

# SUSTAINABLE BUSINESS GROUP

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## ***ENERGY PLANNING USING COMPETITION: A NEW ROLE FOR UTILITIES TO HELP AMERICA ACHIEVE ENERGY INDEPENDENCE***

Presentation by Herb Rubenstein, President, Sustainable Business Group to the:  
Colorado Utility Exchange Symposium, Aspen, Colorado - October 22, 2009

### **Introduction**

This article compares how utilities and government currently plan for energy conservation and how we can do it differently in the future. Since all of future energy planning will be somewhat dependent on how well or how poorly we change behavior to conserve energy and reduce energy waste, this paper focuses on these issues. The issue is:

How can planning regarding energy conservation change human behavior by incorporating the number one social ethic of America: *Competition and The Competitive Spirit?*

We commend the utilities for their efforts to educate, cajole, entice, incentivize, and sometimes direct people and our institutions to reduce energy consumption. But, we have to admit, that our 1970 – 2008 efforts have been a failure. Our 2009 efforts to conserve energy are not making the inroads to promoting energy conservation we need to significantly reduce our dependence on fossil fuel and green house gas emitting sources of energy. Just three days ago Vice-President Biden issued a report that called for the spending of 38 billion dollars to help the average American household reduce their energy significantly. On the same day the National Academy of Sciences issued a report that burning fossil fuels cost Americas

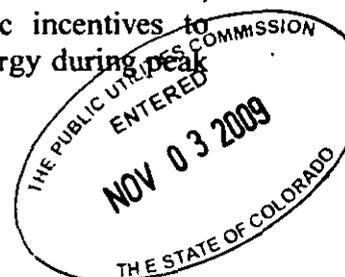
120 billion dollars per year in health related costs not borne by the costs we pay for these fuels.

There is much being done in the area of *integrated resource planning* to promote the development of a balanced energy sector using wind, geothermal, beetle kill wood to energy, waste-to-energy, hydro and micro-hydro power, solar PV and solar thermal, hydrogen, biofuels, nuclear, wave energy and other renewable energy resources.

### **A Western Metaphor**

Today, we have five key strategies to promote energy conservation. Let's call them five "bullets."

Bullet Number One: We inform, preach, plead, educate, and instruct that energy waste, and the failure to conserve energy costs people and businesses money. Using logic that people and companies do not want to waste money, we assume that this education and communication strategy will result in greater energy conservation and less wasting of energy. Some, if not all, utilities set prices high at the peak of energy use, for at least some of their customers, to give even greater economic incentives to people to discourage use of energy during peak usage periods.



Economists promote this type of education and pricing to promote energy conservation. But, it does not work because, frankly, people and companies in the U.S. simply don't mind wasting money, especially, when no one really holds them accountable for their wasteful energy use. Their view is: we have the money and we will waste it as we please. While it is hard to believe that even rational businesses would act like this, they do. Certainly, many people and companies have positively responded to this educational campaign and the creation of economic incentives to promote energy conservation. However, changing behavior of most people requires something more. So what could be missing from this strategy? That will be answered, in part, with Bullet Number Six, which might be a silver bullet.

Bullet Number Two: We can pay utilities to create energy conservation programs so they won't be hurt by reduced revenues – and call it Demand Side Management. This makes sense because it is hard to expect utilities to commit economic suicide by destroying their revenue base by having their customers use less of their products. Even paying utilities some money should energy use drop significantly has done little to dramatically reduce energy use in this country. I admit that this strategy is new, but it is clearly not the silver bullet. Is it part of a useful energy conservation strategy? Of course, But we cannot rely on any demand side. management program seen to date to deliver an adequate amount of energy savings.

Bullet Number Three: We can mandate area wide “integrated resource planning” that will promote renewable energy and energy efficiency programs. This is great on the production side of the equation, as described before, but it will do little to reduce or even slow the rate of growth of energy use in the U.S. This strategy is not designed to make our nation

more efficient, just more balanced in the supply side of the equation. However, it has long been thought that going to these more expensive forms of energy production would, through their higher costs, and through the customers becoming more and more aware of the huge challenges our nation faces in meeting its energy demand would lead us as a nation to become more efficient.

