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Clean, Plentiful, Renewable, and Peaceful Energy Is Here Now

Let's Make It Happen For Our Taxpayers and Our Children Who Are Suffering From Asthma—We Can Do It

by **Bob McEvoy, Managing Editor**

I am very grateful to Dr. Richard Perez: scientist, inventor, author and Research Professor at the State University of New York Atmospheric Sciences Research Center who has written the following article to help us make the right energy choices. Dr. Perez has published over 120 articles and reports in the fields of solar radiation, renewable energy applications and day lighting. His home, which is pictured in this article, has had a solar energy system for many years.

Solar Energy: A Realistic Solution to Our Energy Future

by **Richard Perez, Atmospheric Sciences Research Center, The University at Albany**



Peak oil, growing energy demand in India and China, global warming, and terrorism are slowly weaving an uncomfortable stranglehold on the U.S. energy outlook. How about solar energy? Often dismissed out of hand, solar energy may be the only solution that is large enough in scope, and acceptable enough to carry us and the rest of the planet through the long term.¹

Solar technologies include technologies that are end use-specific and technologies that generate electricity, a “universal” energy carrier that can be transformed, stored and used in many ways (see examples in Fig. 1 on page 3).

In the former category, one finds domestic and industrial hot water production; space heating, including both active and passive technologies; and niche specialties, such as solar cooling and solar cooking. These technologies can be effective, practical, and often economically attractive, but their scope is limited to their domain of application.

The second category includes high temperature solar thermal and photovoltaics. Solar thermal (i.e., steam generation from concentrated sunlight and conversion to electricity via turbines or thermal engines) is the least costly of the two at present; however, it is best suited to arid locations, where cloudless sunlight can be harnessed. Photovoltaic technology (PV)—that is, the direct conversion of sunlight into electricity via semi conductors³—is better suited to all types of climates. The argumentation developed in this article is based primarily upon PV.

PVs have the unique characteristic of being highly modular—a large power plant does not need to be centralized but can be dispersed into many smaller units without much of a cost penalty. PVs are energy “breeders” because they generate several times more energy over their lifetime than that used in their manufacture. The technology is well adapted for deployment on built-up and/or otherwise already occupied spaces, such as roofs, parking lots, and exclusion zones. The best systems commercially available today can convert sunlight into electricity with an efficiency approaching 20

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A President's Corner

by Ray Bockman, County Administrator, DeKalb County, Illinois



Before the cradle, after the grave...

Modern counties have expanded the “cradle-to-grave” government services concept to include everything from prenatal nutrition programs (WIC) to coroner’s inquests that ascertain if one’s rights may have been violated after their burial. Our services literally start before you are born and continue after you have passed.

County administrators are at the center of many of these modern county governments. They serve as business managers—developing budgets, handling personnel issues, protecting assets, and trimming operating costs—and increasingly they serve as information managers as well. Administrators take the day-to-day pulse of the organization and enable elected policymakers to be more effective. In today’s information age, this latter role may be the most important.

On point, synthesized information is the gold standard in today’s fast-paced public policy environment. Now, anyone with a PC can access dozens of studies and reports on virtually any topic. Understanding how and by whom these studies were done is crucial in weighting them. Accurately summarizing findings is key to the policy support role that county administrators and their staffs fulfill.

Part-time legislators are historically disadvantaged with regard to time available to fully study important issues. At worst, they must rely on the pronouncements of the local policy wonks that typically populate public meetings and hearings. At best, without assistance, they are thrown into the endless maze that is the modern Internet. Here information abounds and rules are nonexistent. Rigorous double-blind scientific studies sit side by side with baseless claims. Interest groups of every type support their public policy positions with “irrefutable evidence” from the latest “university studies.” Absent trained research assistance, policymakers face a bewildering blizzard of claims and counter-claims. County administrators don’t make policy—they make policy better. Serving as information sheriffs in this Wild West era of the information age is just another way.

*Perez,
(continued from page 1)*

percent (up from 12 percent 15 years ago). The PV industry is growing at a compound rate of nearly 40 percent. It achieved a yearly production of 1,700 megawatts worldwide in 2005.

Dispelling Common Myths on Solar Energy Potential

Solar energy is often dismissed because it is not properly understood and, more often than not, mischaracterized.

No sun. The first myth is that solar is only viable in sunny places like the arid southwestern U.S. It is of course true that the solar resource is more abundant in Arizona than in New York, but the difference between the two, as quantified in terms of collect-

able energy per unit area, is only of the order of 35 percent. Note that the solar resource in New York State is distinctly higher than in Germany, the world’s leading PV market.

No space. The second myth is that solar energy deployment would take too much space. Many respected publications—*Newsweek*, the *New York Times*, and *Wired Magazine*⁴ among others—often contribute to spreading and reinforcing this notion. However, the physical reality of solar resource speaks plainly for itself: only 0.75 percent of New York State land area would be required to produce all the electricity the state consumes assuming a 10 percent solar-to-electricity conversion rate.⁵

By contrast, the space occupied by
(continued on page 3)

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Does NACA Have Your E-mail Address?

Members are encouraged to alert NACA staff of changes to their e-mail addresses. New addresses or corrections to addresses can be e-mailed to naca@icma.org.

Visit the NACA Web Site

The NACA Web site can be accessed at <http://www.countyadministrators.org>.

The NACA members-only area of ICMA.org can be accessed at <http://icma.org/nacamembers>.

