

Going Green is All the Rave :

But is it good policy?

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Dire predictions of sea levels rising, intense hurricanes, and other significant climate change are believed to be the likely outcome of Global Warming. Many of those striving to raise awareness are concerned that, even with so much momentum gained, that we may not be able to do enough to impact the adverse future looming ahead. Others, particularly in the scientific community, believe that Global Warming is a natural planetary cycle which has not been caused or impacted by human actions. As a result of this global controversy, public agencies are now coming under increasing pressure to employ “Green” measures or face the political backlash. But “Going Green” is typically more expensive than traditional options. Beyond the questions of the underlying causes of Global Warming, government entities are faced with the final question. Is the up-front cost of the so-called Green premium a prudent expenditure of taxpayer dollars?

What are the Environmental Concerns?

Since the early 1960s, concern for the environment has been discussed in the context of public agencies’ responsibility to lead work to leave future generations with a less damaged environment, and to reduce the rate at which natural resources are depleted.¹ More recently, the discussion has focused on the catastrophic effects of global warming; dependence on oil from unstable regions of the world and the effects of exponentially rising greenhouse gas levels, in particular carbon dioxide (CO₂). According to the Pollution Issues website:

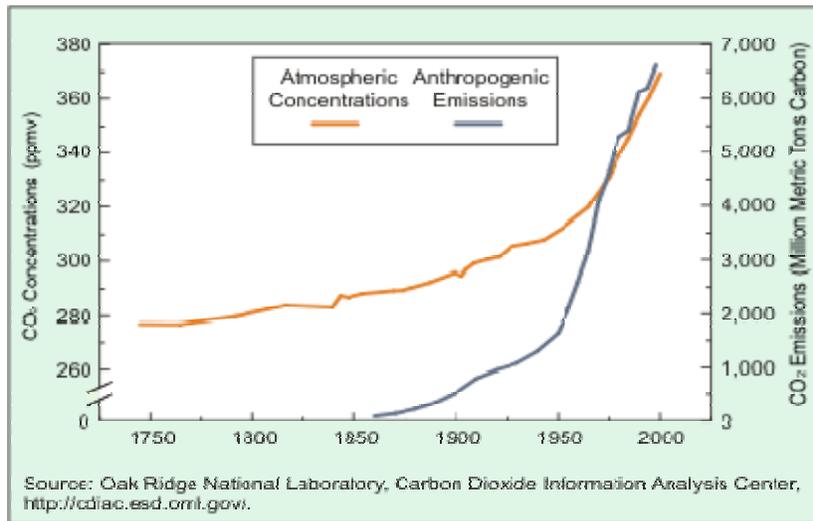
Just as the evidence is irrefutable that temperatures have risen in the last century, it's also well established that carbon dioxide in the Earth's atmosphere has increased about 30 percent, enhancing the atmosphere's ability to trap heat.²

¹ Bio-Activism, web - Thomson Gale, <http://www.pollutionissues.com/A-Bo/Activism.html>

² Warming to Cause Catastrophic Rise in Sea Level?, National Geographic, http://news.nationalgeographic.com/news/2004/04/0420_040420_earthday.html

In an article on oil dependence as it relates to national security, a commission of the United Nations Energy Future Coalition wrote:

This dependence translates into military and foreign policy risks because of the importance of protecting access to needed oil reserves in unstable areas. President Jimmy Carter put it clearly in the 1980 State of the Union address when he said: “An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force.”³



According to the National Energy Information Center (NEIC), these greenhouse gases reflect heat radiating away from the planet and thereby reduce the planetary cooling rate.⁴ The composition of these gases is predominantly water

³ Oil Dependence and National Security, UN Energy Future Coalition, http://www.energyfuturecoalition.org/biofuels/benefits_oil_dep_nat_security.htm#2

