

Suggestions on maximizing the potential of “Cool Communities” for Economic and Social Gain, as well as Environmental Gain

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Reducing taxes in our towns

We seem to be in the early stages of a recession. There is more financial anxiety and strain than at any time since the great depression. The residents of towns are facing higher food costs, higher energy costs, higher education costs, higher health care costs, and, with core inflation accelerating and the dollar falling, most likely higher costs across the board. Recessions are not times that businesses can expand their payrolls. Towns will have to curtail expenses as strongly as possible. One of the pleasanter expenses to curtail is energy costs. Some towns have made dramatic changes already, many others have not. These changes are probably the same that need to be made by the town's businesses and citizens. Our firm began a carbon reduction program in 2004, and by 2006 we had achieved a 21% carbon reduction while our sales grew, our payrolls grew, and our energy costs declined. This was all done with “low hanging fruit – activities for which the pay back was three years or less. However, all of our activities were cash positive in the same year! Towns can afford to do no less, and their citizens must expect this sort of vigilance.

Can school bus routes and plow truck routes be more efficient? Almost certainly! UPS never makes left turns to be more energy efficient. Can towns re-think their routes? Can they eliminate idling school buses? Can they put up signs throughout the town's parking lots to help everyone adapt, that say: “Thank You for Not Idling”? There are so many small and large steps that can be made, and each will make any pending downturn less severe in our state, and our recovery so much quicker and stronger!

Cutting the cost of doing business

Weathering recessions well involves being very cost conscious. It also involves working very hard to maintain the key people in a business, to maintain morale. Working to reduce energy costs not only provides real, concrete savings – an amazing amount of them in a very short time – it also can become a strong approach for strengthening morale. The company's workers know that the company is taking cost cutting very seriously, but trying to do the very best it can to make their jobs and lives secure. And it provides a wonderful social target in which they can take pride.

Further, it serves to teach them the steps that they need to take themselves in their own homes, in their own lives. Steps like driving less and car-pooling more; combining errands; switching to fluorescents; recycling; putting in programmable thermostats; tightening windows with extra insulation; and putting bags of leaves or straw against the basement walls. These and a thousand other small steps will make the high cost of fuel more manageable for Maine's people.

Helping the good people of our towns do more with their economic resources

This job of getting our people to reduce their cost of energy is a critical one, for towns, businesses, social agencies, and schools. Young people are a wonderful asset for anything. Getting them involved is critically important. While the dollar impact will be a motivating force for all, many younger people may be more motivated by the thought of being able to reduce the impact of

global warming. They can share this enthusiasm – and learn – through PTA presentations, science experiments. (The Scarborough High Eco Club not only did a wonderful job recycling, they also converted a school bus to run on veggie oil. This is oil that would have to be disposed of at a cost to all, were it not used to run the school bus. But this wonderful residue from restaurants is not only free; it produces very minimal greenhouse gases!) Our colleges and universities can focus on practical ways that Maine could actually benefit from economic development in response to the combined energy and environmental crisis. The University of Southern Maine is conducting studies on using algae to develop clean fuel. Wave Power (particularly appropriate for our island communities!) and Tidal power need study, refinement – and **implementation!** Our fine engineering program can focus on turning out engineers skilled in wind and solar energy applications. These are huge opportunities, and wonderful careers to keep our young people busy and happy in Maine, if we act aggressively to take a leadership position in this transition. “*Dirigo*” is not an idle motto, it is a necessity!

How big should towns be? The virtues of density

The tendency of towns to grow in dimension, even with stable or modestly declining populations, is clearly a wasteful one. Everyone’s commute is further, there are more roads to maintain and patrol, the school bus routes and driving times are increased, plowing a more costly affair – and the cost of this waste is borne by the townspeople. A town with 100 miles of maintained roadway – with associated water, sewer, and other utility lines – pays dramatically for the increase in police patrol costs, fire protection costs, school busing costs, plowing costs, and road maintenance costs when it moves to 200 miles of maintained roadway. Ultimately, they bear the cost of rehabilitating or tearing down the outdated central facilities which used to serve the needs of the same number of people. Some fortunate farmers may have been thrilled by their last “cash crop”, when they sold their farm for development. However, they no longer provide food for the town, and the average item on our plate today comes from 1,500 miles away – with high associated environmental costs - and provides upward pressure on the price of oil.

