

# Profitable Green Strategies

Insights | Actions | Results

Vol. 1 - No. 4

July-August, 2010

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**Sustainametrics** provides a suite of advisory services and tools to help small to medium sized businesses and government entities grow revenues and reduce costs by greening their operations, products and services.

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Sustainametrics offers a unique combination of:

- 1) comprehensive, systems approach to the entity,
- 2) formal, state of the art sustainability tools

Dear Chris,

The past few months have demonstrated both the optimism inherent in the sustainability community along with the realities of the challenges.

The Sustainable Brands Conference in June (Monterey, CA) served the attendees another dose of passion for the marketplace and the methodologies that work in encouraging consumers to adopt sustainable products and practices. Kristin York highlights the business drivers, positive trends and useful experiences that she encountered there.

For the downside, it has taken nearly three months for BP to stop the oil from flowing in the Gulf from the Deepwater Horizon platform blowout. On the one hand, one has to marvel at the technology that allows us to work with massive equipment a mile below the ocean's surface. On the other, we have once-again learned the lessons that words about safety as a priority ring hollow when humans are implicitly pressured to short-cut good practices. Mike Olson discusses the challenges of creating a High Reliability Organization to help us better understand the issues related to creating and maintaining sustainable infrastructures that support our modern global economy.

In addition, you will find a few quick takes that refer to interesting articles of note.

Finally, to help you address your sustainability challenges, find out more about us and how we can help you meet your sustainability objectives at [Sustainametrics](#).

[Chris Yalonis](#), Managing Partner

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## → Short Takes

There are numerous articles and insights related to sustainability that cross our desks every week. Synopses of several that have caught our attention that may be of interest to you follow below.

The Ugly Epoch. Greenhouse gases stay in the atmosphere for a long time, too long. The National Academy of Sciences released a new report sponsored by the Energy Foundation and the EPA on the impact of our modern footprint left unchecked. The future outlook is a reinforcement of the stark forecasts we have heard before. But we need these reminders as we are distracted by the immediacy of economic limits and the need for jobs today. Climate model results suggest that if these distractions persist for several years, we will need to take much more drastic action in the future. Part of the puzzle is the role of water vapor in mitigating global warming that I would like to understand better. None-the-less, we need to prepare even if less

and training, and

3) a focus on profit and business value enhancement.

Through Sustainametrics customized approaches, guides, knowledge bases as well as licensable software, a large number of organizations will be able to affordably plan and execute initiatives to reduce their environmental impact, maximize efficiencies, green their products and services, and improve their brand/corporate value and profitability while improving their financial bottom line.

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## Services

research/planning and assessments

energy/climate program planning

water/carbon/waste reduction

green certifications

eco-market opportunity analysis and strategies for

desirable choices such as nuclear power need to be pursued. Read the complete article [here](#).

Solar Nanopillars. Nanotechnology continues to amaze us who have our years of experience in the macro engineering world. Carbon nanotubes are shown to have additional capabilities to improve the performance of solar cells by capturing more of the light to improve efficiency. Read the entire article [here](#).

Waterworld's Hero Helps Gulf Cleanup. OK, my interest in Kevin Costner movies declined following "Waterworld" but his fascination in things ocean is proving to be of use as his water-oil separation centrifuges are being deployed to help remove oil from the gulf. Read the complete article [here](#).

Shifts in Sustainability Psychology. Learning is a journey and as advocates of sustainability, we travel that road. John Marshall Roberts identifies five simple lessons starting with the recognition that systemic thinking is being used more to foster pragmatic dialogue on the challenges and solutions. The application of system dynamics is a core competency at Sustainametrics that can be used to help stakeholders overcome their preconceived (confirmation) biases, jointly develop deep understanding of issues, and create an ongoing resolution of complex social and technical challenges. Read about systemic thinking and the other simple lessons in the complete article [here](#).

Unintended Consequences with Wal-Mart's Green Strategy? Bob Lurie of the Monitor Group suggests some potential unintended consequences to Wal-Mart's Green Strategy starting with "Wal-Mart shareholders win while everyone else pays." Many readers found his points a bit questionable and contributed some useful counterpoints in the comments. However, it's good to check contrary views to test our own potential biases. Find the complete article [here](#).

Living Principles for Designing Our World. At a macro level, we generally appreciate the challenge of depending upon a consumption economy to provide jobs and uplift the majority of humanity to developed economies standards of living. But what is an alternative that doesn't imply a return to the equivalent of the rural horse-and-buggy era (i.e., pre industrial pollution)? One group that is helping address that question is the Living Principles community. From their website - "The Living Principles for Design aim to guide purposeful action, celebrating and popularizing the efforts of those who use design thinking to create positive cultural change." Visit their website [here](#).

Urgent Evoke Projects Update. Some raise the question of whether bottoms-up social movements can solve the world's complex problems. One small start is demonstrated with the [Urgent Evoke](#) online community and the seed projects that several participants have initiated. Enthusiasm can scale. See the Urgent Evoke *Global Giving Challenge* [here](#).