⁴ What are Greenhouse Gases, National Energy Information Center (NEIC) Website, <http://www.eia.doe.gov/oiaf/1605/ggcebro/chapter1.html>

vapor, carbon dioxide, methane, nitrous oxide, and aerosol propellants. All except the aerosol propellants originate from both natural and anthropogenic (human) sources. Approximately 90% of anthropogenic emissions come from energy consumption. A National Research Council study in 2001 concluded:

*“Greenhouse gases are accumulating in Earth’s atmosphere as a result of human activities, causing surface air temperatures and sub-surface ocean temperatures to rise. Temperatures are, in fact, rising. The changes observed over the last several decades are likely mostly due to human activities, but we cannot rule out that some significant part of these changes is also a reflection of natural variability.”*⁵

As the earth’s temperature rises and we experience climate change, greater concern for the future of the planet has developed. The previous quote demonstrates one of the difficulties facing public agencies deciding what to do. The scientific evidence on global warming conflicts; is it the fault of human activity or a natural occurrence? Many that believe human activity is the primary cause of global warming predominantly brought about by the use of natural resources for fuel.⁶ The depletion of natural resources leads not only to the buildup of the greenhouse gases but brings into question the availability of many natural resources in the future. A popular effort to meet the needs of the present without compromising the ability of future generations to meet their own needs, known as “Sustainability”, has become an integral part of the Green concept.

Sustainability has gained in popularity and has become a priority for all levels of government from international to local. It is viewed as a positive attribute for politicians, governments and businesses to be “Green”. Several international and national agencies have also raised awareness and concern over the ramifications of not going Green. Politicians, scientists and other public figures

⁵ [What are Greenhouse Gases](http://www.eia.doe.gov/oiaf/1605/ggcebro/chapter1.html), National Energy Information Center (NEIC) Website, <http://www.eia.doe.gov/oiaf/1605/ggcebro/chapter1.html>

⁶ [Warming to Cause Catastrophic Rise in Sea Level?](http://news.nationalgeographic.com/news/2004/04/0420_040420_earthday.html), National Geographic, http://news.nationalgeographic.com/news/2004/04/0420_040420_earthday.html

have been increasing pressure on those in charge of public agencies to expend public funds to achieve Green compliance.

Going Green

The term “Green” refers to practices that ensure environmental sustainability. “Going Green” has become a focus of advertising in business, politics and legislation, and strong emotions in environmental circles. Often used to demonstrate civic pride and socially responsible behavior, “Green” has taken on a whole new meaning. Public agencies must decide whether or not “Green” or sustainable practices are practical for the bottom line of public policy. Within the scientific and political communities, there is general agreement that **Global Warming** exists. Members of both communities, however, differ on whether the warming of the earth is a natural or manmade occurrence. Whether Global Warming is likely to lead to the dire cataclysmic predictions proffered by some is also a key point of disagreement. For many the question remains unanswered; for others, such as former Vice President (and Nobel Laureate) Al Gore, “The debate is over”.

Since there is disagreement over whether CO₂ is causing Global Warming and whether that is likely to lead to the catastrophic predictions, a public agency must determine where it stands on the issue of Global Warming. Can the agency’s efforts effect the predictions and warnings of politicians and the scientists, such as those participating in the United Nations Framework Convention on Climate Change who have warned that without “immediate” action there is no hope of preventing catastrophe. Or is it that the views of scientists, such as Arthur Robinson and Zachary Robinson, chemists at the Oregon Institute of Science and Medicine, which indicate that these efforts are unnecessary for the purpose of reducing global warming as it is their belief that the premise of the argument, that CO₂ causes global warming, is false and increasing CO₂ is acceptable? One could conclude that if CO₂ is not causing Global Warming then the additional expense to reduce CO₂ emissions would be frivolous.