Maine cities are filled with old wooden tenements – most from one hundred to one hundred and fifty years old. They all have a bit of space around them, as required by the fire codes of their day. The result is very energy inefficient buildings, with the “green space” allocated in a very unusable manner. A further result of this sort of dreary layout is tenants who seek quite reasonably to find a spot that provides a bit more view, a better place for their children to play – a generally more uplifting environment. This is usually a few miles out of the city, and may be a low income or affordable housing development. The results of our collective failure to make the core city a more desirable place are urban sprawl, additional vehicle expense, additional gas expense, longer commute time (which means shorter parenting time), reduced agricultural potential, and a tremendous wave of needed public services – and public costs - like new schools, busing programs, policing, and roads maintained with the expectancy of higher usage – making them a priority in plowing, maintenance, and utilities. There are staggering private and public costs to our collective failure to find a mechanism to achieve more livable core cities.

Building and the problem of “agency”

One of the issues that every residential or commercial building confronts is that the builder/developer is not, under almost all circumstances, the person who pays the utility bills. His economic interest is best served by insulating “adequately”, but not spending quite as much as would an economic owner-occupier. The solution would seem to require much higher standards for building efficiency. It is better not to build a building than to build one that wastes our

collective resources. This is not only part of our energy solution, it is part of the solution for making our towns more desirable places to live, to raise a family. The consequence of a higher density urban population is that our schools will be built within walking distance, and amenities like grocery stores, drug stores, book stores, restaurants will move in to increase the pleasure of in-town living.

A rebuilt intown Lewiston as a demonstration project.

Lewiston, built by the river for its power, is typical of Maine towns. Mills grew up around the water power, and there was a great need for laboring people to provide the people power. Tenements were built for the new people moving in from the countryside, and shortly for immigrants – first many from Ireland during the period of the Irish potato famine, then many French-Canadians, when western wheat arrived by Railroad at a much lower cost, came in and many of the farms in Quebec could no longer support their large families. If we were confronted with that sort of population surge today, we would build very different buildings. Many would all be touching each other for energy efficiency at many areas, and building and roads would be sited for maximum solar gain. We would consider geo-thermal heating, and look for energy efficient solar panels. Evergreen Solar's new panels produce energy at .14/kwh. Households in Lewiston pay .15/kwh, counting both delivery and utilization. While the cost of building would be large, trade-off in low energy costs and low maintenance costs would go a long way towards providing affordability.



The large societal savings would come from the much more efficient delivery of governmental services to a more dense population. (Think of yourself as delivering newspapers. Are you more efficient when there are twelve subscribers in every building, or when you have a tenth of a mile

between each subscriber? There is no more elegant metaphor for the cost of delivering governmental services – be they plowing, police patrolling, school busing, street lighting.) All of us are much better off if we live in a compact area, with green space for recreation, beauty, and perhaps gardens as well. Our need for cars or driving time is greatly reduced.

Clearly, we can be much more energy efficient in new, strongly insulated buildings that are adjacent and tangential, using atriums and two or three sides of windows to provide light and fresh air. They can be constructed with parking beneath so as to leave the streets unburdened. Energy must be a combination of geo-thermal, air- harvesting, passive solar, solar hot water, solar panels, and wind. Can very energy efficient apartments/condos be so economical that they cover the cost of financing the new construction? If the answer is yes, the question is very easy. If the answer is no, then other questions must be asked.