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 buildings, parking lots, and roadways in the state exceeds 3 percent of land area. For the United States, the amount of real estate needed to generate all electrical energy from PV would amount to 0.25 percent of land area. Interestingly, this is three times less space than the area occupied at present by artificial lakes from U.S. hydropower plants. These plants only produce 7 percent of U.S. electricity (see Fig. 2).

No control. A common mischaracterization of solar resource is its lack of reliability. Because it cannot be controlled or dispatched by a grid operator, solar power is given little or no capacity credit.⁶ The question of “what happens if a cloud comes and we need the power?” is the first—and often the only—one posed by utility planners. This question ignores that in much of the United States, solar gain indirectly creates peak loads because it is the main driver of heat waves. Since most of the country is increasingly summer peaking due to summer air conditioning, the sun can also provide relief by injecting power on the grid at the time of greatest demand. The fact is that during cloudy days, the demand for electricity is much smaller. Considerable evidence has been produced to support this assertion: the statistical effective capacity of PV in much of the country exceeds 60 percent—in other words, installing 100 megawatts of PV would amount to installing at least 60 megawatts of ideally dispatchable power generation. An even more compelling measure of PV’s reliability is that it acts as a very effective catalyst to demand response and load control programs. Through these programs, grid operators pay customers to be ready to curtail their electrical load at critical peak demand times. This can be achieved reliably by combining PV and a modest amount of load curtailment—considerably less than would be necessary without PV. As an example, consider that today, in order to achieve 3 percent of peak load reduction in New York

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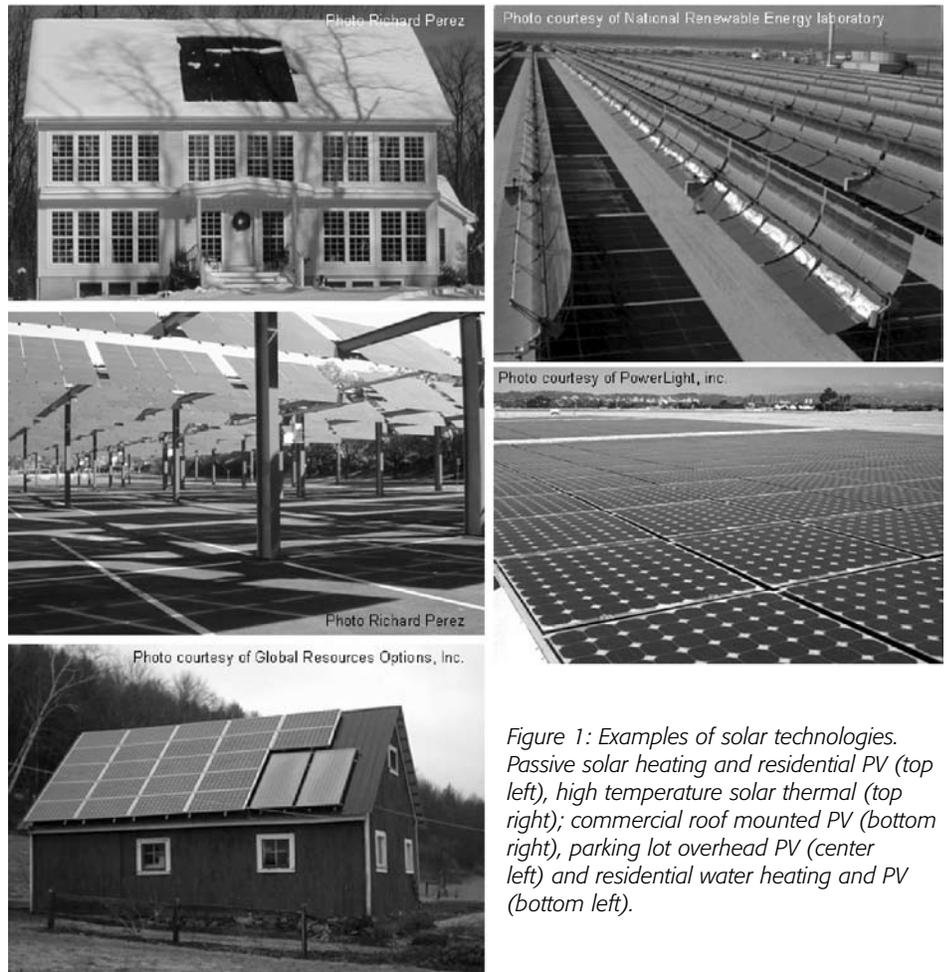


Figure 1: Examples of solar technologies. Passive solar heating and residential PV (top left), high temperature solar thermal (top right); commercial roof mounted PV (bottom right), parking lot overhead PV (center left) and residential water heating and PV (bottom left).

Renewables in Perpetuity		terawatt hours EACH YEAR
Direct Solar Radiation		350,000,000
Wind		200,000
Ocean Thermal		100,000
Biofuel		50,000
Hydroelectric		30,000
Geothermal		10,000
Tidal		1,000
Energy Stored in the Earth		terawatt hours TOTAL
Coal		6,000,000
Uranium 235		1,500,000
Petroleum (US _ Gone 1970)		1,000,000
Natural Gas (US _ Gone 2005)		400,000
Tar Sands		200,000
2004 Global consumption of stored energy = 50,000 terawatt hours/year		

Figure 2: Comparing the yearly potential of renewable energy sources to the total energy recoverable fossil fuels and uranium. The solar resource—defined here as the yearly solar energy received by the earth’s emerged continents—is considerably larger than all other renewable resources combined. It is also the only one that is plentiful enough to accommodate all future growth of energy consumption. Source: Donald Aitken, Donald Aitken & Associates

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(continued from page 3)

City (about 350 megawatts), it takes a cumulative load curtailment of 3,100 megawatt-hours from participating customers. The same result could be achieved with 350 megawatts of PV and only 200 megawatt-hours of load curtailment (i.e., 15 times less).