The Promise of Green Compliance

There is a groundswell of effort to encourage compliance with Green philosophies in the operations of public agencies.⁷ Those at the forefront believe Green measures would protect the environment from damage, reduce greenhouse gas emissions and conserve natural resources from depletion by the use of energy efficient vehicles, efficient building construction and the use of public mandates to encourage efforts. Some of the specific promised benefits are:

- lower electric, gas and water utility costs
- environmentally effective use of building materials
- enhanced health and productivity
- long-term economic returns
- less dependence on foreign oil
- slowing of global warming and the predicted catastrophic effects
- less waste in landfills

These benefits sound good, so why would anyone question the use of public funds to achieve them? ***An Inconvenient Truth*** by Al Gore has been given much credit for raising public awareness and resulted in him being awarded the Nobel Prize.⁸ Yet it has also been touted as false or misleading by many, such as Mr. Justice Burton of the High Court in London. Mr. Justice Burton identified nine significant errors within the former presidential candidate's documentary as he assessed whether it should be shown to school children.⁹ Although there is

⁷ Climate Change of Increasing Concern to Voters All Over the World, Erik Kirschbaum. Reuters 12/13/2006, http://www.organicconsumers.org/articles/article_3588.cfm

⁸ From a Rapt Audience, a Call to Cool the Hype, NY Times, March 13, 2007 <http://www.nytimes.com/2007/03/13/science/13gore.html>

⁹ Al Gore's inconvenient judgment, The Times Online, October 11, 2007, http://business.timesonline.co.uk/tol/business/law/corporate_law/article2633838.ece

little disagreement that achieving the benefits would be a clear desire of any public agency, there is not a clear consensus that the Green alternatives will achieve them. Additionally there is an up-front cost premium that brings into question the true cost efficiency of “Green” and in particular, energy efficient measures.

The Cost to Go Green

Tight budgets, inflation, recession, war, accounting standards such as Public Employees’ Medical and Hospital Care Act, (PEMHCA), have all led to very strained budgets in the public sector. With these and other budgetary challenges, fiduciaries of public funds must face the fiscal considerations of employing Green options which are difficult to evaluate. Some agencies are a bit less pragmatic, and justify the expenditure by arguing it is the government’s responsibility to be good stewards for future generations. An example is the City of San Jose, CA, has a Green policy which states in part, “The purpose of a Citywide policy on green building is to demonstrate the City's commitment to environmental, economic, and social stewardship ... the City hopes to provide leadership by setting a community standard of sustainable/green building.”¹⁰ What is the most responsible course of action from a fiduciary and financial perspective?

While the environmental and human health benefits of green buildings and vehicles have been recognized, costs associated with these measures as compared to conventional measures are higher and question the prudence of the expense over the life of the measure. Because there are many Green measures, it helps in evaluating the true cost to focus on two significant measures that are typically employed by public agencies as part of an overall “Sustainability” plan; Green building and Green vehicle options.

Public facilities

¹⁰ City of San Jose Environmental Services, web site, http://business.timesonline.co.uk/tol/business/law/corporate_law/article2633838.ece

In 2003, the State of California conducted a study to justify its position to employ Green measures in state facilities. *The Costs and Financial Benefits of Green Buildings, A Report to California's Sustainable Building Task Force October 2003*¹¹, reports that minimal increases in upfront costs of about 2% to support Green design would, on average, result in life cycle savings of 20% of total construction costs (ten times the initial investment). These findings support the work of the *Sustainable Building Task Force* to build the "Greenest" state facilities possible. This report uses a life cycle costing (LCC) approach to evaluate and integrate the benefits and costs associated with sustainable buildings. The art and science of calculating true life cycle impacts and costs of green buildings, however, is still evolving and is not generally practiced.¹²

The widespread belief in the building industry is that building Green is significantly more expensive than traditional methods of development. In one study, California developers interviewed in 2001 estimated that Green buildings cost 10% to 15% more than conventional buildings. According to Wen-I Chang, owner of the LEED Gold certified GAIA Napa Valley hotel, the initial quote for the Green Premium for construction was about 25% over the standard product. "By the time we went to bid, it was more than double," Chang says. Solar panels that "experts" said would pay for themselves in three to seven years are more likely to take 10 to 13 to deliver payback.¹³

