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Inside The Fishbowl

Official Newsletter of NTEU 280

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January 4, 2007, Federal Triangle, Room 1117B EPA East, 11:30-12:30

NTEU National negotiator Rick Bialczak will present a summary of the new agreement and answer your questions

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- Laboratory Closings
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From the President Bill Evans

This issue of *Inside the Fishbowl* covers a lot of important issues that have surfaced with regard to the well being of all EPA employees. Some of these items are covered in more detail in other articles inside this edition of *Inside the Fishbowl*.

PARs is now upon us and most of us have already been evaluated and are now learning that these evaluations will be available to us on People Plus. At this time, however, we are not sure just what exactly will appear on People Plus albeit the entire evaluation or just the evaluation, minus the scores. Management considers this “no big deal”, but has not yet committed to following up the union's request to give a detailed explanation of what will be included, or how corrections will be made when necessary, NTEU will be working with labor relations to clarify exactly what will be included in these postings.

e-OPF (Electronic Official Personnel Folder) is an initiative to digitize all items in federal employee personnel folders in an effort to streamline information systems across all federal agencies. It has been proposed that this process will be completed and sent to OPM by October 2007. NTEU has requested to bargain all phases of this migration and will keep you informed as we receive new information.

Laboratory Closings - EPA laboratories are in danger of closing due to budget cuts. In many cases these closing are coming under the guise of “consolidation”. Close to home there has been a quiet move to sabotage the work accomplished at the Microarray Research Laboratory at Fort Meade, Maryland. This laboratory is unique and is the only EPA lab that works on the genomics of pathogenic microbes, and the performance has been described as “stellar” by a distinguished bioengineering professor. Additionally, EPA management has given awards and excellent evaluations to a key employee and the laboratory. However, management, directly and indirectly has encouraged the non-FTE scientists working in this EPA lab to seek employment elsewhere as they are being told that funding for the position will cease. NTEU has taken steps to fight relentlessly in keeping this important cutting edge technology laboratory fully-funded and running as it was intended.

Library closing – EPA has been busy closing our libraries under the guise of “digitizing” and “bringing us into the 21st century”. They have promised us that any publication we need at the libraries will be available and easy to obtain. However, we have discovered that there were boxes of “obsolete” materials which were condemned to shredding, but thanks to the action of a concerned EPA employee who now risks reprimand from his supervisor, these materials have been spared – at least for the time-being.

Reorganizations – We are swamped with reorganizations from management groups all over EPA. Most of us on the Executive Board do not know how these reorganizations will affect you personally, or if there is a majority opinion. One way to help us and yourself would be to become a steward of your group. The training offered by NTEU National is excellent.

Global warming – It is an exciting time to work at EPA. A coalition of 22 unions including NTEU Chapter 280 all signed a letter to Congress stating that EPA could be doing much more than it is currently doing to address the issues of global warming. This letter was developed through a national base of EPA’s Unions. The case of Massachusetts v. EPA was argued before the Supreme Court on November 29, 2006. NTEU 280 Vice President Bill Hirzy and Dwight Welch, co-chair of the National Partnership Coalition presented a copy of the letter to reporters covering the global warming argument and urged that more be done to counter global warming.

Membership – Now, more than ever is the time to be a dues-paying member of NTEU. With budget cuts, reorganizations in every AAship and PARS a reality, collective bargaining members need to support NTEU. Our bargaining power will be stronger with greater membership. Encourage your colleagues to join! Call Diane Lynne 202-566-2786 to request a membership form.

PARS Negotiations Update by NTEU National Negotiator Rick Bialczak

Almost a year and a half after institution of the new 5 tier performance appraisal system (PARS), NTEU has completed bargaining with the Agency. While the provisions of the contract went into full effect September 30, 2006, which is 30 days after the agreement was reached, the new “close out periods” described below will be effective with the next quarter, which begins in January 2007.

While the lead-up to this system was poorly handled by the Agency, the PARS agreement negotiated by NTEU contains significant new protections for employees. These negotiations included significant and excellent work by the leaders of Chapter 280 and the three other NTEU chapters.

