networked by phone, fax, internet, cell phones, and air travel, hierarchy and centralized control are often counter-productive. In other words, where information, capacity, know-how, and organizational structure are distributed through networks, hierarchical systems are less and less effective. Successful organizations of the future will be flexible, agile, disaggregated, networked, hyper-efficient in their use of energy and resources, and capable of learning and foresight. But we are still governed by organizations designed to compete in the vanishing industrial or even agrarian age.

There are many other factors at work as well, including a media system oriented to entertain and distract but not to inform. But the result of these and other factors is a backlog of unsolved and often ignored problems that include an exorbitant national debt, looming fiscal insolvency, waning global influence, the growing power of terrorist organizations and narcotics cartels, a wasteful hence unsustainable national lifestyle. We are ceding entire emergent industries, including advanced renewable energy technology, to China, Japan, India, and Germany. We are increasingly vulnerable to rapid climate de-stabilization as well as economic shocks, terrorism, cyber-terrorism, and environmental degradation and a combination of all of the above.

These problems will be amplified by sudden and unpredictable events like the terrorist attacks on September 11, 2001 or the financial collapse of 2008 that go by various names such as “black swans,” “fat tails,” “sand pile dynamics,” or “tipping points.”<sup>3</sup> Such occurrences are the by-product of complexity, global scale, and the sheer velocity of events that defy prediction. And they are becoming more frequent and more powerful with the growing complexity of the global system. In the words of one analyst “we must [accordingly] squarely face the awful fact that our security will become ever more perilous.”<sup>4</sup>

I could go on, but the point is clear: on virtually every indicator of health, economy, environment, and security America is heading in the wrong direction and becoming more susceptible to massive disruptions. Specifically, the systems which supply us with energy, food, materials, shelter, transportation, livelihood, and waste

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<sup>3</sup> Nicholas Taleb, *The Black Swan*. 2<sup>nd</sup> ed. New York: Random House, 2010; Ian Bremmer and Preston Keat, *The Fat Tail*. New York: Oxford University Press, 2010; Joshua Cooper Ramo, *The Age of the Unthinkable*. Boston: Back Bay Books, 2009; Malcolm Gladwell, *The Tipping Point*. Boston: Little Brown, 2000.

<sup>4</sup> Ramo, 97.

cycling are vulnerable in large part because they operate counter to the laws of thermodynamics, ecology, and the design of resilient systems. At best they exact inordinate ecological and economic costs; at worst they are impossible to defend from acts of God or human malice. This discrepancy between complex physical reality and the behavior of our social/economic systems and infrastructure lies at the heart of the problem described by the word “unsustainable.” Closing that gap is essential to the American future and there is no escape from the fact that we will pay for sustainability one way or another whether we get it or not.

True security, in other words, requires that we move beyond a system that is over-reliant on military force and even “soft power” to one that also advances the long-term sustainability and resilience of the nation itself. We must move from a strategy exclusively designed to control and contain external risks to a long-term strategy that includes internal adaptation to biophysical realities and is also consistent with our highest national values of democracy, opportunity for all, and openness.

For the emerging era, the concept of sustainability should be the new organizing principle for both domestic and foreign policy. It would serve to orient the national agenda much like the doctrine of containment did between 1947 and 1990. The idea of sustainability first came to prominence in the writings of Lester Brown in the early 1980s and in the Brundtland Commission report of 1987 ([Our Common Future](#)). The term implies many things including a rapid transition to energy efficiency and renewable energy sources as well as management of soils and forests for long-term health, elimination of waste, and changes in economic accounting necessary to preserve “natural capital” so that each generation leaves “as much and as good” for succeeding

generations. The realization of sustainability requires that we (a) see the world in all of its social, economic, and ecological complexity as one interactive system and (b) extend our time horizons sufficiently far into the future to foresee and forestall outcomes that would otherwise compromise the safety and well-being of future generations. In other words, the adoption and development of a sustainable society and a sustainable global civilization requires that we learn the art and science of systems thinking applied to governance, economy, and ethics over the long haul.