Many factors influence the disparity in costs of green options in buildings. Determining a precise "Green Premium" for a given project is difficult. Green buildings differ from those merely adding energy efficient features such as solar panels, fluorescent lights, etc. To help define the parameters of "Green" building, several standards have been developed in the building community. The most

¹¹ The Costs and Financial Benefits of Green Buildings, A Report to California's Sustainable Building Task Force October 2003, Greg Kats, <http://www.ciwmb.ca.gov/greenbuilding/Design/CostBenefit/Report.pdf>

¹² The Costs and Financial Benefits of Green Buildings, A Report to California's Sustainable Building Task Force, October 2003 Report, <http://www.usgbc.org/Docs/News/News477.pdf>

¹³ Hotels magazine, January 2008, <http://www.hotelsmag.com/article/CA6543595.html>

widely accepted of these are the building performance standards described by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed by the U.S. Green Building Council. It is used for comparing the relative “Greenness” of buildings. Other standards exist as well. LEED Certification is described in detail on the US Green Building Council’s website.¹⁴ Basically there are three different levels of green building certification - silver, gold, and platinum – which are awarded based on the total credits earned in each of several categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. LEED certification makes no attempt to value Green measures in financial terms, either up front or in projected savings. The implication is that such savings would be the result of a reduction in operational costs.

Green fleets

Another common Green measure employed by public agencies is using hybrid vehicles in place of conventional vehicles. The use of hybrid vehicles in emergency vehicle applications is not widespread. These vehicles have been exempted from federal and state legislation requiring a move to more efficient vehicles in state and federal use.¹⁵ The Department of Energy, which is responsible for the oversight of the Energy Policy Act (EPAAct), specifically exempts these vehicles as well.¹⁶ But for routine transportation typical of public agency fleet vehicles they do offer a viable alternative. Hybrid vehicle cost/benefit determinations are easier to make and provide a more concrete example to evaluate. The term “hybrid vehicle” most often refers to a Hybrid gasoline/electric vehicle. These include such vehicles as the Toyota Prius, Toyota Camry Hybrid, Ford Escape Hybrid, Honda Insight and others.¹⁷ They

¹⁴ US Green Building Council LEED Certification Standards,

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222>

¹⁵ Executive Order 13149, Greening The Government Through Federal Fleet And Transportation Efficiency,

<http://ceq.eh.doe.gov/nepa/regs/eos/eo13149.html>

¹⁶ Energy Policy Act, Department of Energy website,

<http://www1.eere.energy.gov/vehiclesandfuels/epact/state/index.html>

¹⁷ http://en.wikipedia.org/wiki/Hybrid_vehicle

may also include vehicles powered by alternative fuels, such as hydrogen and other emerging technologies focused on renewable or rechargeable means.

Although hybrid vehicles may need less gasoline and have lower maintenance expenses than their non-hybrid counterparts, the costs of operation are actually higher. Even accounting for federal tax credits (designed to encourage hybrid purchases), most hybrid vehicle's high sales price, insurance cost and related expenses will offset the fuel savings. A study by Edmunds Inc., found that during the first five years of ownership, a hybrid can cost as much as \$5,283 more than its non-hybrid counterpart.