Evidence from critical events of grid congestion leading to rolling blackouts and total grid collapses strengthens the assertion that PV deployment is reliable because the solar resource is always nearly ideal during such events. The case of the August 14, 2003, northeastern power blackout is particularly telling in this respect. Its regional cost has been estimated at \$8 billion in lost business and property-and-goods damage. By contrast, it has been conjectured that as little as 500 megawatts of PV (a \$2–3 billion investment) dispersed around major northeastern cities would have prevented the outage by injecting solar power (plentiful on that high-demand day) near points of highest demand and thus would have kept each triggering failure from feeding into each other and amplifying into the blackout cascade.⁷

Unaffordable. Last but not least, the belief that solar is too expensive a solution is a deeply held one. What is expensive with solar is the upfront cost,

but the fuel is free, maintenance is minimal, and the operating life is very long. Unfortunately, these qualifications are not well adapted to our way of doing business because we tend to heavily discount the future.⁸ Business models much prefer low upfront costs, while distant future operating costs (beyond 10–15 years) hardly enter into consideration. This built-in shortsightedness is probably one of the factors contributing to the current energy crunch.

Compounding this business practice mismatch is the reality that the bottom line against which solar is gauged is not reflective of the true cost of energy and that the full value of solar solutions cannot be entirely captured today. So-called external costs, including environmental costs (global warming, air pollution, long-term nuclear waste), the cost of insurance against fuel price escalation, the cost of having to protect our fossil fuel sources, the cost of trade deficits, etc., are not fully accounted for in our electric bills. If they were—and they likely will be at some point—the increase could be shocking. For instance, just the cost of insuring oneself against fuel price escalation to \$500 per barrel in the year 2030 is worth alone 30 cents per kilowatt-hour. On the value side, enhanced security (especially if dispersed PV installations are designed, as they should, with some emergency

battery back-up), peak shaving reliability, increased power grid reliability, and contribution to local business growth and job creation opportunities are values that cannot be captured by solar installations today.

Fortunately, thanks to a growing number of enlightened policies, the playing field is beginning to slowly level out. At the same time, solar technologies are becoming more efficient and less expensive. Germany, Japan, Spain, and several U.S. states and Canadian provinces (e.g., California, New Jersey, Pennsylvania, New York, and Ontario) have taken the lead in bridging the cost-value gap described above. The help comes in the form of preferential feed-in tariffs (e.g., in Germany a solar kilowatt-hour may be worth 55 eurocents, against 10–15 eurocents for standard retail electricity), tax-based incentives such as tax credits (e.g., New York offers a 25 percent residential tax credit, and the U.S. government recently stepped in with a 30 percent tax credit), buy-downs (e.g., the New York State Energy R&D Authority defrays roughly half of the cost of small and medium new grid-connected PV installation in much of the state), low-interest financing, or trading of Renewable Energy Credits, where, in addition to receiving the

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County Administrators From Across the Country to Exchange Ideas

The National Association of County Administrators (NACA) will convene a series of events at the 71st Annual Conference and Exposition of the National Association of Counties (NACo) in Cook County (Chicago), Illinois.

The events will provide an opportunity for county administrators from across the country to discuss, in an informal setting, issues that are specifically relevant to counties and their citizens. In addition, the series offers county officials the opportunity to exchange ideas and best practices as well as to network with other county officials. To participate, complete the registration form in this issue.

Event	Date	Time
Executive Board Meeting	August 4, 2006	3:00–5:00 p.m.
Idea Exchange	Saturday, August 5	9:00 a.m.–1:00 p.m.
Reception Hosted by ICMA and ICMA-RC	Sunday, March 5	5:00–6:30 p.m.
Past Presidents' Breakfast	Sunday, August 6	9:00–10:30 a.m.
Dinner Hosted by NACo Financial Services	Saturday, August 5	7:00 p.m.
General Membership Meeting	Sunday, August 6	1:00–2:00 p.m.

More information can be found at www.naco.org.

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value of electrical energy produced, a solar system owner could also sell the renewable attributes of the clean energy produced to green power marketers. Many of these incentives are generally financed by targeted taxes such as System Benefit Charges levying a small fee on electricity sales and dedicated to renewable energy development. Renewable Portfolio Standards enacted by a growing number of legislatures set firm targets for renewable energy penetration and are used as a justification for providing incentives.

As a resident of New York, one gets a decent deal for installing user-sited PV. For instance, the cumulative cash flow of a 3 kilowatt PV residential installation in the greater New York City area and financed 90 percent with a home equity loan is in the black from day 1 thanks to the rebates and low-interest loans from the State Authority, plus the State and Federal income tax credits (see Fig. 3).

The situation would be quite different if PV received no incentives. However, the most attractive incentive available today is the German model, which was most recently adopted France, in which high feed-in tariffs insure PV owners a comfortable return on their solar investment.

In Closing

To this author, solar and PV have a bright future: it has quasi-unlimited potential and it's clean, renewable, and has positive energy balance. It is not farfetched to imagine a future when the majority of our energy will be solar-made. Of course, much creative work remains to be done, in particular with respect to deploying the effective energy storage and load management approaches capable of handling massive amounts of solar energy, but it is far from an impossible task, and it is certainly fulfilling work to that end.