NTEU focused on ensuring a fair, equitable, and open process in the development of performance plans and the appraisal systems. For instance, the NTEU team negotiated a system of quarterly “close-out” periods where, with certain limitations, if an employee is not informed by the end of a quarter of work product that did not meet expectations then it may not be used to lower their appraisal score. This will help ensure both that employees know that they are meeting expectations and performing good work, and that they are not surprised at the end of the year by examples of unsatisfactory work they had assumed was performed satisfactorily.

Additionally, the NTEU team negotiated provisions that should ensure continuous and open feedback from their supervisors. After receiving reports that many high-performing employees were surprised by appraisal scores lower than they had expected – perhaps receiving a Fully Satisfactory or an Exceeds Expectations – the bargaining team negotiated a provision preventing a lowered appraisal score unless the employee’s supervisor has previously communicated their

belief that the employee's performance was slipping. Not only does this allow employees to challenge a lowered appraisal score, it should help by forcing supervisors to establish reasonable and known expectations.

There are many provisions in the new Article, of which the above represent only examples. The system guarantees an equitable system by **banning the forced distribution of appraisal scores**, by mandating reasonableness and clarity, and by establishing mechanisms for the protection of employees whom their supervisors feel are performing poorly. The system of fairness and open communication extends even to supervisor performance plans, which employees may now view in order to better understand the Agency's "cascading" performance goals.

Laboratory Closings

Thanks to the *Kansas City Star* for letting us re-print the following important story of drastic proposed EPA budget cuts, including the shuttering of important laboratories. Read this article and see if you are concerned...You should be!!!

Posted on Sat, Sep. 16, 2006

EPA ponders '08 budget cuts

An internal memo by the agency's chief financial officer recommends lab closures, staff reduction.

By DAVID GOLDSTEIN
The Star's Washington correspondent

WASHINGTON | The Environmental Protection Agency intends to close labs, cut its cadre of upper-level scientists and reduce regulatory oversight, according to an internal agency document.

In a memo dated June 8, a top agency official outlined "a set of proposed disinvestments, innovations, efficiencies and consolidations" for the upcoming 2008 fiscal year budget.

“The decisions we make will be critical, difficult, and will have long-term consequences,” wrote Lyons Gray, EPA chief financial officer.

He said the EPA wanted to limit duplication and find “opportunities for consolidation and streamlining.” Memo recipients were EPA assistant administrators, regional administrators, the general counsel and the inspector general.

Gray called for the creation of Centers of Excellence within the agency that would manage “contracts, grants and human resource work.”

Asked about the memo, the agency said in a statement: “The EPA is committed to being good stewards of our nation’s environment and good stewards of our nation’s tax dollars.”

Jeff Ruch, executive director of Public Employees for Environmental Responsibility, a watchdog group that obtained the memo, described the plan as “chopping up the furniture to meet external budget targets.”

Patrick Bustos, spokesman for Region 7 in Kansas City, Kan., said laboratory officials in the region had not heard about EPA’s intent to close labs. He said that Gale Hutton, who oversees the region’s laboratory, told him the EPA was conducting a study to determine whether the labs could be run more efficiently.

Bustos was unsure late Friday how many people worked in the regional laboratory. The EPA Science & Technology Center, which houses the laboratory, is a state-of-the-art building considered to be the agency’s most energy-efficient.

The EPA budget has been dropping steadily since it reached a record \$8.13 billion in fiscal 2003. The Bush administration’s fiscal 2007 budget was nearly \$1 billion lower, but Congress has not yet approved a final version. The fiscal 2008 budget is due in February. Gray said the financial outlook was “very challenging.”

His memo asked for plans to close at least 20 percent of the EPA’s 16 research laboratories by 2011 — a minimum 10 percent cut by 2009 and an additional 10 percent by 2011.

Gray also asked agency officials to suggest upper-level staff cuts, which would include scientists, analysts and managers. His memo hinted that more reductions could be necessary in the future.

Staff cuts would worsen what some experts have said is a deteriorating situation, particularly with a significant number of EPA employees due to retire in the next decade.

M. Granger Morgan, head of the Engineering and Public Policy Department at Carnegie Mellon University and chairman of the EPA Science Advisory Board, told Congress in March that the agency “is in danger of losing core scientific expertise in both conventional and emerging environmental issues.” Morgan also testified that research and development spending at the agency had fallen more than 16 percent since 2004.

An August report by the EPA inspector general found studies concluding that the agency does not always have reliable data for its conclusions and “does not always use reliable science to support its rules and regulations.”