Model	Edmunds.com True Market Value ®	Additional cost to own hybrid
Ford Escape Hybrid	\$50,521	
Ford Escape XLT AWD	\$47,092	\$3,429
Honda Accord Hybrid	\$49,972	
Honda Accord EX V-6	\$46,156	\$3,816
Honda Civic Hybrid	\$36,666	
Honda Civic LX	\$32,993	\$3,672
Toyota Prius Hybrid	\$37,893	
Toyota Corolla LE	\$32,610	\$5,283
Toyota Camry LE	\$37,974	-\$81

When comparing the costs of hybrids and conventional vehicles, analysts determined that gas would have to cost at least \$5.60 per gallon for hybrid drivers to break even if they drove 15,000 miles per year over the five years.¹⁸

¹⁸ Edmunds Automotive Network website, <http://www.edmunds.com/help/about/press/105827/article.html>

Alternately, they could break even if they drove at least 37,000 miles per vehicle per year over 5 years at the average gas price of \$2.28 per gallon (or approximately 28,000 miles per vehicle per year over 5 years at \$3.00 per gallon). If an agency were to replace fleet vehicles at 75,000 miles they would never recoup the initial investment.

As a means of comparing the relative costs of hybrids now on the road, here are the break-even points for hybrid ownership for each vehicle in the study. The public agency manager considering this option should assess the anticipated miles driven by the vehicle and its scope of use.

Model	Fuel Would Have to Cost...	Or a Driver Would Have to Exceed Annual Mileage of...
Ford Escape Hybrid (vs. Ford Escape XLT AWD)	\$5.60	37,000
Honda Accord Hybrid (vs. Honda Accord EX V-6)	\$9.20	60,000
Honda Civic Hybrid (vs. Honda Civic LX)	\$9.60	63,000
Toyota Prius (vs. Toyota Corolla)	\$10.10	66,500
Toyota Prius (vs. Toyota Camry)	\$2.28	15,000

As can be seen from both tables, manufacturers have not yet been able to achieve economies of scale and are passing the higher costs along to their buyers. Since current customer demand greatly exceeds supply, the vehicles are easily able to carry the premium transaction price.¹⁹ A recent article in The Wall Street Journal, entitled the *Economics of Hybrids* refers to hybrid vehicle bottom line costs as still being a “money-losing proposition”. The article looked at eight top selling hybrid vehicles and evaluated total cost of ownership including all costs and credits to determine what the break even point of ownership was.

¹⁹ Edmunds Automotive Network website, <http://www.edmunds.com/help/about/press/105827/article.html>

Using vehicles being driven 15,000 miles per year and gas costing \$2.79 per gallon, the “Years to break even” ranged from 1.6 years for the Lexus GS45h to 17.9 years for the Toyota Prius, with the average being 7.5 years.²⁰

From the examination of Green building and Green vehicle costs, it is evident there is an initial premium that takes a period of time to recoup over conventional alternatives. For vehicles, a 5 to 7 year payback is likely. How long will the agency typically keep a vehicle? If it is less than that time frame, the premium will never be recouped. For buildings, which are kept for a much longer period of time (50 year life expectancy), the benefits will likely be realized within the building’s lifetime. Looking at the two typical options presented and the time frames for return of investment the argument then becomes whether the promised benefits are worth the Green Premium.

The Decision to Go Green

All public agencies answer to taxpayers and to other public agencies. The question of what is acceptable from a fiduciary perspective is a judgment that is dependent on the interactions from these two entities. Mandates and expectations are set by the public served by the agency, *and* by other public agencies. An agency complying with mandates has little choice; compliance is a necessary, and therefore acceptable, expenditure of public funds. Beyond legal requirements, though, Green expenses can be assessed through an examination of the cost for changes versus their envisioned benefits. Looking at the examples discussed previously, the argument then becomes whether the promised benefits are worth the Green Premium. If the cost/benefits don’t pencil out, then this discussion may boil down to a question of whether it is good fiscal policy for public agencies to be environmental stewards.

²⁰ [The Economics of Hybrids](#), The Wall Street Journal, October 29, 2007 page R5

The decision to go Green is clarified if it focuses on two of the primary and more measurable goals, energy efficiency and reduction of Global Warming's catastrophic effects over the life expectancy of the intended change. This moves beyond one of the more controversial issues in the Global Warming debate; the reduction in CO₂ gas. There is still considerable disagreement on that topic, and decisions in the interest of public policy should be grounded in what is known and calculable.