Endnotes

1. This article focuses on the energy supply side. This does not lessen in any way the

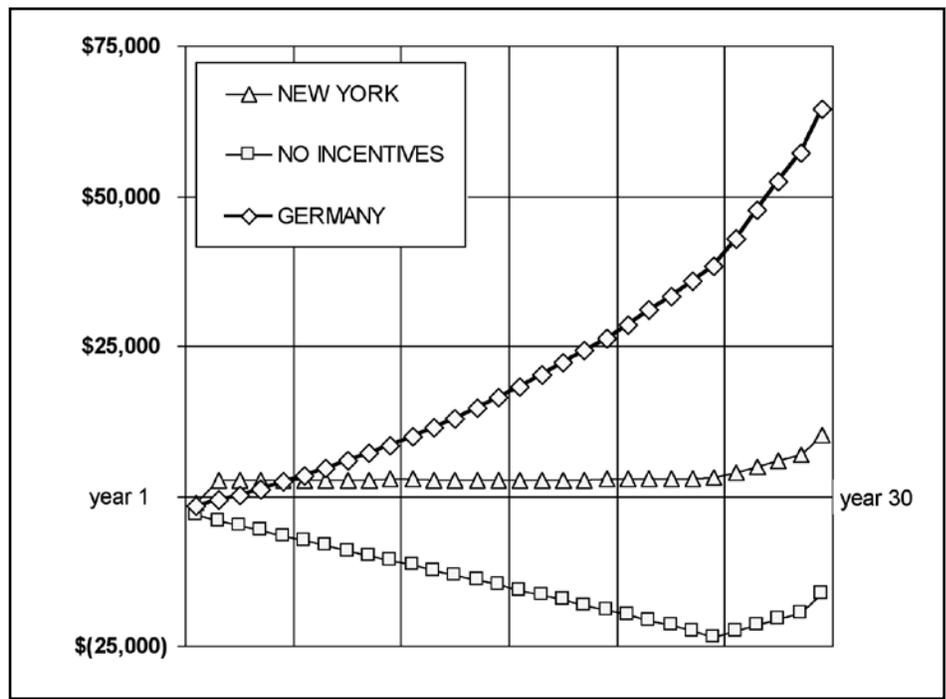


Figure 3: Comparing cumulative cash flows for 3kW residential PV installations in New York's Westchester County with and without existing incentives, and in Southern Germany. Installations are financed via home equity line of credits over 25 years with 10 percent equity.

- importance of the demand side's conservation and efficiency.
2. Wind power and biomass—two indirect forms of solar energy, as is hydropower—are not discussed in this article. Both also hold considerable deployment potential with different attributes/limitations: wind generation is currently much less costly than PV, but it is highly site specific, not nearly as modular as PV, and may be an aesthetic concern to some. The ultimate deployment scope of both wind and biomass is considerably smaller than solar (see Fig. 2).
 3. PV encompasses many technologies. Most are semi-conductor-based, with crystalline silicon products representing by far the largest share of the market today. It is beyond the scope of this article to present a technology review. Please visit sources such as the National Renewable Energy Laboratory (www.nrel.gov) for information on the many PV technological solutions.
 4. *Newsweek*, April 15, 2002: “[b]ut PV panels have limitations. Even on the sunniest days the panels are not well suited to cities where roof space is limited [...]” *Wired Magazine*, February 2005: “[...] PV would require the largest structure ever built [...]” *The New York Times*, March 25, 2005: “[...] PV would require 5 billion square meters[...].”
 5. Of course this statement implies that electrical energy will have to be stored both

- directly using technologies such as compressed air and pumped hydro storage, as well as chemical storage (hydrogen, batteries, etc.), and indirectly using innovative approaches such as hybrid automobiles as a buffer.
6. Capacity credit is the contribution a power plant provides to the spinning reserve available on a local grid (e.g., a utility's service area). If the output of the power plant cannot be counted on, it has no capacity credit. If the power plant is ideally dispatchable with no downtime, its capacity credit equals its rated capacity.
7. See Perez R., B. Collins, R. Margolis, T. Hoff, C. Herig J. Williams and S. Letendre, (2005): “Solution to the Summer Blackouts—How dispersed solar power generating systems can help prevent the next major outage.” *Solar Today* 19 (4), July/August 2005, pp. 32–35.
8. Business models generally use a discount rate to gauge the value of investments. This rate represents the return one could receive if the same funds were invested elsewhere instead (e.g., in the stock market). The effect of the discount rate is to exponentially depreciate the value of future returns/expense compared to the present. For instance, with a 10 percent discount rate, a \$10,000 expense 20 years in the future is considered less important than a \$1,500 expense today.

Technology Corner

by Costis Toregas, PTI President Emeritus



Small, wearable, full of promise: the technology of today...

There has been a veritable explosion of devices that are small enough to be carried about our body and can do wondrous things. Some have a single, unique, and new function that has been miniaturized like a digital camera that can fit into a shirt pocket, while others feature new capabilities that are simply superimposed on existing, familiar products, like the trusty cell phone.

Case in point: Sprint has introduced two new words to my techno-vocabulary: “geofencing” and “breadcrumbs.” The first relates to the ability to define a specific area around a person with a GPS-enabled cell phone—say a 2,000-foot radius—and has the capacity to alert that person if another phone user comes within that radius; it acts like a sort of electronic barrier around the person that’s dynamic and changes depending on the person’s location. Breadcrumbs describe the ability of the mobile cell user to see their actual location and path on a small map shown on the cell phone display as they walk, run, or drive around. Keeping track of toddlers or even pets is an early application displayed in early adoption ads.