Gray’s memo also calls for working with state and tribal groups to look for ways to reduce regulatory oversight.

“The state and tribal grants have been reduced 25 percent since the administration started,” said Heather Taylor, deputy legislative director of the Natural Resources Defense Council. “First we take away the money to do their jobs, now we take away the oversight.”

The Star’s Karen Dillon contributed to this report. To reach David Goldstein, call 1-(202) 383-6105 or send e-mail to dgoldstein@krwashington.com.

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Library Closings

NTEU 280 spoke with Leslie Burger, the President of the American Library Association and Director of the Princeton Public Library about the EPA library closings following publication of Ms. Burger’s wonderful Op-Ed piece that was published in the New York Times on December 8, 2006. We urge you to click on the link below to read her editorial in its entirety. Ms. Burger bemoans the shuttering of EPA’s libraries as an obstruction of vital public information and an obstruction of vital materials for EPA scientists and staff. She questions the wisdom of reducing environmental information access in an era of enhanced emergency preparedness, and she notes Congressional action and inquires to reopen the libraries.

Ms. Burger made a statement in support of EPA libraries on December 14, 2006 at the National Advisory Council for Environmental Policy and Technology (NACEPT), a Federal Advisory Committee that provides advice to EPA’s Administrator. Ms. Burger reportedly informed the Council that the Government Accountability Office (GAO) had launched an investigation into EPA’s library digitization project. More on library closures in next month’s *Fishbowl*.

OPINION | December 8, 2006 (Click below for the link)

[Op-Ed Contributor: Keep the E.P.A. Libraries Open](#)

By LESLIE BURGER

The Environmental Protection Agency is starting to dismantle its crown jewel, the national system of regional E.P.A. libraries.

Thanks again to the *Kansas City Star* for allowing us to re-print this excellent article that outlines the concerns of the on-going library closure plans:

Posted on Fri, Dec. 01, 2006

Shutdown of EPA libraries worries scientists, advocates

By David Goldstein

McClatchy Newspapers

WASHINGTON - Concerned about the kinds of pollutants spilling into your local rivers and streams and how they could affect your health?

As the Environmental Protection Agency closes some scientific libraries around the country, EPA scientists and other environmental advocates worry whether that kind of information could become harder to find.

They fear that the agency's plan to save money by replacing printed resources with digitized versions on the Internet could make information less - not more - accessible.

"Nobody is against modernization, but we don't see the digitization," said Francesca Grifo, a botanist and the director of scientific integrity at the Union of Concerned Scientists, an advocacy group for the environment and other scientific issues. "We just see the libraries closing. We just see that public access has been cut off."

The EPA has closed three of its 10 regional libraries, branches in Kansas City, Mo., Dallas and Chicago that serve 15 states. EPA officials said that no information would be lost and that public access would be improved rather than compromised.

"EPA is committed to ensuring the agency's library materials are available to employees, the public, the scientific community, the legal community and other organizations," Linda Travers, the acting assistant administrator of the EPA's Office of Environmental Information, said in an e-mail.

Travers said material from the closed libraries would be available on the agency's Web site (www.epa.gov) in January and was accessible now through interlibrary loans. She said EPA-produced documents from all 21 libraries in the agency's network that could be digitized would be accessible through the Internet within two years.

But the closing gives ammunition to scientists, open-records supporters and members of Congress who think that the Bush administration is weakening the EPA. An internal agency memo last summer spelled out plans to close laboratories, cut senior-level scientists and reduce environmental oversight.

Steve Kinser, a Superfund project engineer in Kansas City and the president of the local chapter of the National Treasury Employees Union, which represents the EPA's professional employees, said the developments had made him look forward to his retirement next year even more.

"Our ability to do our job is being tested at every turn," he said. "I don't know if I can say anything more plain than that."

Unions that represent 10,000 EPA scientists, engineers and other employees have complained to Congress about the library closings. Several lawmakers have asked the Government Accountability Office to investigate.

In a letter Thursday to EPA Administrator Stephen Johnson, four Democrats in the House of Representatives who probably will play influential roles next year on EPA issues told him to stop "destruction or disposition of all library holdings immediately."

"It now appears that EPA officials are dismantling what is likely one of our country's most comprehensive and accessible collections of environmental materials," they wrote.