There is a very heavy cost of many consumers commuting, and buying both cars and gas. The costs of providing new services for them in the surrounding towns – everything from schools and buses to updated utilities – are very heavy. And the apple orchard cannot grow on the house lot, or the entire neighborhood of house lots. In the meantime, the intown area wastes energy, decays and despirits the town, which senses its slow death. Are the combination of societal costs and individual costs sufficiently lower in new energy efficient buildings to justify the cost of new construction? If the answer is a clear “no,” the discussion is clearly ended. If it involves a wish that we had started this discussion thirty years ago, but that it is now too late, we must ask what the situation will look like in another thirty years. Can we afford to always wish that we had done something thirty years ago? If, on the other hand, we decide that we should not let a bad situation fester for a great many more years, the question then is how to fund the private and public interest to achieve this goal. While it is difficult to cost the externalities into a rate of return schedule, the answer is wrong if they are not included.

What should the relationship be between the town and its surroundings?

Vermont is encouraging a program for “locavores”, people who eat food from within a 100 mile radius. They estimate that this has the potential to add \$100,000,000.00 to the Vermont economy. Maine has more farmland than Vermont, and the desire for a safe food supply and organic food is growing strongly. Maine is a wonderful brand, and its products can benefit from that. Greenhouse tomatoes branded “Backyard Beauties” in Madison radiates success as it moves from 23,000 sq. ft. to 40,000 sq. ft. When we ski in Quebec in the winter, we always enjoy fresh strawberries grown on the Isle d’Orleans. The falling dollar will do a lot to increase the price competitiveness of Maine products. Brazil’s Real has doubled against the American Dollar, and it will require twice as many dollars to buy its products. The same sorts of price increases are happening throughout the areas that have been our food supply. The opportunity is absolutely huge! Can we really afford to pass up this sort of windfall?

Sugar beets are used as an ethanol crop in France, and there is a 16% enhancement of the total fuel supply by this means, dramatically better than corn. There are 150,000 acres that have moved out of potato production in Aroostook County in the last thirty years. Some has moved to Broccoli, some has moved to flax, and some has moved to weeds. We need to explore the potential for Sugar Beet based ethanol in Aroostook. Arjun Makhijani, president of the Institute for Energy & Environmental Research, suggested that duckweed grew in abundance, and could be harvested for ethanol with minimal effort.

While we look at the city, and its function seems clear, and we look at the country, and its function also seems clear, there is an ongoing mixing of the two This may be exacerbated by

misleading and inaccurate accounting. Taxes are lower in surrounding areas. But the cost of providing identical services is much higher in the country. Some costs are not identical. Some small towns run volunteer fire departments. County Sheriffs patrol the roads, as well as some State Police in some areas. (Is this activity properly costed?) Most areas have no recycling program, despite the need to not gradually degrade lands where this may wind up. And the factor of democracy – cheap and cost effective democracy – at work at town meetings is another factor in keeping taxes lower in small towns. “We don’t need that this year!” is a frequent comment. In the cities, there is a tendency to have a bit more bureaucracy, and a bit more governmental self-direction. The people in place often feel a need to provide the best quality programs that they can reasonably justify, and that can add costs.

Aside from the tendency to be more frugal in the country, and have less democratically-frugal decisions made in cities, there are other factors which truly distort the pricing of the two areas’ taxes. There are truly important services – like recycling – that are not provided to rural areas. As well, the city has the hospitals, institutions of higher learning, court houses, farm bureaus, and institutions that serve the needs of the broad area in reasonable proportion to their population, but the cities provide this service to the broad area without any charge. The maintenance of the roads by the hospitals, the police and fire protection, the water mains and public utilities, the street lights and traffic lights – all this is provided by the hub community without recompense. (The Maine Municipal Association has long proposed special sales taxes for service centers. They are clearly not the answer, because they do nothing to address the issue of supporting these on the basis of use. The sales tax would only increase the desirability of building a shopping complex just outside the city limits. Clearly a terrible idea!) Before looking for a solution, there is one more cost driver, and that is the needy citizen.