Sustainability, in short, must be the domestic and strategic imperative for the 21<sup>st</sup> century. Its chief characteristic is resilience—a concept long familiar to engineers, mathematicians, ecologists, designers, and military planners—which means the capacity of the system to “absorb disturbance; to undergo change and still retain essentially the same function, structure, and feedbacks.”<sup>5</sup> Resilient systems are characterized by redundancy so that failure of any one component does not cause the entire system to crash. They consist of diverse components that are easily repairable, widely distributed, cheap, locally supplied, durable, and loosely coupled. In Joshua Ramo’s words: “studies of food webs or trade networks, electrical systems and stock markets, find that as they become more densely linked they also become *less* resilient; networks, after all, propagate and even amplify disturbances.”<sup>6</sup>

Resilience presumes much of what is called “sustainable development,” but differs in one critical respect. Sustainability is sometimes described as an end-state as if it can be achieved once and for all. The goal of resilience, on the other hand, implies the

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<sup>5</sup> Brian Walker and David Salt, Resilience Thinking. Washington: Island Press, 2006, p. 32; See also the classic treatment of the subject by Amory and Hunter Lovins, Brittle Power, Andover, MA: Brick House Press, 1982, especially chapter 13; and Lovins et al., Small is Profitable. Snowmass: Rocky Mountain Institute, 2002; Albert-László Barabási, Linked. New York: Penguin, 2003. pp. 109-114.

<sup>6</sup> Ramo, p. 198.

capacity to make ongoing adjustments to changing political, economic, technological, and ecological conditions. In practical terms, resilience is a design strategy that aims to reduce vulnerabilities often by shortening supply lines, improving redundancy in critical areas, bolstering local capacity, and solving for a deeper pattern of dependence and disability. The less resilient the country, the more military power is needed to protect its far-flung interests and client states hence the greater the likelihood of wars fought for oil, water, food, and materials. But resilient societies need not send their young to fight and die in far-away battlefields because they lack wit, foresight, and design intelligence.

The present electrical grid stands as a good example of the problem. It consists of a relatively few large base-load generating stations supplied by a complex network of mines, highways, and railroads, connected through a network of transmission lines across the country and is vulnerable at virtually every point to failure, acts of God, human malice, and operator error. It is plausible that the entire system could be brought down by a few determined terrorists with access to a good hardware store and common explosives. The system is owned by a small number of highly subsidized corporations that for decades have thwarted the public interest in improved efficiency, distributed power, a smarter grid, and the rapid transition to renewable energy. The byproducts include ~40% of our greenhouse gas emissions, mercury contamination, radioactive wastes for which we have no good storage plan. Mostly by happenstance, it is a system designed to undermine climate stability, poison the public living downwind, leave behind a legacy of waste and ruin to our descendents, acidify oceans, undermine democracy, delay the transition to efficiency and renewable energy, and fleece a public gullible enough to believe its slogans like “cheap energy,” and “clean coal.”

Much of the same could be said of our food system which requires moving food hundreds or thousands of miles from where it is grown to where it is eaten. It, too, is vulnerable from the farm, through transportation routes, processing facilities, and distribution networks to supermarkets. It is vulnerable to extreme weather events, drought, floods, pests and blights, contamination, and deliberate sabotage. But even without such dire outcomes the food system generates high rates of obesity, type-two diabetes, heart disease, and cancer. It is maintained by large subsidies, lax regulation, and public ignorance of farming, food and nutrition. Similarly the internet, health system, transportation, the economy, and the financial systems are vulnerable to disruption as well. The U.S. military, in short, is asked to defend a way of life that is built on poorly designed systems at great cost both of national treasure and lives. It's time to rethink our well-being, viability, and security as a nation—from the bottom up and the inside out. Achieving sustainability, in other words, is a complex problem of politics and public awareness and is essential to the security and prosperity of the nation.