Runners who may use this capacity are also being seduced these days by the shoe maker Nike, which wants to sell them a wireless track shoe that can beam performance data of a jogger’s morning run to their iPod for analysis and instant feedback so that the workout can be best maintained.

The cell phone is also being equipped with “eyes” that can connect us to the Internet and beyond. The ever-present cell phone camera is now trained to read barcodes in newspaper ads or grocery store packaging, then

access the Internet, enabling the user to access further information about that product right on the cell phone screen! The Japanese have enjoyed this capacity for months, and pilot tests are now available in different parts of the States.

Finally, the lowly memory stick, which we know as the life-saving device that allows us to carry large presentations in our pocket and upload them in destination computers, has now become a full-fledged mp3 player, able to record sounds through a built-in mini-mike and play back songs that can be downloaded at home and listen to using earphones that plug right into the memory stick.

These advances in the consumer marketplace should do more than elicit a smile from the harried county administrator! They should be an early alert to begin thinking about how they might revolutionize local government operations and improve the service experience for both the citizen and the employee. Is it really possible to bring such consumer devices into county operations? Well, let’s suspend belief momentarily and dream for a minute...

Geofencing—the perfect technology to track at-home detainees equipped with some sort of body bracelet and proper phone. Even more benevolent, the pervasive, tragic issue of battered wives, who many times are attacked by angry husbands defying court orders and police warnings, can now be given explicit and accurate warnings if they are in danger.

The iPod communicating with footwear or body wear could give our stressed public safety employees an extra ounce of protection if their vital signs could be monitored in real time and compared against profiles explicitly relating to their condition, triggering instructions for reducing the risk.

The inexpensive memory sticks with a microphone could become an instant deposition-taking machine,

allowing any municipal worker to capture verbal accounts of events on the spot and download them electronically to e-mail them to central locations easily. Recording and playing back spoken words in a device with no moving parts at low cost can open up a new access point and communication process for residents.

And can you imagine citizens out in a park on a weekend being able to click on a bar code attached to the side of a county facility and downloading a fishing permit (all with an online payment option!) without ever breaking stride and putting their fishing poles down? It may sound strange to us today, but our residents are expecting more and more convenience and participation. Look at the voting rates for American Idol and compare them with participation in the last county election. No contest, right! There is nothing inherently difficult about imagining new roles for devices already in the hands of our residents, especially since their capability is bound to increase because of the pressures of the consumer marketplace. The spread of broadband wireless networks, such as mesh WiFi, means that local governments will have the ability to provide a whole new set of services using devices such as VoIP phones (“Voice over IP”—a term that means the phone does not use traditional phone company networks but the Internet to complete and support a phone call of a user), so we should get ready!

And what will the role of the administrators be? Three strategic dimensions can be identified and should be pursued:

1. Encourage innovation by:

- setting up an Innovation Fund
- leading through personal example by using new technologies to enhance your own management productivity
- promoting reengineering efforts that bring new technologies to the field.

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From Your NACo Representative

by **Mort McBain, County Administrator, Marathon County, Wisconsin**



In this issue I would like to announce that I am resigning my position as your representative on the NACo Board of Directors and, thus, my position on our

NACA Board, due to some significant events that have transpired in my life recently as explained below.

As some of you know, I am an active member of the Church of Jesus Christ of Latter Day Saints (commonly referred to as the “Mormon” church). This faith that I belong to is very much a “lay” church, meaning that all the positions and callings are held by regular members of the congregation for a period of time, and no one is paid to serve. The presiding officer in each congregation is called a “bishop” and functions as a lay minister, leading and directing all the affairs of the local church. The “bishop” is also recognized as an ordained minister, meaning he can perform civil marriages, ordain individuals to the priesthood, and preside over all church functions. The bishop can be any worthy male in the congregation, regardless of his work status or vocation. The position is considered a part-time, unpaid position, and the bishop in turn can call two counselors to help him in his ministry. Although the position is part-time, the time commitment can be fairly significant, especially for someone who is already busy administering the work of county government.

The reason I mention all of this is that I was recently called and “sustained” by the congregation to be the bishop for our church here in Wausau.

This means that I will have to handle my time even more efficiently than I do now, in order to carry out my job duties with the County and my ministerial duties with the church. I am not anticipating any major difficulties with this. I have decided that this would

be the time to give up my involvement with NACo, as your “delegate” to the NACo Board of Directors, and also my responsibilities as an officer with the National Association of County Administrators. My NACo and NACA duties are about the only things I have right now that I can give up, in addition to some personal hobbies and interests. So I will give up those things, and with that I should have time to carry out both my church responsibilities and my job duties with Marathon County without short-changing either one. It will be a challenge to juggle my time of course, but I have been doing that for many years already.

My resignation opens up the NACo Board seat for someone else, and I would encourage our current NACA officers (and any other member for that matter) to consider taking over that responsibility. Being on the NACo Board as our NACA delegate involves about five out-of-state meetings annually. The NACA delegate is automatically a member of NACo’s Finance Committee. Required meetings are the NACo Legislative Conference (Spring in D.C.), NACo WIR Conference (usually in May), NACo summer conference, NACo Board of Directors meeting (usually in early December), and a special meeting of the NACo Finance Committee (sometime in October or November, usually in D.C.).