## → Sustainable Brands, Monterey 2010

### Highlights from Sustainametrics

Sustainable Brands Conference, produced by [Sustainable Life Media](#) is the international gathering of leaders in business, design, marketing, innovation and entrepreneurship. Recently, one half of the Sustainametrics team participated in the 2010 conference in Monterey, Ca. We mingled, watched, learned and exchanged ideas with 600 of the most interesting and committed people in the sustainability profession.

Contemporary thought leaders and noted authors like [Peter Senge](#), author of [The Necessary Revolution](#), [Andrew Winston](#), author of [Green to Gold](#), and [Gil Friend](#) from [Natural Logic](#) and the author of [The Truth About Green Business](#) led inspiring plenary sessions about disruptive and progressive ideas taking place in coporate America. Business leaders in sustainability such as [John Viera](#) from Ford Motor Company, [Tom LaForge](#) from Coca Cola, and [Mike Harrison](#) from Timberland shared how Fortune 500 companies are embedding sustainable practices in their operations and driving innovation throughout their value chain.

revenue growth

sustainability  
training

The theme of this year's conference was "[The Power of And](#)" - a reminder that business profitability and environmental/social responsibility are not mutually exclusive. Clearly the hottest topics of the conference were innovative design for sustainability, social media impacts, and changing consumer demands.

Innovative design for sustainability is really about designing for behavior change. [Bruce MacGregor](#) of [IDEO](#) led an upbeat session around the positive aspects of change, enforcing "joy not fear" and tapping into the rising momentum of responsibility to drive change. He provided entertaining examples of how correcting behavior is less effective than inviting the desired behavior and how tapping into the energy of the crowd can create viral momentum for change.

Social media was frequently called out as the most effective way to take the pulse of changing consumer demand. Based on research by [Idea Couture](#), companies don't talk to their customers enough and consumers feel like they can't change companies. This situation sets up the perfect scenario for rampant grass roots consumer led campaigns via social media. By listening to customers and realizing that being green is no longer an expectation, companies can learn more about the expectation of the awareness consumer.

Of the many conferences and training sessions I've attended in my career, Sustainable Brands has earned most favored status. It is inspiring, engaging and incredibly informative. In a world changing at an unprecedented rate, this conference gathers business leaders committed to sustainability to share ideas and resources. The most important issues of our time are up for intense discussion and debate over the 4-day conference. Ground breaking innovation is unveiled and the pulse of the consumer is considered from all fronts.

It's no wonder this conference attracts such a pedigree of progressive thought leaders from many of the leading corporations in the world. The only question is - why aren't they all there?

[Kristin York](#), Partner



## High Reliability Organizations and Sustainability

### Unsung Operations Heroes Rein in Complexity

We don't often question who is keeping the lights on, the water flowing, the wheels turning, and at the same time, is helping keep the planet green. We also don't often strongly associate reliability, safety, and sustainability. However, the recent [BP/Transocean Deepwater Horizon well blowout](#) suggests that we should.

This BP accident has forced a number of investigations of how a company that prided itself on its focus on safety could cause the environmental disaster equivalent of a [Nassim Nicholas Taleb's "Black Swan" event](#) (also see [Black Swan Theory](#)). It will be months before an official report is expected to define the sequence of decisions and root causes that spawned the initial blowout. It will also take time to assess the subsequent multiple attempts to shutdown the well and contain the spewing oil. None-the-less, other disasters suggest likely ingredients that fostered bad decisions that enabled the blowout and stymied the containment.

One that is particularly telling is the 1977 airplane disaster that occurred in Tenerife when a KLM 747 on takeoff in fog collided with a Pan Am 747 that was back-taxiing in the center of the runway ([KLM 4805 accident](#)). 583 lives were lost in this accident born of human decision-making errors. What makes this a notable lesson in human fallibility is the fact that the pilot of KLM 747 (Capt. Jacob Van Zanten) was the chief safety officer for KLM who was well-known for his methodical approach to flying and his spotless record.

So what went wrong that day and in his decision-making? Ori and Rom Brafman in their book [Sway: The Irresistible Pull Irrational Behavior](#) relate the events and the likely thinking that influenced Capt. Van Zanten to make the ultimately fatal decision to take-off in fog without a

verified explicit clearance to do so. These included distracted tower operators, miscommunication, closing foggy weather, work hours limit pressure, lack of passenger accommodations at the diversion airport, a reputation for on-time performance, and takeoff delays. The emotional tension created by conflicting priorities ultimately drove the fatal choice that even the co-pilot could not (or would not) correct. One result today is that airlines foster [Crew Resource Management](#) training to help prevent authority and emotional pressures from overwhelming rationality in flight crew decision-making.

It will be no surprise if similar forces are found to be present in the Deepwater Horizon disaster given the behind schedule operations, the costs related to each day of extra stay, the likelihood that performance bonuses existed that would influence decisions that impacted cost and safety (e.g., single core pipe, 6 versus 20 centralizers, unrepaired blowout preventer, an open maintenance punch list, and rotating crews with unclear (to us) experience, crew management training, and current operations/safety practices). The bottom line from this BP experience is that sustainability, in the context of preventing and mitigating environmental disasters that can result from the normal operations of the critical infrastructures, depends upon a cadre of competent, properly incentivized, front-line, high reliability management professionals in daily operations.