Most decision-makers, however, still operate with an outmoded map of reality describing a linear world and with obsolete concepts and tools for navigating in that world. Similarly, a large majority of Americans define themselves as “environmentalists” but know little about environmental science or Earth systems science. The public indifference to sustainability, accordingly, is rooted in a widespread ignorance of how the world works as a physical system and how we might re-calibrate our daily reality and economy to harmonize with natural systems and do so fairly, decently, and durably while enhancing national security by reducing our dependence on distant sources of

energy and materials which in turn would reduce our balance of payments deficit, improve air and water quality, and create opportunities to build long-term prosperity.

At the national level adoption of sustainability as an organizing concept for coherent national policy would require fundamental changes in policy, law, and organization of Federal agencies. A National Sustainability Act, a modern day equivalent of the National Security Act of 1947 or the National Environmental Policy Act of 1970 is needed to: (a) integrate policy across agencies and departments of the Federal government; (b) upgrade the capacity for foresight throughout all government departments and agencies; (c) align Federal policies, taxation, research and development expenditures, and regulations to coincide with the goals of sustainability; and (d) unify domestic and foreign policy toward common purposes. Above all, we need policy changes that foster and support the innovation and entrepreneurialism of America that will be essential to sustain our qualitative development as a people and a nation.

But thirty years of remarkably shortsighted and bitter partisanship has reduced our capacity as a nation to solve serious problems at the national level. In the absence of Federal leadership many states and regions created policies on specific issues such as carbon emissions (Western Governors Association and the New England Governors, Regional Greenhouse Gas Initiative). As important as such steps are, they are still limited by region and narrow in scope. Similarly, there are cities organized by ICLEI (International Council for Local Economic Initiatives) focused on climate action at the municipal level and a few cities aiming for broader policies to encourage sustainability on a larger scale. Others like the Business Alliance for Local Living Economies (BALLE) are working to develop economic alternatives. The U.S. Green Building Council has

developed design standards for neighborhood development. Each of these and similar efforts is promising, but again are limited in focus and scope. The political gridlock in Washington, however, points to a strategy of change that begins at the community, neighborhood, city, and regional levels and works up.

## II.

We live in an ever more tightly coupled, non-linear world in which seemingly small events anywhere can cause havoc everywhere. But while we have been learning—sometimes painfully as in the economic collapse of 2008—the dynamics of non-linear systems coupled with the lack of oversight, a revolution in the design of resilient systems has been quietly building momentum for nearly half a century. It includes dramatic changes in:

- architecture eg. buildings and communities powered entirely by efficiency and renewable energy;
- waste management in which all wastes are purified by natural processes;
- agriculture that mimics natural systems and so require few outside inputs;
- renewable energy technologies that are cost-competitive;
- advances in energy efficiency that eliminate need for fossil fuels;
- cradle to cradle production systems (industrial ecologies) that mimic natural systems creating no waste;
- urban planning and smart growth that build ecologically coherent cities;
- and
- tools for systems analysis applicable to public policies and resilient economies in a networked world.

These and other advances in science, technology, and policy innovations are the tools and technologies for a sustainable America—and world—secure by design hence more resilient in the face of disruptions whether by malice, accidents, human error, or acts of God. They are the necessary starting point for policies that are less provocative and less likely to engender global conflicts.

Although the word sustainability implies a systems approach, it has been attempted mostly as a series of one-off projects in which each part functions in isolation from the others. As a result we've made disconnected efforts in sustainable agriculture, forestry, green building, solar energy, green development, and so forth with the result that components function in isolation from others. Truly sustainable development will require a different and much more complex strategy—what Patrick Doherty calls “full spectrum sustainability”—in which the parts are designed to reinforce the integrity, resilience, prosperity, and durability of the whole. Full spectrum sustainability can only be done at a scale large enough to include essential systems including food, energy, economic development, education, infrastructure, and governance.