The authors were the ranking Democrats on four House committees that oversee EPA issues: Reps. Bart Gordon of Tennessee, Science; John Dingell of Michigan, Energy; James Oberstar of Minnesota, Transportation; and Henry Waxman of California, Government Reform.

Regional EPA libraries in Boston, New York, Philadelphia, Atlanta, Denver, San Francisco and Seattle remain open, though some have reduced hours. EPA spokeswoman Suzanne Ackerman said she knew of no current plans to close any others.

The EPA also has shuttered its headquarters library in the nation's capital as well as a specialized library on chemicals, with little or no public notice.

"They're really acting like their hair's on fire," said Jeff Ruch, the executive director of Public Employees for Environmental Responsibility, a nonpartisan watchdog group. "They're quickly closing the collections, boxing them and shipping them to repositories."

Critics have questioned why the EPA is closing libraries to save \$2 million when its own study in 2004 found that they saved the agency more than \$7.5 million annually in staff time.

Travers said staff use of the libraries was down dramatically in recent years because of the ease and speed of the Internet.

The agency isn't digitizing everything from the closed libraries, however. Critics worry that some non-EPA materials might be destroyed, though EPA spokeswoman Jessica Emond said that only outdated documents would be discarded.

But Bill Hirzy, an EPA chemist, said the chemical library was told to "just literally throw in the Dumpster" a valuable collection of environmental journals.

"Just throw them out," he said. "We managed to put a halt to that. It's that kind of craziness that's going on down there."

The libraries contain scientific data on a variety of environmental topics, from acid rain to wetlands. Trained librarians guide EPA scientists - as well as the homeowner concerned about the construction project next door - through a trove of reports, books, scientific journals, maps, microfilm and other resources.

Among their holdings are obscure articles and publications usually unavailable on the Internet.

"We don't know which items are being tossed and which items are being saved," said Leslie Burger, the president of the American Library Association. "They have 35,000 to 50,000 unique documents available only in EPA libraries. If that information is not saved, it's gone forever."

Martha Keating, a former EPA air-quality expert who's now a children's environmental health researcher at Duke University, said the library closings and the boxing-up of their contents for storage reminded her of the ending of the film "Raiders of the Lost Ark."

"It's like that last scene where the forklift is putting the boxed-up ark in a federal warehouse," she said. "That's what I envision. It's something that's never to be seen again."

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End of news article.

In response to the outcry about library closures and the destruction of library science journals from the OPPT Chemical Library, on December 12, 2006 Deputy Administrator Marcus Peacock and Office of Environmental Information Acting Assistant Administrator Linda Travers held a brief press conference. Both Mr. Peacock and Ms. Travers repeated the same lines that they used before:

- * Our digitization efforts will bring EPA's library into the 21st century
- * More documents will be available to more people, at less cost to the taxpayers
- * We have been following American Library Association guidelines

And so on and so forth.....

They did say that they are "re-scheduling" their plans to recycle library documents; and that they "re-linked" the OPPTS electronic archive documents that had been removed from EPA's web pages.

There was time for a few reporter questions. In response to a question about OECA's concern about materials that support past enforcement cases being removed from libraries, Ms. Travers gave the assurance that "all documents pertaining to enforcement will be retained in the collection."

The President of the American Library Association, Ms. Leslie Burger, was reportedly confused by the statement about following American Library Association guidelines, as she had not been contacted and didn't know what standards they were referencing.

Membership

As part of our membership drive, we will begin a series of outstanding speakers that will inform you about issues of concern. Congressman Chris Van Hollen (D-MD) who serves on the House Committee on Government Reform, House Committee on Education and the Workforce, and the House Committee on the Judiciary will address NTEU members about the latest legislative proposals impacting government workers. We hope to set a date in January – so stay tuned....

New Features for the Fishbowl

We've corralled some of the top employment lawyers in town to participate in our new feature: *Ask the Employment Lawyer*. Send me your employment questions. Do you think you are a victim of discrimination in your office? Do you have questions about the EEO process or want information on mediation options? Have you received a reprimand? These guys charge big bucks, but will provide generic answers for free. E-mail your question to Lynne.Diane@EPA.GOV with the subject line: "Ask the Lawyer" or use the interoffice mail and direct your question to Diane Lynne UN-200-T. Your name and office will not be put in the newsletter. We may not be able to address all the questions, but we will try.