There are homeless people, and abandoned young people, and people with drug and alcohol abuse issues. These people need the services that only a city can offer, and tend to move into a larger urban area where these services are available. However, it is reasonable to assume that these unfortunate people come from the total population at large, and that the same proportion of the population develops these problems, and that the proportion originating in the country is likely to be similar to the proportion of the people that that area represents. But again, all the costs are borne by the city.

There probably is no ideal solution to these dilemmas. But they must be confronted so that the economics nudge the proper decisions to the fore. Maine was just visited by a group from British Columbia, who talked about the great advantage of thinking regionally. Clearly, this is the awkward path that city and country must travel together. The only way that this can work is if both win, and the pace is sufficiently slow that both can see the winning partnership develop. The services to the country must be as full as possible, but the democratic frugality of the small communities must find its way into the fabric of the larger town. Regrettably, I have no recipe for this. But the economics of the country must blossom as farms flourish. The USA has long spent the smallest percentage of its GDP of any country in the world on food. Like it or not, this is likely to change, as the falling dollar makes fruit from Chile more expensive in the same way that dramatically higher fuel prices make flying it here much more expensive. Farm economies can regroup, and the city must fit comfortably in its borders. That leaves beautiful, energy efficient, time efficient cities, filled with the amenities like grocery stores, restaurants, and various neighborhood facilities, with sufficient green space for aesthetic and recreational need; surrounded by flourishing farmlands, productive, clean, and accessible. What could be better than that?

Moving to a stronger regional government is a major challenge, but must be accomplished. Rural and urban areas must realize their common interdependence, and adjust their governmental infrastructure to manage this. Only the strong support of farm and rural economies will convince farmers that they must share the costs of their combined economic region equitably.

What is Maine's agricultural potential?

Maine blueberries, cranberries, potatoes, broccoli, tomatoes and apples are crops that have a large or building association with "Maine". Maine is the closest agricultural state to the urban centers of the Northern East Coast. "Organic" and "safe" food are major issues. They tie in to the brand, "Maine" extremely well. And the concerns about health and the concerns over food safety grow daily. This brings great economic potential to Maine's farms. To the degree that there is ethanol in our future, and it comes from Beet Greens or Duckweed, it brings economic potential to Maine.

If every person in Maine spent an extra \$200.00 on Maine agriculture, it would provide Maine with a \$250,000,000.00 economic boost. Now if we were to add in Massachusetts, or Connecticut, well, let's just say that the numbers get significantly bigger. The power of the American dollar to compete for world agricultural production is diminishing daily. As it diminishes the prospects and the need for Maine agriculture increases. The potential for adding economic strength while preserving our farmland is an exciting prospect.

Oakhurst has done a wonderful job in Maine and for Maine. Vermont, however, has its cows, its cheeses, its scenic vistas, and methane powered electric power from the gases released in barns. The residue is all wonderful fertilizer, and rather than releasing green house gases, these dairy farms produce carbon free power to the state. This is clearly within our potential, and needs to be encouraged in every possible way.

Economic Development

Our society has always been very business oriented. And there has always been a need for new jobs for our citizens, new markets for our retail and service industries. The *Economic Development Director* has always been a very important post. Everyone wants a new plant from General Motors or Toyota. Great jobs, and a committed new member of the corporate community. Unfortunately, it hasn't worked out that way. America has been off-shoring manufacturing jobs, and the news is regrettably about new big box retail, that tends to provide jobs that are considerably lower paying than manufacturing jobs, and have a presence in so many communities that none result in major contributory relationships. But the job of the Economic Development Director tends to focus on the new, although a select few will maintain contacts with local industries that need to expand. Regrettably, most of the new retail and other service jobs are financed with Tax Increment Financing, and a great many are structured so that the tax monies are spent exclusively on the road work in the area of the store, and cannot be spent on school systems, police or fire protection, or social benefits that any potential new workers or their families may require. (The role of the state highway department needs to be pondered at this point, as well. There is a tremendous subsidy to the interests of developers in this process from state taxpayers as well as local!) When this is coupled with the facts that these are operations designed to extract money from the community and ship it out of state to the company headquarters, before shipping a great deal of it out of the country, the economic benefits to the town are at best questionable.