Second, the movement to advance sustainability, for many reasons, has been largely defined as an environmental cause with limited appeal to conservatives and to the business community. It is certainly about better environmental management, but that is not all that it is or all that it should be. For many reasons sustainability in today's world is fundamental to national security and economic prosperity which are core conservative interests. But building sustainability at the local and regional scale increases prosperity and reduces vulnerabilities associated with long-distance transport of food, energy, and materials. Shorter supply lines mean, among other things, that

wars in remote places, costly in treasure and lives, need not be fought. Grounded in local resources and renewable energy sources, sustainability builds local competence and resilient economies and buffers communities from external disturbances of whatever sort. For citizens, sustainability requires a high level of ecological awareness, practical competence, a larger measure of self-reliance, and neighborliness all of which are said to be the bedrock of a democratic society.

Sustainability, in other words, is the core of a national development strategy that is designed to enhance our security, build prosperity from the ground up, and reduce ecological damage, the risks of climate destabilization, and the necessity of fighting endless and unwinnable wars over dwindling resources. It is the other half of the equation for a nation secure by design and by military strength. Sustainable development across the U.S., in other words, can reduce the need for troop deployments, F-16s, and aircraft carriers deployed beyond our shores and borders. And it coincides with verbal commitments made by every U.S. President since Richard Nixon to achieve “energy independence.” But in a gridlocked political environment what do we do?

A small group consisting of persons from Oberlin College, the Department of Defense, the Environmental Protection Agency, the New America Foundation, and others met throughout 2010 to explore the feasibility of creating a three part strategy that includes: (1) a long-term effort to draft a new “national strategic narrative” around the core principles of sustainability; (2) immediate efforts at the Federal level to advance coherent transportation and smart-growth policies; and (3) a grass-roots effort in the

creation of a “National Security Network of Sustainability Sites, Cities, and Projects” described below.

In the third element of the larger strategy we aim to establish a network of organizations, cities, sites, and projects in which the various elements of sustainability (agriculture, forestry, solar energy, economy, policy, waste cycling, building, and education) are incorporated into integrated, full-spectrum models of sustainability in which the parts reinforce the resilience, sustainability, and prosperity of the larger whole. The network we propose would integrate local and regional projects into practical demonstrations of sustainability designed to foster the economic, environmental, and social growth of its surrounding community as well as the resilience needed to withstand systemic disruptions (larger storms, long droughts, heat waves, ecological stresses, economic downturns, terrorist acts, pandemics, etc). Our objective is to take the word “sustainable” out of the realm of abstraction and argument and make it a main street reality which is to say, simply how things are done in communities across the country in order to build a resilient and robust prosperity.

The Network is intended, as well, to join sustainability with issues of national security and thereby move the political discussion at the local level beyond the present Liberal v. Conservative impasse. For three decades both sides have been talking past each other and in the meantime we have become more vulnerable to a wider array of threats than ever before. We believe that there is common cause between security and environmental concerns as reverse sides of the same coin.

The criteria for membership in the network we propose might include some or all of the following:

- 1) A statement of goals and objectives for the city or project that integrates energy, economic development, transportation, education, land-use planning, and civic engagement;
- 2) Creation of a core decision group along with technical advisers with the capacity to monitor energy, water, carbon, nitrogen, and materials flows community-wide;
- 3) Selection (if appropriate) of an institutional or corporate drivers to catalyze the transition;
- 4) Public policy analysis to uncover specific institutional, financial, and regulatory barriers to resilience and recommend policy changes;
- 5) Development of land-use planning that incorporates agriculture, gardening, and renewable energy production;
- 6) Creation of plans for resilient economic development;
- 7) A community council to generate wide public support, raise awareness and create a robust civic commons;
- 8) Energy planning that includes the utilities, service companies, and others engaged in energy production, energy efficiency, deploying renewable energy, and smart grid design;
- 9) Mobilization of educational institutions including public schools, vocational schools, two-year colleges, and colleges and universities to equip all students with the basic understanding of how the earth works as a physical system; knowledge of the basic principles of energy, and provide the analytical and practical skills necessary to create and maintain a resilient community; and
- 10) Engagement of the arts community, media, religious groups, and other non-governmental organizations in the larger dialogue about sustainability.