X-BYTES

By Dwight Welch

Executive Vice President

Adventures in Alternative Energy

A Solar-Electric Emergency Backup System?

With turmoil in the Middle East, global warming, and even the President talking about addiction to oil, some may wonder is it not a good time for expansion into alternative forms of energy. In this four part series I will examine some in and outs of home produced electricity. These articles are based on real life practical experience. In this first article, I will compare various forms of emergency backup electrical power. In the second article, how to build a battery backup emergency system. In the third article, how to turn this battery backup system into a full-time/near full-time solar-electric system. In the fourth article, I will discuss possibilities of a solar/wind and other hybrid systems. I make no specific endorsements of any products or companies, but will discuss what to avoid, and some practical advice on setting up your own alternative electric backup system. . Price comparisons are approximate and ever shifting, so do your own research.

Aside from philosophical/idealistic considerations, most want to know, is solar energy economically feasible? Unless you are fortunate enough to live in a state such as California (Million Roof Program), where the state government pays a significant portion of an alternative energy investment, the short answer is “No.” Even with the current federal subsidy, the answer is still “No.” However, such an answer is based upon the mundane and time worn formula that such equipment will not pay for itself. You would be better off taking that money, putting it in a safe long term investment program and paying your electric bill with the interest. But a different way of looking at such an investment is this. Consider those who lost power during hurricane Isabel or this year with tropical storm Ernesto. Or how about those who lost power during the last winter snowstorm? Indeed, this past summer, with increasing demand on an aging electrical grid many suffered blackouts, some lasting a week or more. If you are a person considering a back-up electric system for power failures and emergencies, the above “No” may become a “Yes.”

And those who consider the future, might also take notice. When I bought my hybrid Prius, people said, “You will have to drive that thing 140,000 miles to recoup the extra cost of the electric engine and batteries.” That was back when gas was \$1.25 per gallon. Now at \$2.00 to \$3.00 plus per gallon, the recoup time is not so long. Every time OPEC ups the price of petroleum, while you gasaholics wince, I just smile. Similarly, a natural gas home is not the bargain you may have once thought it was, with natural gas skyrocketing in price. Recently in Maryland, PEPCO and BG&E announced some severe rate hikes. Payback on a solar-electric system may be shorter than anticipated. And then there’s things like terrorist attacks or even Bird Flu. During the Spanish Flu Pandemic of 1913, so many were sick and dying, that power plants were understaffed and folks experienced brown-outs and black outs. Sometimes it’s something really mundane. One hot summer night, I lost power for about 8 hours because some idiot hit a utility pole with their SUV.

So what are the options for an emergency power backup system? What are their costs? Advantages and disadvantages? I will compare several types of options: portable generator, permanent backup generator, battery based systems, solar/battery systems and hybrid systems.

OVERVIEW

Generators are a heck of a lot cheaper than battery backup systems in terms of initial investment. However, when you factor in the long term costs of fuel, maintenance contracts, and equipment replacement, battery backups become more cost competitive. And if you don't like hassles and performing regular routine maintenance, the equation may tip towards the battery backup. Add some solar panels to a battery backup system, and you now have additional initial cost, but with solar power, you gain not only with additional savings in the long term, but the addition of solar panels makes up for some of the battery backup system's shortcomings. And in case anyone working for EPA is interested, a solar backup system creates no pollution, does not add to global warming, etc.

FIRST A WORD ON CONSERVATION AND SELECTING CRITICAL USES

It is a bad idea, indeed prohibitively expensive, even with the cheaper generator, to try to power a large, all-electric home on a backup system. First, you should look to conserve where ever you can. For instance a 13 watt fluorescent bulb puts out the same light as a 60 watt incandescent bulb. The fluorescent's longevity makes up for the bulb's higher initial cost, but from there the electricity savings can be significant. One dramatic savings I made was to switch from a normal top loading washing machine, to a front loading one. Just considering the electricity used to run the machine yielded significant savings. For a typical load, the energy to run the top loader was 215 watt-hours, to run the front loader consumed a mere 150 watt-hours, a 65 watt-hour savings. (150 watt-hours is equivalent to a hundred watt bulb burning an hour and a half.) But the big savings comes in water and hot water usage. Hot water typically is approximately about one third of a household's energy use. The front loader uses less than half the water as the top loader. Additionally, you also use half the detergent and half the bleach, and your wash comes out cleaner to boot. You don't have to buy one of those expensive \$1000 plus machines either. I bought one for a bit more than a top loader.