An alternative would be to try a state program where ten towns in Maine had the opportunity to have their Economic Development Director position paid by the state, provided that they re-titled the position “Economic Manager” and had this person work with operations like Efficiency Maine and the Governor’s Carbon Challenge, or other programs that might, for example, be run by the zero emissions College of the Atlantic. They would be expected to reduce the costs of running the city, with great attention paid to energy expenditures. The state would be reimbursed by the town from its savings, and the “Economic Manager” from that moment would be expected to continue to reduce costs, and to consider every decision from a holistic financial perspective – “Does this really justify the expenditure, or is there a more cost effective way of doing things?” – so as to create a secular decline in the cost of running a city or a town. It would bring less headlines, but provide dramatically better results for the people of the town. This program should be available as a one year program for any town, but if it were as successful as I expect it would be, could be expanded to twenty cities and towns the next year. There would be tremendous opportunity for savings at peer group meetings and tours. This is the sort of program that the Maine Municipal Association might want to adopt. It is clearly important to get them on board as we look at an ultimate restructuring of governments to be more regional.

New technologies

Our society changes very quickly. Adapt or die has been a way of life, or non-life, for not only our businesses, but for species after species. On both the business and species level, great change seems to be called for by the combined threat of global warming and unaffordable fuels. Both Maine’s open social and political structure make rapid change more possible than in most other areas. No other state, for example, has elected two independent governors in the last thirty years. But it is necessary to restructure not just our communities and habits, but also our technologies. The world will be a wind world, a solar world, a tidal world, a wave world, a new technology world. It will be natural for companies seeking to expand (And rapid growth in demand for an industries products requires rapid growth in production) to look for areas where they have a skilled work force, but also to an area where the values of the people are supportive of the changes required.

Germany has created 170,000 new jobs in its solar industry. The key to the growth of its solar industry was Feed-in Tariffs, in which a utility was required to buy surplus power from clean energy producers. There, they gave an advantage to the price paid for solar, and this created their tremendous employment surge. Initially, it may seem troubling to ask one group to underwrite the economic interests of a second group. But the other morning, while stretching and exercising in front of the TV, I heard an interview with the CEO of the Southern Companies, a Georgia based power company. Their power is provided largely by coal, and he acknowledged that it was necessary to gradually change from that source. But he urged against doing anything too quickly, because the cost to the economy would be too high. He went on to mention that their return on capital was a modest 12%. I could not help but think that the risk of running a power company was considerably less than the risk of running a shoe store, and that there had been many years when our return on capital was less than 12%. And of course, Georgia has been plagued with terrible fires all year, and had less than ninety days of water supply for Atlanta as he spoke. I don’t know what Atlanta’s asthma rate is, but Sherman may have done less damage. Clearly, the cost of these externalities has not had proper accounting. It now seems perfectly obvious that the return on investment of a utility company needs to be strongly impacted by – among other factors – the degree to which its power is benign. And it is not a matter of providing advantage to a clean energy industry; it’s a question of providing ongoing electricity to all in a way that damages neither lungs, nor the environment, nor long term economic well-being. Perhaps for the first five to ten years, the ROI for solar, wind, tidal and wave power should be fifteen to eighteen percent,

slowly returning to a more normal rate (eight to ten percent real rate of return, depending on the efficiency of the operation) as the technologies become more common, and the risk or fear of risk diminishes. On the other hand, sources like coal might provide a return of 3% in year one, 2% the next, then 1%, then 0, then -1%. Things like this will nudge us to a more holistic approach to power generation. Much more importantly, however, they will lead to more jobs.