In short, we propose that the network be composed of communities and projects with vigorous leadership, a demonstrated capacity and eagerness to act, and the capability to conceive and execute visionary plans across multiple sectors. Member communities would build on forty years of rapid advances in energy efficiency, renewable energy technologies, urban planning, green architecture, natural systems agriculture, sustainable forestry, biomimicry, industrial ecology, new concepts of steady-state economies, and ecoliteracy education, we now have the tools and technology to create communities and projects that join:

- ✓ distributed renewable energy systems,
- ✓ local and regional organic agriculture,

- ✓ forestry, biofuels, carbon sequestration,
- ✓ greater economic and financial self-reliance,
- ✓ zero-waste manufacturing based on biomimicry,
- ✓ enhanced civic capacity for planning, foresight, and implementation,
- ✓ multi-modal transportation systems,
- ✓ education across all levels that fosters ecological intelligence, design innovation, and critical thinking.

Building on the work of many other organizations over many years, the proposed network would be a catalyst for making sustainability the default setting of American society. It would also provide the structure for policy reform that joins disparate public, private, and civil sector activities toward the common purpose of national sustainability.

At the national level, a not for profit organization (in cooperation with Federal agencies such as the Environmental Protection Agency, Housing and Urban Development, the Department of Energy, Homeland Security, and Department of Transportation) could serve as the organizational hub to convene the various public and private organizations comprising the network, foundations, technical advisers, and executive council. We propose further that the network engage other organizations with compatible goals such as the Congress of New Urbanism, the Urban Land Institute, the U.S. Green Building Council, the Business Alliance for Local Living Economies, the Smart Growth Network, ICLEI, and others constituting a network of networks.

The proposed network would offer its members a variety of services including: financial planning, fund-raising assistance, research, connections, leadership development, legal and policy analysis, strategy development, technical counsel,

assistance with public relations and communication, and connection to other elements of the larger strategy at Federal and state levels. In short, we intend to: (1) enhance and amplify existing efforts to build full-spectrum sustainability that improves resilience of communities across the U.S.; (2) join disparate efforts into a larger national movement; (3) join issues of sustainability and economic development with those of security; and (4) lay the groundwork for a potent grass-roots political movement that joins the best of conservatism with the best of liberalism.

We do not propose a single model or one size fits all approach. To the contrary the particular priorities of member organizations, sites, cities, and projects will vary with local circumstances, scale, ecology, topography, and culture. Neither do we propose a new government program. As policy analyst Patrick Doherty proposes there is a third way between austerity on one hand and deficit spending on the other that requires only eliminating avoidable costs and waste endemic to unsustainable development at all scales and terminating tens of billions we pay to subsidize things we don't need and don't want. And because we cannot solve all problems we propose to target those issues known to have the greatest leverage on other problems. Our goal, in Wendell Berry's words, is to "solve for pattern," so that every solution solves multiple problems, while causing no new ones. We believe that three sectors offer high leverage for solving larger dysfunctional patterns, the first of which the energy sector. The opportunities of particular interest to us are those already underway that: (1) radically improve the efficiency of energy use incorporating the means to both deliver efficiency and pay for it from savings; (2) deploy the technology for two-way communication between the grid and energy using devices—what is called a smart-grid; and (3) promote a rapid

transition to local and regional renewable energy sources including solar, wind, biomass, agricultural wastes, and others such as landfill gas. The specific emphases would vary with local circumstances. The result would be sites that become models and catalysts for efficient, smart, distributed energy systems that improve the resilience of the electrical grid in the face of various threats, and generate local and regional businesses in deployment of efficiency and renewable sources of energy.

A second target could be local foodsheds including farming, processing, distribution, and nutrition. The network would include communities that are developing natural systems or sustainable agriculture, community supported farms, urban agriculture, establishment of greenbelts for agriculture, forestry, and biofuels, local processing and value-added systems, and efforts to improve nutrition. The goal is to rebuild farming and food systems in ways that: (1) improve local economies; (2) provide good career opportunities for young people and develop practical skills; (3) improve nutrition for all sectors of the community and reduce obesity; (4) expand awareness of the linkage between land health and human health; and (5) increase the security of the food supply.