The economic performance of the public agency also greatly impacts the level of appropriateness of using taxpayer dollars to mandate and employ Green measures. These expenditures need to be prioritized in the context of all of the agency goals. For example, an agency whose greatest concern is a crime rate that is at an unacceptable level should not be expending taxpayer funds on Green measures any more than they should other non crime fighting related efforts. However if the agency believes that Global Warming is a high priority that needs to be addressed by that agency, then the expenditure of public funds would be appropriate. Due to the newness of the Green movement, it is yet to be seen what the impacts will be for an agency that chooses incorrectly.

The importance of the continuous evaluation of the social, technological, environmental, economic and political landscapes as they relate to setting public agency priorities can not be overstated. Advances in Green technology and building design (LEED) are beginning to pay dividends for certain Green measures. Many of these advances will be improved and become less costly as their use becomes more widespread.

The means to ensure a determination that the public's funds are being expended in a fiscally appropriate manner while attaining Green compliance rests in gaining the public acceptance of the idea as a public priority. As can often be the case with an evaluation of public policy, there is no "right" or "wrong" answer. There is still skepticism and fanaticism regarding global warming leaving no definitive course of action to take. What is "right" is more a function of the community's

evaluation as to what expenditures are priorities for the agency. Thus weighing the costs of environmentally friendly options against other priorities such as public safety, infrastructure maintenance, libraries, etc. is the only method that makes sense.

Some events could affect the decision to employ or mandate Green measures in the future, and may have a significant impact on the determination of fiscal responsibility as it relates to investment in Green measures. Acts of terrorism, natural and man-made disasters, global conflicts, discovery of a cost effective Green fuel and economic recession all have impact on the determination of fiscal responsibility in expending public funds on Green measures.

From a purely financial perspective *waiting* for one of these events to occur before investing in Green measures could be good public policy. Taking, for example, the development of a cost effective fuel alternative then it is likely to accelerate the trend toward Green technologies becoming more cost effective? Since fuel is considered the largest component of cost savings and is believed by some to be the largest contributor to greenhouse gases, then it follows that a more cost effective fuel would lead to greater use of Green measures designed to exploit the fuel, driving down the cost of all Green measures, as demand increases. Of course if one believes that the climate change would be catastrophic before such discovery, then waiting may not be the best option.

The occurrence of a major disaster always brings change in public awareness. Following a manmade disaster there is often regulation and following a natural disaster there is always the scientific community that tries to explain its cause. It is felt that these disasters greatly heighten environmental concerns. Lately, these disasters are being tied to global warming. Large powerful storms, drought, glacial fragmentation, monsoons, flooding etc. have all had some level of causation that is recently being attributed to global warming. Due to the publicity of these events and the catastrophic losses as a result, there has been

a significant increase in environmental awareness. As resources become less available, and more costly, the public demands protections, making it more acceptable to mandate and invest in Green measures. A delay in implementing Green measures may lead to the agency having the finger pointed at it after one of these disasters for not getting ahead of the issue.

Conclusion

We have examined a framework for public agencies to evaluate the fiscal impacts of mandating Green compliant measures from the perspective of the agency's fiduciary responsibility in the expenditure of taxpayer funds. There is an increasing trend of public support for public agencies to take a role in environmental concerns and Green measures. Public agencies at all levels have taken responsibility to mandate and employ certain practices to protect the public in response to public pressure or findings of various professional and scientific communities. For example, having the Surgeon General warn people about the hazards of smoking was a response to information found by the medical community. There are trends and potential future events that will have an effect on what advances or measures may be needed for agencies to be "Green Compliant" or if being "Green Compliant" would even be desirable. Determining what is fiscally responsible rests in the perception of the community. Waiting for measures to be less costly will certainly lead to a better financial result, but waiting may also be too little to late.