In addition, as NACA’s affiliate representative to NACo, I usually write a column for our NACA journal, approximately six times per year. I will also say that as a member of the NACo Board, you are treated very well by the NACo staff. They do everything they can to accommodate you when attending conferences, and I have very much enjoyed my work on both our NACA board and with NACo.

It has been a great pleasure to serve you, my fellow administrators, over the last many years, and I can now move

to a different phase of my involvement with other things knowing that NACA is in good hands and under very capable leadership (and outstanding work with our NACA Journal from our friend and colleague Bob McEvoy). So there you have it. Cook County and Chicago will be my last NACo conferences for a while. If I can provide any additional information to anyone thinking about applying for the NACo/NACA Board seat, please do not hesitate to call me in Marathon County. I can be reached at 715-261-1402. Hope to see many of you in Chicago.

*Toregas,
(continued from page 6)*

2. Ensure broadband connectivity by private, public, or partnership efforts; whatever the connectivity you have today, it will not be enough for tomorrow’s applications arriving on the fast train!
3. Preserve equity and personal privacy explicitly by organizing a discussion of stakeholders, reviewing current legislation, and issuing policies that reflect community values and your own personal beliefs in Inclusion and Privacy

Is there anything else? Oh, yes! Just try it! Don’t wait for the bleeding edge to pass by, jump in and start a few pilots. There is no pain here, only opportunity and fun!

The staff of NACA members can now sign up for the NACA Listserve. A staff member will be permitted to use the listserve with the approval of the NACA member. The listserve is available through NACA’s Web site at www.countyadministrators.org and is *always* available to you for information exchange.

Rising Energy Prices May Not Be a Windfall for All Government Budgets

by **Brian Stenson, Rockefeller Institute of Government**

Reprinted from Rockefeller Institute, *State Fiscal News*, Vol. 5, No. 3, May 2006.

Rising prices for gasoline and oil translate into record profits for oil companies; consumers fume over the cost of filling their tanks; and state and local government budgets are said to receive a windfall from higher tax collections. The first two statements are undoubtedly correct. The third is more complicated. For state and local governments, higher gas prices present a complex issue with different, and sometimes unexpected and conflicting, implications. This brief outlines some of the consequences of rising energy prices on government budgets.

The Tax Revenue Impact of Rising Prices

There is no doubt that taxes account for a material share of the price of gasoline and that rising gas prices can drive additional revenue to state treasuries. But this does not apply to all gasoline taxes.

The federal government imposes an excise tax of 18.4 cents for each gallon of gasoline sold. An excise tax is levied on a particular good or group of goods, such as motor fuel, tobacco, telephone calls, and liquor. In addition to the federal tax, every state also imposes an excise tax, which range from a low of 4 cents in Florida to 31 cents in Washington.¹ Only three states impose an excise tax lower than 10 cents, while 28 states (plus the District of Columbia) tax at 20 cents or more per gallon. There have been some changes in this tax since July 2002, but generally not in a way that favors consumers.

Since that time, two states have reduced excise tax rates, while 11 have raised them. The critical feature of excise taxes is that they are imposed on a per gallon basis, not on the price of the gallon.

So in Texas, for instance, the tax is 20 cents per gallon whether that gallon

	2004	2006
Average cost of gallon of gasoline (incl. Federal tax)	\$1.215	\$2.617
7% sales tax	\$0.085	\$0.177
Excise tax	<u>\$0.200</u>	<u>\$0.200</u>
Total price at the pump	\$1.50	\$3.00
Source: Rockefeller Institute of Government calculations		

Total Tax Rate/Gallon	# of States
Under 10 cents	1
10 to 19.9 cents	10
20 to 29.9 cents	26
30 to 39.9 cents	11
40 cents and above	3
Source: American Petroleum Institute: http://api-cc.api.org/newsplashpage/index.cfm	

sells for \$1.50 or \$3.00. In short, rising gasoline prices do not produce a windfall for governments in receipts from excise taxes.

Many states also impose other gasoline taxes in addition to the excise tax. For example, New York imposes a petroleum business tax of 15.9 cents on each gallon; Florida imposes a sales tax, but this is levied on the volume sold (10.9 cents per gallon), not the price; and Pennsylvania imposes a 19.2 cents per gallon oil company franchise tax. Like the excise taxes, these are levied on volume, not price, and so do not rise as the price of gasoline increases.

There is one major tax source that is price-sensitive to the cost of gasoline—the sales tax—and this is the potential source of any tax revenue windfall. Seven states impose a general sales tax on gasoline purchases: California, Georgia, Hawaii, Indiana, Illinois, Michigan, and New York. In states with general sales taxes on gaso-

line, gas price increases boost the sales tax amount on these purchases. When the sales tax is considered, at both the state and local government levels, the total amount of taxes imposed on gasoline is dramatically higher than the amounts implied when only excise and petroleum-related taxes are considered. Table 1 illustrates how the various sales and state excise taxes are applied, using typical rates and gasoline price points:

The American Petroleum Institute has calculated the average state and local tax rate by factoring in the sales tax as of April 26, 2006. Total state and local taxes are shown in Table 2:

Alaska is reported to have the lowest combined rate (eight cents per gallon), while the highest rates per gallon are paid in Connecticut (41.2 cents), California (42.2 cents), and New York (49.5 cents). When the federal excise tax is included, the combined taxes per gallon range from a low of 26.4 cents in Alaska to 67.9 cents in New York.