Bullet Number Four: We can explain to our nation that our national security is on the line and we should not be sending so much money to countries for energy who are our enemies. This argument falls on deaf ears for a myriad of reasons. First, people just don't believe it. They believe we have the best army, navy, air force, marines and defense in the world, and buying energy overseas will neither hurt us militarily, nor will it hurt us much economically in the long run. So, this argument, made over and over, actually contributes little or nothing to the behavior changes we need to achieve substantial energy efficiency gains and the reduction of energy waste.

Bullet Number Five: We can create information systems that will tell us our up to the minute energy use for each product or appliance or total energy use. Further, smart grids will alert us up to the minute regarding our energy use, and alert us when demand is high and prices are similarly high. Then, using information technology, we can turn off appliances, air conditioners, and any other significant energy users in our homes and businesses. Again, here we turn to economics and there is some research that people, at least in the short run (we do not have long run data yet) do respond positively to this type of information. While this does seem to be a promising strategy, this country is not about to create smart grids that cover 100% of the land mass of our nation.

These five bullets might hit a bull's eye from short range, but can they really put a serious dent in our growing consumption of fossil fuels, our growing use of electricity, and our increasing dependence on foreign sources of energy?

We do not have to rely just on these five bullets. When it comes to energy conservation, we have at least a six shooter. So, what is the sixth bullet?

### ***Missing the Target Because We Miss the Point***

Every effort to change the behavior of individuals and the nation as a whole must be based on an accurate comprehension of how our people and our nation form their behaviors and what it takes to change their behaviors. One insight as to how our people and our nation change their behavior is through ***COMPETITION AND THE COMPETITIVE SPIRIT***. Our schools, our economy, our military, our sports industry, and many of our sectors are organized around the fundamental principle of competition.

None of the previously discussed five bullets truly leverage or make use of this number one social ethic in America, competition and the competitive spirit. Therefore, the sixth bullet, must be developed with this social ethic or social force, competition, as a key ingredient in the strategy to bring about the change we want – significant energy conservation.

The question for utilities is how can they promote energy conservation through competitive activities. These must be activities where we all know how to keep score, how to determine who wins, and where we can learn what it takes to win at the game. (See the Appendix to this paper on “The Community Energy Calculator.”)

Therefore, the sixth bullet is: Giving Americans and our businesses a way to keep score and compete when it comes to energy conservation. How do we do this?

One way to do this is aggregation and distribution of energy use data on a monthly basis by:

- Communities, neighborhoods, schools
- Organizations such as churches, synagogues, mosques, temples, Rotary and Kiwanis Clubs, Chamber of Commerce, Associations, etc.
- groups of businesses and manufacturing facilities

Aggregating the data and distributing it to the leaders of these organizations will allow for the forming of teams to compete against each other instantly, and even bet against each other, as to which group will reduce their energy use more. Sounds simple, but today can we get the energy use data from our utilities in a usable form (excel, XML or some user friendly, easy to understand format) of all of the members of a community group, even if those members provide a signed waiver of their privacy rights to the utility? Can we even get the monthly totals of their energy use? No.

Meetings and discussions have been held recently on this topic with Xcel and they are looking into this potential for aggregating data. But, if utilities will not voluntarily provide this energy use data, after receiving waivers of privacy from consumers, at a reasonable cost, there are other ways to skin this cat and get the data in a manner that will bring this competitive spirit right to the heart of our energy conservation planning approach. It is very possible that Microsoft Home or Google Power Meter may have some answers to this question soon.

## *Making Strides*

So, how does this sixth bullet “get traction” if the utilities can or will not give citizens and leaders this aggregated data at a reasonable or no cost?

While inefficient, the answer might be “crowdsourcing,” a new web 2.0 strategy for having large numbers of people do small acts that when aggregated create huge value, huge amounts of information, and can change behavior for the better. The crowdsourcing approach to energy planning for energy conservation might turn out to be very simple. First, volunteers in organizations of all kinds could collect energy use data (from bills) from their community members by phone, email, or some other approach. Or, volunteers or energy customers themselves could take electronic photos of their meters and send the picture of the meter and its readings to a person who would organize the data for the group, total it, and compare usage of the members of the group.

Or, community members could post their energy use data from their bills on a website that takes in this information and would voluntarily analyze the data.