In order to make decisions about sizing an electrical backup system and assessing the relative efficiency of appliances, you may wish to purchase a watt-meter. I bought one (The "Watts Up" Meter) from Dominion Virginia Power for a little less than a hundred bucks, but you can

purchase a similar “Kill-a-Watt” meter from Camping World (Manassas) or by mail order from the Alternative Energy Store (<http://home.altenergystore.com>) for about \$35 including shipping.

But the biggest savings come from selecting only those circuits or appliances which are critical in a power outage such as refrigerator/freezer, some lights, TV and/or radio, and for folks like me on a well, the well pump. One can go days with a portable heater in the winter, or candles and lanterns, but without water, a blackout gets pretty stale really fast. Using the watt-meter or consulting the stickers on the various appliances, one can calculate one’s approximate critical power usage. For instance I measured my refrigerator’s energy usage on a hot day, without A/C in the kitchen and came up with an average (over a week) of about 3 kilowatt-hours/day and something like 500 or 600 watts when it was running.

For heating during a winter blizzard you may decide to conserve by using a portable propane camping heater. In the summer, you may decide to have a “cold room” and attach a portable A/C to your back-up circuits, forgoing central heat/air.

GENERATORS

Portable Generators

Portable generators are the most economical form of backup power at about \$500 to several thousand dollars. They are also the most inconvenient and dangerous. Maybe you’re thinking, “I can buy a portable generator now, gas it up, and if the power goes out, it will be there ready to use.” You would be wrong.

A TV ad for Honda generators shows a happy family, going about its normal business in the midst of a severe thunderstorm. The family’s house is lit up, the only one in a darkened neighborhood. Mom dashes out to run an errand, passing by the little Honda generator on the porch. Aside from the inadvisability of driving around during a severe thunderstorm, the commercial contains a number of misleading items. First, you don’t hear how noisy the generator is. Second, a porch is a bad place to place a generator, it invites carbon monoxide to seep into your house. Third, having a source of gasoline on the porch is a fire hazard. Fourth, is the machine grounded?

To properly place a generator, it should be downwind from the house and not under an overhang such as a porch roof; otherwise carbon monoxide and other toxic gases may enter your home. Since portables aren't meant to be left out in the weather, there should be some sort of open faced coverage (small roof) away from your home. The machine also needs to be attached to an 8 foot grounding rod pounded into the soil for safety.

So you are in the middle of a thunderstorm or blizzard. Are you really going to go out in the elements, drag your generator out of the garage, start it up, wait 10 minutes for the machine to warm up, and then attach extension cords, dragging them in the house and then plugging in your appliances? If you want to run a hard wired appliance such as a well pump or furnace (gas or oil won't do you any good if the blower can't run) you won't be able to do it. The gas in the tank will only last 4 to 8 hours, then you must disconnect or turn off appliances, go out in the elements, refuel, check the oil, and then start it up again.

Earlier I advised that the gassed up generator in your garage was not a good idea. With any gas generator, you are advised to use up or replace the fuel on a monthly basis. You must also run the generator about 2 hours a month (half hour a week). If you don't do these things, the engine's carburetor will gum up and need to be serviced. I found this out the hard way on my Winnebago. This summer I powered up the generator, then turned on the A/C. The A/C ran really rough. I thought at first it was the A/C, but when I ran it on regular power from the house it ran smoothly. The problem was the gummed up, small gasoline engine in the generator.

So to the initial expense, add in about two gallons of gas per month, a break-in oil change at 20 hours, and regular servicing every 50 hours after that. The service life of an average gas generator is about 2,000 hours. Then expect an engine rebuild, engine change, or perhaps you may even need to buy a new unit. Your initial investment now starts racking up fuel, service contract, and replacement fees.