State governments may also realize additional tax revenue from income taxes they impose on the net income of corporations. But this is not a major revenue source for most states—nationally, only about 3.5 percent of state governments' own-source revenue (their total revenues less the amount they receive from the federal government) comes from corporate net income taxes. And that percentage reflects the taxes paid by all corporations, including those whose net income has been reduced because they have been reluctant to pass on the entire cost of gasoline price increases to consumers in the form of higher retail prices. Of course, oil-producing states have the potential for recording significant increases in tax revenue from corporate income taxes. Government tax collections may also see negative impacts from rising gasoline prices. The most obvious is from the effect that rising gasoline prices have on driving habits. To the extent that rising prices encourage drivers to reduce consumption, receipts from the excise tax will decline.

Governments Are Consumers Also

Generally lost in the debate about windfall tax collections on gasoline sales is that governments at all levels are prodigious users of petroleum products. Governments use significant amounts of gasoline, diesel fuel, and other petroleum products, either directly or through contract arrangements with private sector businesses. They, too, are feeling the impact of rising prices. The aggregate spending impact related to rising energy prices can be staggering. New York State, for example, estimates that its direct spending for gasoline, diesel fuel, electricity, and natural gas for vehicle use, heating and cooling of buildings, etc., will be approximately 40 percent higher in 2005-06 than in 2004-05. This one-year increase amounts to nearly \$185 million.²

Sharply rising prices for oil products ripple throughout government budgets. Illustrations of the impact in two such areas follow:

The most obvious example is the direct use of gasoline or diesel fuel by government vehicles—and perhaps the most visible of such instances is school buses. The National Association for

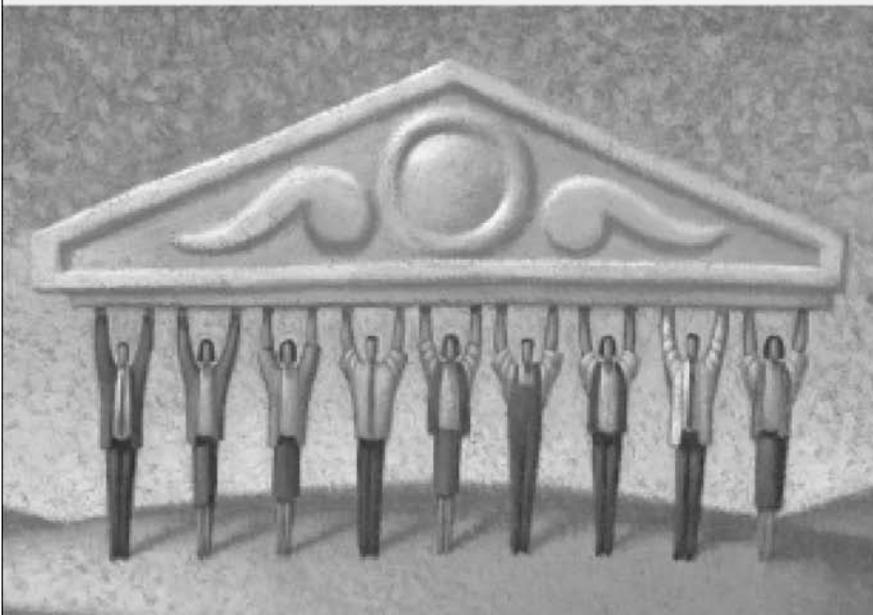
Pupil Transportation estimates that the average school bus travels some 15,000 miles a year, lower in urban communities and higher in suburban and rural areas. There are approximately 470,000 school buses in the nation. Now consider that the average bus gets about 10 miles per gallon.³ South Carolina offers a unique example because the state provides school districts with transportation services including buses, fuel, and bus maintenance. In 2004, the state purchased fuel for 95.7 cents per gallon while the price in the current year is estimated at \$2.25 per gallon (all prices without taxes). Total fuel spending over the same period increased 131 percent.⁴

The rising price of fuel (whether gasoline or the more commonly used diesel fuel) is stretching school budgets everywhere and requiring many to restrict fuel consumption. Some strategies, such as fine-tuning bus routes to reduce miles driven, reducing idling time, and engine tune-ups, represent pure efficiencies. Other measures reduce student programming and limit the number of field trips and trips for extra-

(continued on page 10)

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Stenson,
(continued from page 9)

curricular activities. Some districts have imposed a separate transportation fee on students' families, and at least one closed school for two days to reduce fuel use.

A less obvious area where government spending is affected by rising oil and gasoline prices is in the broad range of commodities purchased by state and local governments. One such activity that is affected by rising prices for petroleum products is highway maintenance and construction. For example, most highways and streets are paved with a mix of asphalt, a petroleum derivative, and other products. The price of asphalt has tracked closely to oil and gasoline in recent years. From an average price of \$210 per ton in 2003, asphalt has climbed sharply to its current price of \$314 per ton in 2006.

And it takes approximately 45 tons (along with 700 tons of other materials) to pave each mile of a two-lane highway. Taken by itself, the recent rise in the price of asphalt adds approximately 15 percent to the cost of materials need for each paving job. Rising fuel prices are also embedded in other commodities. Before the current surge in fuel prices, the New York State Department of Transportation was budgeting just over \$34 million for the purchase of salt for the current year. Actual costs are now estimated to exceed that earlier budget by nearly 9 percent and the projection for next year is above \$40 million, a budget-to-budget increase of more than 17 percent.⁵

Other Factors

Gauging the impact of rising oil and gasoline prices on government budgets

is made even more complicated by other factors. Governments that do not levy general sales taxes on gasoline—or that do not receive such revenue from another jurisdiction—may be experiencing only the cost pressures exerted by rising prices and not the additional sales tax revenue from higher gas prices.