The report generated from this data will allow a group to know if their collective energy use went up or down (normalized for weather) from one month to the next. Sampling techniques could be used scientifically so everyone’s data need not be collected for this group snapshot. However, to find out how your energy use compares to your neighbors with comparable sized houses or businesses, you would have to submit your data.

A second way to support the energy conservation aspect of energy planning is for websites like [www.mint.com](http://www.mint.com), which is a

financial planning and bill paying service for people, to analyze the data they receive on how much people pay for their energy bills and inform bill payers whether their energy bills are higher, average, or lower than the energy bills other people pay.

Similarly, and this is already starting to occur, utilities could print on their bills whether the energy use of the customer is above average (with some symbol designed to negatively reinforce this behavior), is average use, or is below average of similarly situated customers. (data for each customer including size of house or business property, number of occupants, and other factors that are important in making these comparisons could be supplied to the utilities).

A third way is for our schools to undertake community energy measurement and competition projects. School age children can do this as a class project, and this is not so different from Richard Nixon asking citizens to go to the grocery stores with pads of paper to check on store prices in 1972 when he ordered wage and price controls.

This solution, which will not work for families that are not separately metered, would include students bringing in their household energy bills, creating spreadsheets of every class member’s household energy use, learning how to normalize the data for weather, learning how to spot data quality problems, setting up some type of competition between class members or across classes or grades, and educating students on how they can be leaders in their family in achieving energy conservation. A curriculum or workbook created for these school children should be easy and inexpensive to produce and distribute.

A fourth way is already starting by putting on EPA and utility websites such tools as “Portfolio Manager” where people input their

energy use data and other data about their houses and places of worship. Instantly, the data are analyzed and the person putting in the data receives a notice of high, average or low energy use, and advice on how the user might reduce that energy use. EPA recently stated:

“America's houses of worship can now save energy and reduce their carbon footprint with expanded tools available from EPA's ENERGY STAR Program. Enhancements to Portfolio Manager, the agency's popular energy tracking tool for commercial facilities, allow houses of worship to track energy use and associated greenhouse gas emissions, set targets for investment priorities, and verify efficiency improvements. The estimated 370,000 religious worship facilities across the United States spend more than \$3 billion annually on energy costs. Improving the energy efficiency of America's houses of worship by just 10% would save nearly 2 billion kilowatt-hours each year, preventing more than one million tons of greenhouse gas emissions and representing a cost savings of about \$315 million annually.”

#### ***Planning Conundrum: How to Get People and Business to Plan Their Future Energy Use***

Energy planning can be done at the government level. Colorado's Governor Ritter and other Governors have written executive orders that all institutions of higher learning in their States to reduce energy use. Each institution must come up with a plan to achieve this energy reduction.

At the individual or small business level, government has no such leverage to require each household or business to come up with energy reduction plans. The challenge for utilities is how can utilities successfully encourage every household or business that is separately metered to set a target for energy use for the next month, for the next quarter, and the next year.

#### ***Conclusion***

The future of energy planning must include the basic principles of competition, and inclusion of huge numbers of people through crowdsourcing and similar types of activities.

We stand at the threshold of a great opportunity. Our citizens, including children, can become energy literate, informed consumers, and can learn how to cut energy use significantly in the US. Utilities can lead this effort successfully. ***Our citizens are not addicted to wasteful energy use.*** We are simply ignorant and not properly educated or motivated to conserve energy and reduce energy use. Who will engage our citizens in becoming active participants in planning, at the micro or individual level, regarding their own future energy use? Today, I call on utilities to accept this new role. For, as a nation, we struggle with the question, “If not utilities, who?”

The future of energy planning must be based on increasing the intelligence of the American consumer regarding energy use. Competition gets people smart very fast. Americans excel at competition. Americans can learn to read their own meter reader and compete through friendly competition in a game where everyone, ultimately, can become a winner, reducing our energy use significantly.

#### ***About the Author***

Herb Rubenstein is the President of Sustainable Business Group, a consulting firm to businesses, government, nonprofits and educational institutions. The headquarters of the Sustainable Business Group is in Denver, Colorado.

He participated in the early stages of the creation of the Mesa County Master Energy Plan. He studied demand side management

while he was the Chief Operating Officer and Chief Knowledge Officer of the International Center for Appropriate and Sustainable Technology in Lakewood, Colorado.