A good review of the challenges and best practices for fostering a high reliability organization is provided by Emery Roe and Paul R. Schulman in "[High Reliability Management - Operating on the Edge](#)". The authors describe their work with the California Independent System Operator (CAISO, the manager of the California electric grid) from 2001 through 2006 as the deregulation of electrical provision in California separated power generation from electricity distribution to allow markets to - it was hoped - increase competition, reduce prices, and foster stable operations. However, the unintended consequences of the regulatory policy enabled some participants to game the power generation market. The weather, equipment availability, and electrical use load were not sufficiently predictable to always enable day-ahead scheduling of power generation and distribution to help prevent power shortages, price spiking, over-purchases of power, and blackouts that some market players took advantage of. As a result, Californians suffered multibillion dollar losses in state funds to pay for overpriced power and unreliable electrical service. As one would expect, the disruptions caused inefficiencies, and hence lessened sustainability, throughout this first parts of this period.

One framework that I found helpful in Roe and Schulman's work with CAISO is the simple four quadrant frame that captures the volatility (high or low relative rapidity of changes in the components) of the infrastructure being managed and the variety of operator control options (high or low) at any point in time. This results in operational states described as:

1. [Just in Time](#) - is when operators have lots of flexibility, say number of ways to meet demands for more power generation, and the network has high volatility, say from changes in load demand, unexpected equipment outages, or new demands caused by weather. In this mode there are enough resources available for operators to quickly adapt the infrastructure to meet new demands.
2. [Just in Case](#) - is when operators have lots of flexibility and the network volatility is low, then there is a tendency to add more reserve margin to better be able to meet unanticipated network changes. This reduces the likelihood of being unable to cope with a 'black swan' incident and there is time to "optimize" service levels to some predetermined criteria and improve the cost-performance of the system
3. [Just for Now](#) - is when operators have limited flexibility in what resources they can call up to meet network demands and the network is exhibiting high volatility. This state requires the highest operator cognitive load since guidelines are often being exceeded (such as deferring scheduled generator maintenance) for the moment to, in the CAISO case, keep the electric grid up and the lights on. In complex systems in this operational state, the cognitive load on the operators can easily be exceeded, especially for new staff, increasing the risk of cascading errors.
4. [Just this Way](#) - is when operators have limited flexibility and, interestingly, the network demands are relatively stable. In this case reliability is improved by have more rigidly-defined processes and procedures for operators to follow. Nuclear power plant operation is one example of a complex system that is designed to operate in this state.

## Complex Network/System Volatility

		High	Low
Operator Control Options Variety	High	<p><b>Just in Time</b> – a large number of operator options for managing the network/system exist to deal with the high variability in network configuration and demands. Relatively easy to keep ahead of network changes.</p>	<p><b>Just in Case</b> – a large number of options for managing a slowly changing network/system allows for better optimizing cost-performance to some pre-determined service level targets.</p>
	Low	<p><b>Just for Now</b> – a low number of options for managing a network/system with high volatility demands requires tradeoffs with standard guidelines =&gt; high operator cognitive load and stress.</p>	<p><b>Just this Way</b> – a low number of operator options, very high reliability requirements, and low network/system volatility allow for more complete modeling and simulation to 'preprogram' responses to faults or changes in the network/system.</p>

This framework also applies to many things we manage in life, in business, in politics, and in our personal lives.

What are the lessons from disasters that involve critical infrastructures that support our modern lifestyles?

First is that a component of sustainability in the complex infrastructures we depend upon is reliability and security to prevent loss of service and possibly significant environmental impacts (or "Black Swan" events) as in the [BP Gulf oil spill](#).

Second, stakeholders need to respect the nature of human fallibility of the operators on the front lines in these infrastructures, when they operate in boredom or on the [cognitive overload](#) edge both being higher risk mental states. Adopting practices that mitigate the effects of cognitive overload that can lead to irrational decisions or to boredom that can lead to overlooking early indicators of trouble is essential.

Third, understanding better how we should adjust our analysis and decision-making depending upon the dynamic changes in the state of the issue (or system) we're managing, leads to more effective outcomes.

Finally, the four-quadrant framework helps in evaluating how well a particular complex infrastructure is operating, how much cognitive load is being imposed on the operators, what can be done to improve the reliability and the security of its operations, and how to frame a discussion with stakeholders (regulators, shareholders, users, managers, operators, designers, and economists) on the needs and tradeoffs required to achieve sustainable, secure, and reliable service levels.

Consider how these lessons apply to overcoming the operational challenges related to safely providing reliable and sustainable products and services in your organization.

[Mike Olson](#), Partner

We trust that you have enjoyed this newsletter. Our goal is to continue to provide you with useful information, tools, and insights that will help you navigate your transition into a

sustainable future for your business.

We encourage your specific inquiries on how we can help you with our 'profitable green strategies'.

**Sincerely,**

*Chris*

[Chris Yalonis](#), Managing Partner

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