Even states that impose such sales taxes may see highly focused budget stress. For example, many states have established separate funds to support highway and bridge projects. To the extent that these “dedicated funds” are financed with excise taxes, and not general sales tax revenue, the funds will be squeezed between rising costs and stagnant revenues.

Conclusion

Few will argue the political appeal of providing some relief for hard-pressed consumers in the form of tax reductions on gasoline. The financial pain of rising prices, compounded by higher sales tax charges in some cases, is especially acute for low- and moderate-income drivers. But lobbyists, taxpayers, and the media should recognize that this is a complex issue that needs careful consideration. When all the above factors are considered, the potential government “windfall” is far less than a simple sales tax calculation would suggest and, in fact, may be producing net budget deficits in many jurisdictions. Government policy makers need to view any “windfall” in the context of the entire budget, balancing any additional revenue against higher spending, and even declines in other tax sources.

Endnotes

1. Source: American Petroleum Institute.
2. Louis Raffaele, Expenditure/Debt Unit Chief, New York State Division of the Budget.
3. Michael Martin, Executive Director, National Association for Pupil Transportation.
4. Don Tudor, State Director of Pupil Transportation, South Carolina.
5. New York State Department of Transportation.

County News

Member Appointments in Local Government

Jeffrey S. Earlywine, city administrator, Fort Thomas, KY, since 1985, has been appointed county administrator of **Boone County, KY**.

Peter J. Herlofsky, county administrator, Crow Wing County, MN, since 2000, has been appointed city administrator of **Farmington, MN**.

C. Jack Horton has been appointed deputy county manager of **Caldwell County, NC**.

Erika M. Rosebrook Dibble, business improvement/community coordinator, Ottawa County, since 2004, has been appointed assistant county administrator, **Ottawa County, MI**.

Sarah E. Plinsky, management analyst, Johnson County, KS, since 1999, has been appointed assistant to the county manager of **Johnson County, KS**.

Jeffrey W. Aluotto, solid waste manager, Hamilton County, since 1999, has been appointed assistant county administrator, **Hamilton County, OH**.

Cynthia A. Coto has been appointed county manager of **Seminole County, FL**.

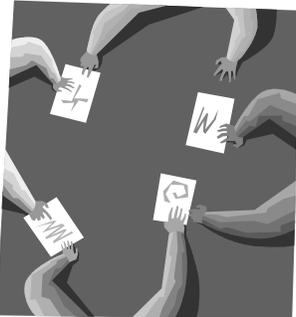
Job Opportunity

Knox County, IL (55,000) *County Administrator*. Salary: negotiable DOQ/E + benefits. 15-member board meets as committee of whole twice each month. Approximately 460 employees. Located in west central Ill., 38 miles west of Peoria. Prefer college degree in public administration & 3-4 years experience. Require highly motivated, strong interpersonal skills, strong self starter, & basic knowledge of computer technology; show performance & proficiency in areas, including organization/administration, budgeting, human resources, purchasing, project management, grants, & public relations. Experience with county government a plus. Report to county board & chairman of board. Employment agreement offered. Resume & reference to Scott Erickson, County Clerk, Attn.: Administrator Position, 200 S. Cherry St., Galesburg, IL 61401; ickson@knoxclerk.org, by 7/1/06.

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Check the NACA Web site at <http://countyadministrators.org> for further information.

PERI Responds to Potential Influenza Pandemic With Symposium to Support Local Community Preparedness

The Public Entity Risk Institute (PERI), a nonprofit risk management training and educational organization, will host a week-long Virtual Symposium to support local communities in developing response plans for a pandemic influenza crisis. The Symposium, *Preparing for a Local Crisis within a Global Pandemic*, to be held on June 19–23, 2006, will be directed by former county manager and current managing editor of *The Journal of County Administration*, Robert McEvoy.

“Communities shoulder the bulk of responsibility for assuring minimal disruption of services to area residents during a crisis. However, many of these local governments and small communities lack the resources to establish effective action plans to respond to a pandemic crisis,” said Gerard J.

Hoetmer, Executive Director of PERI. “PERI’s mission is to be the prime resource for small public entities to turn to in time of need. With our Virtual Symposium program, we can deliver this vital information to the broadest audience through the Internet.”

The Virtual Symposium, *Preparing for a Local Crisis within a Global Pandemic*, will examine the potential effects of an influenza pandemic and provide insights and guidance on the planning strategy that local communities need to undertake to prepare in advance for a crisis. This week-long program is being directed by Robert McEvoy, who, in addition to being managing editor, is on the public administration faculty of Rockefeller College of Public Affairs and Policy at the University at Albany, State

University of New York. During the Symposium, PERI will provide participants with vital links to federal, state, and local resources and share best practices in effective local planning efforts.

PERI Virtual Symposium Programs are conducted online in the Symposium Center located on PERI’s Web site at www.riskinstitute.org. Each day, specially commissioned Issues and Ideas Papers are presented on the PERI Web site, as well as e-mailed ahead of time to everyone enrolled in the program. These papers are written by recognized experts. Online, threaded discussions will also be available to stimulate an exchange of ideas and post questions and comments on the issues raised in each day’s presentations.

Provided as a public service, PERI Virtual Symposiums are free. To enroll, go to Symposium Center on the PERI Web site at www.riskinstitute.org and fill out the short enrollment form.

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