Should Maine lead the nation in moving to Feed-in Tariffs, it would be extremely attractive to the solar industry. (Michigan has a bill in the state legislature, and Hawaii is not far behind.) It would seem very achievable to tie in Maine's new law with new solar jobs. At this time, a majority of this country's production of both solar panel and wind turbines is exported. Clearly, these are industries that will play a large role in the world's future, and it would be very natural to attract these industries to a state that led the way in legislation that was so very beneficial to their economic interests. Evergreen Solar is in Marlboro, Mass, and they are now able to produce power at 0.14/kwh. The technology is gaining efficiency at a dramatic pace.

Longer Term: rethinking trains and highways

We have built a marvelous turnpike, and it is as well maintained a road as could be imagined. However, long after it was supposed to be free, it continues as a toll road. There may be some good in that. If both 95 and 295 were toll roads, they could clearly be managed so as to provide transportation money. (That, of course, is what a gas tax is for.) But Maine has a lower proportion of its produce moved by train than the average state. If Ethanol and agriculture are to be part of our future, a railroad infra-structure needs to be part of the plan. Should an East-West highway be built with private or public funds, some monies should be put aside to rebuild railroad infrastructure. It can move both people and goods much faster and much more economically than the auto or the truck. If Maine wants to play in the game, it needs the right equipment. Trains must be part of our future, and it is absurd to pour state money into an infrastructure that is not cost efficient, without helping more economic alternatives to blossom. In Europe, there are passenger trains that travel at 200 miles an hour, from city center to city center. Clearly, this is quicker, more energy efficient, and provides a tremendous advantage over a highway.

As we develop a bio-diesel industry and an ethanol industry, it clearly makes sense to provide incentives to use this option. Our gas tax structure needs to be re-thought, so as to move our transportation decisions in a way that benefits Maine most, and delivers goods and people most efficiently. Currently, Maine has a smaller proportion of its transport needs serviced by train than the USA as a whole. This needs to change, as the energy efficiency is by rail.

Our minds are very geared to the here and now, and our thoughts of justified investment tend to be – at the outset – seven or eight years. And that is as far as I can justify investments in our business, or most other things that I deal with. But the issues that we deal with will impact hundreds of years of the citizens of Maine. While many will pay for themselves in months, and others in years, there are others that it is harder to specify a pay off time frame. I believe that we must stretch our minds to consider a new time line, a new economic mind set, that allows a pay back period on some projects of twenty years, if the result is economic benefit for the next one hundred. This is a difficult process to handle, as we humans are notoriously “short-sighted.” While most of these thoughts do not require new math, we should not remove those that do from consideration, if we can quantify the benefits over the useful life with as much certainty as is given to humanity. Containing urban sprawl, for example, may or may not require this thought process. But reversing it almost certainly will.

New Industries for our future

This is clearly a time of great change. But that – for better or worse – could be said about most of man’s history. Happily, it is also a time of great opportunity – for new wind, wave, tidal and solar technologies. Despite our wonderful winters, Maine and most of the United States can probably make the change to these new technologies and wind up much healthier and safer. The same people who build the greatest radio towers in the world on route 302 can clearly build turbines. Tidal power has been talked of for decades. Hallowell International in Bangor has a new heating/cooling system that extracts heat or cold from the air at a reasonable cost. This can be a time of implementation, and new industry. Maine’s islands would all benefit from either wind or wave power. Our schools, our businesses, our governments and our people can clearly gear up to take advantage of this new opportunity, as we must educate geo-thermal engineers, biologists to help develop algae that assist in synthetic fuel production, and engineers to lead our move to solar, wind, wave and tidal power. Our agricultural community has tremendous opportunity with both food and methanol production. This is all within our grasp. All that is necessary is the determination to move forward to a clean and prosperous future, that we create and control. *Dirigo!* Now is the time! Lamentably, much beyond tomorrow may be too late,