He is co-author of *Breakthrough, Inc. – High Growth Strategies for Entrepreneurial Organizations* (Prentice Hall/Financial Times, 1999). He also served as an Adjunct Professor of Strategic Planning George Washington University, and has been an Adjunct Professor of Entrepreneurism at George Mason University and Colorado State University.

He has his law degree from Georgetown University, his Master of Public Affairs from the LBJ School of Public Affairs, a graduate degree in sociology from the University of Bristol in Bristol, England and was a Phi Beta Kappa/Omicron Delta Kappa graduate from Washington and Lee University in 1974. Mr. Rubenstein has published numerous articles on

future studies, has written two books on leadership, and has helped design government programs in both Republican and Democratic administrations at the federal level. His email address is [herb@sbizgroup.com](mailto:herb@sbizgroup.com) and he can be reached at 303 910-7961. For more information about the Sustainable Business Groups, see [www.sbizgroup.com](http://www.sbizgroup.com).



## APPENDIX

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## **CONCEPT PAPER TO PROMOTE THE DEVELOPMENT OF THE COMMUNITY<sup>1</sup> ENERGY CALCULATOR**

**HERB RUBENSTEIN AND  
REV. TINA YANKEE, TURNABOUT, INC. AND ITS  
FAITH BUILDINGS ALLIANCE**

<sup>1</sup> We use the word "Community" to include neighborhoods, schools, synagogues, mosques, temples, religious schools, and any community organization with members. This calculator could be used by housing associations as well.

Community organizations and other membership organizations are moving to the front lines in our national energy conservation movement. This article describes one tool that is in the development stage that these organizations can use to help organize their memberships and promote energy conservation. This tool will allow churches and all membership organizations to calculate the total energy savings of the members. It is assumed that each community or membership organization would create a "Community Energy Efficiency Program" (CEEP) that would educate members about energy efficiency measures, and encourage them to institute energy efficiency measures, both behavioral and physical.

### **The Calculator in a Nutshell**

**Step 1: Collect data from the energy bills of all community members on energy use.**

- a. These data might be able to be transferred from a utility directly to the membership organization with the signing of a "waiver" or some other form of document that instructs the utility to send the usage data not only to the customer, but also the organization collecting the data.
- b. These data could include gas, electric, water usage, home heating oil usage, or other forms of energy, including collecting data on the energy produced by the members through wind, geothermal, or solar.
- c. Collect additional data from the members on key factors that affect energy use including:
  - a. Square footage of the building or home
  - b. Building use (number of people in the building or home for what hours)
  - c. Significant energy users such as pools, etc., major types of heating and cooling equipment
  - d. Other data in your area that may have a significant effect on energy use.

**Step 2: Have these data assembled into spreadsheets for analysis.**

**Step 3: Develop statistical approaches to "gross up" the energy usage to 100% of the members if fewer than 100% of the members provide the data on energy use.**

**Step 4: Develop a system so that each household or business of the members of the organization that participates in the data collection is given some type of unique number to assure the privacy of the members providing data. Give the unique number to each member so they can see where they "fit" among the members regarding energy use (high, medium, low).**

**Step 5: Develop the formula to aggregate all energy use so a total number is generated for all energy use, and energy production by members on a monthly basis.**

**Step 6: Develop a statistical approach to factor in weather or temperature changes since this affects energy use. The goal of this statistical approach, which will vary across climate zones, will be to "factor out" the weather so that each month's energy use can be compared, using a level playing field, to other months.**

Step 7: Create a statistical approach so that similar buildings in terms of: 1) square footage; 2) number of people; 3) heating and cooling appliances, etc. can be compared, using a level playing field, to see if they are in the "high," "medium," or "low energy" use (or water use) categories.

Step 8: Report via email and a website the findings each month on energy use, trends, relative rankings of members (through only their unique numbers), and other information gained during the month about effective energy conservation measures.

### **Conclusion**

This community energy calculator can be fully automated into software so that the utility sends the data and the report is automatically generated by the organization. Community members will be kept aware of their individual and collective results. While some development of this calculator will require excellent statistical expertise and some software skills, the concept presented here can transform how churches, membership organizations, and housing associations, can all get into the act to promote energy conservation. We welcome your comments.