A third target for the proposed network is education and specifically that which improves public understanding of how the world works as a physical system as well as what might be called ecological competence. We are particularly interested in community-scale cooperation between different kinds of educational organizations: public schools, vocational schools, community colleges, liberal arts colleges and universities. The specific goal is to engage different disciplines and connect students at all levels with concepts of practical sustainability and ecological design. Educational

institutions can be catalysts for the transition to sustainability. They have buying power, investments, access to knowledge, and to the formidable energy and creativity of young people. Harnessed to the goal of sustainability, the educational sector can help develop the knowledge necessary to the transition and the human and economic wherewithal necessary to launch it. The goal we seek is to foster a knowledgeable, ecologically literate, and competent public equipped with the practical skills necessary to effect the transition to sustainable communities.

By whatever combination of priorities, however, we aim to promote catalytic models of full-spectrum sustainability that enhance the capacity for communities and regions to withstand and/or rapidly recover from extreme weather events, acts of terrorism, power blackouts, economic crises, and larger disruptions, or as Col. Mykleby (USMC) puts it “communities that can take a gut punch and come back swinging.”

### III.

One possible objection is that the scope and scale is too large. But the fact is that if we are to secure the nation’s future in the face of multiple and novel threats including climatic de-stabilization, we will have to learn how to do locally appropriate integrated planning toward the goal of widely distributed resilience—everywhere and soon. The Federal government cannot do it all. Said differently, all resilience is local and must be designed to fit local ecologies, culture, history, and capabilities. Our choices are to wait until it’s too late and therefore do it badly, expensively, and ineffectively as a series of one-off projects, or to build national resilience while there’s time to do it systematically and systemically so that the parts reinforce the larger system and result in a nation more secure, stable, and prosperous, and less vulnerable to multiple threats.

Finally, the core ideas underlying this paper are explicit in much of the current global dialogue on sustainability. They are evident in the “transition town” movement in Britain. They are partially apparent in many national organizations such as the U.S. Green Building Council. And they go back as least as far as the writings of George Kennan, the visionary diplomat who developed the conceptual framework for what became our national Cold War strategy of containment. In 1954 he wrote:

I think we can no longer permit the economic advance of our country to take place so extensively at the cost of the devastation of its natural resources and its natural beauty. I think that we shall have to take stock in the most careful manner of what is still left to us out of the original fund of topsoil and mineral resources and water tables and forests and wild life . . . <sup>7</sup>

Sixteen years later Kennan went further to propose “a new and more promising focus of attention . . . a major international effort to restore the hope, the beauty, and the salubriousness of the natural environment.”<sup>8</sup> The difference from his time to our own is the awareness of the scope, scale, and duration of the problems (notably climate destabilization) confronting us and the growing technological capacity to rebuild the infrastructure of this and other nations but do so sustainably.

We have wasted much of any margin for error that we once had. As a result our future as a nation is increasingly clouded. There are certainly external threats to our security but we have amplified these by shortsighted domestic policies, notably the lack of a farsighted energy policy. Other threats, however, are of our own making. No foreign

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<sup>7</sup> George F. Kennan, *Realities of American Foreign Policy*. New York: Norton, 1954, p. 111.

<sup>8</sup> George F. Kennan, “To Prevent a World Wasteland,” *Foreign Affairs*, vol. 48; no 3 (April, 1970), p. 413.

terrorists ruined the city of Detroit or caused the massive oil eruption that damaged coastlines and fisheries in the Gulf of Mexico in the summer of 2010. Those and many more we've created ourselves. Now we must act with unprecedented ingenuity, discipline, and speed. We must be smarter and more imaginative than we've ever been both to restore our viability as a nation and resume our leadership in the global community.

\*This is a longer version of a paper co-authored with Col. Mark Mykleby (USMC). It draws heavily on the author's involvement in the "Oberlin Project" which is a joint project of the City of Oberlin and Oberlin College and an early prototype of full-spectrum sustainability.