Permanent Generators

Some of the inconveniences of the portable are overcome by a more permanent generator. Of course it will cost you more. Your circuits are hardwired into your house's circuits; a two way switch switches you over to generator—a mandatory safety feature unless you intend to electrocute the utility workers working on downed lines and/or power up your whole

neighborhood. Most of these generators have either a remote, inside the house start switch or they automatically turn on and switch over when the power goes out. You still must wait some time for the machine to warm up before the juice comes back on. Permanent generators are also generally less noisy, and hold more fuel. You still have to exercise them regularly, use or change the fuel, and do regular servicing. Finally, you must ask yourself, how much gasoline do I wish to store near my home? If the outage is area-wide, good luck finding more gasoline.

Some of these inconveniences are eliminated with a natural gas/propane powered generator. These generators are even quieter, but at 77dBs for one I looked at, boasting of its being quieter, that's still kind of noisy. These generators also avoid having to refuel frequently, especially if natural gas is used. (The same models produce more kilowatts with propane.) You still need to exercise for 12 to 20 minutes a week, perform maintenance and check the oil. The one I looked at boasted an extended engine life of 3,000 hours.

BATTERY BACKUP SYSTEMS

A battery backup system consists of a power panel—an inverter/charger with an AC breaker box and a DC breaker box, connected to a bank of maintenance free (if you're smart) batteries. (More on battery selection in the next installment.) The battery backup is quiet, convenient, pollution free, and quick. You will hear no noise other than perhaps a quiet sound of a small ventilation fan. There are no maintenance or exercise chores. And when the power goes out, the switch-over is practically seamless. With my system, simulating a power outage by flipping the main breaker, if you are looking at a light bulb, you barely see it blink. Watching TV you notice nothing at all. Using appropriate maintenance free batteries, the battery bank should last about 15 years or more.

How does it work? During normal power, the battery bank is trickle charged. When the power goes out, the switch-over is instantaneous. After the blackout is over, the charger performs an automatic recharge of the batteries. Set the system up and forget about it.

Cost is a big disadvantage to the battery backup system. A power panel costs about as much as a permanent generator. Batteries cost about that much again, so you've doubled your initial cost. But you recoup in the long run not having to put out money for maintenance and fuel. The cost of the trickle charge is just pennies.

The other main disadvantage to battery backup is the potential length of a blackout. After a day or two, your batteries will run down enough that the power panel will shut off you're A/C circuits to save the batteries. Which brings us to the advantages of solar.

SOLAR BATTERY BACKUP SYSTEM

Add some solar panels and a solar charger to your battery backup system, and the problem of the length of the blackout is all but mitigated. There are two ways to go. You can either use a few solar panels to trickle charge your batteries or you can go with a bunch and run your core electrical needs on a full time/almost full time basis. After a power outage, you can use either your solar panels or the power panel's charger to recharge your battery bank. You can start with some batteries and add more later. You can start with a few solar panels and add more later. Both with little additional cost (wire and switches) except for the batteries and panels. The system I installed, based upon an Outback Power inverter/charger is very versatile. When the battery bank runs low, due to a lot of heavily overcast days, I press a switch and automatically switch over to the utility company. (Or if the batteries get too low, this is performed automatically.) I've only needed to do this once every month or two in the summer, and 1 to 4 times a month in the winter. In the event of a coming storm, a couple of times, I've used the power panel's charger to recharge a low battery bank. For instance with Ernesto, I moderately charged the battery bank before the storm. When the power went out, I could still take a shower, watch TV, and hundreds of dollars of frozen meats remained frozen. Most of the time only the solar panels charge the battery bank costing me nothing. The Outback Power Panel is a versatile central power management center designed to be used in remote areas where no utility power is available (they are used in Iraq according to their advertisements) but can be used for a backup or the center of a hybrid system.

HYBRID BACKUP SYSTEMS

The Outback Power Panel can be used for a variety of functions. Used with the optional (not) Outback Mate controller, a system can have great versatility. You can set the points at which the system uses solar charging, switches over to utility charging, or switches over to generator charging. The panel can be used to schedule generator exercise. It can be used to schedule generator run times/quiet hours. So for instance, in a remote cabin, you may wish to have the generator run during the day, but run off the batteries at night. You can set the switch-over to the utility power to save your batteries as well as the switch back to solar when the voltage goes back up. You can even divert excess electricity from your solar panels to sell back to the grid or as I do it, use it to perform extra tasks. When the voltage of my system reaches a peak of battery charge, a relay closes, and a portable room air conditioner switches on giving me some free AC

with the excess electricity. (I use the same outlet for free heat in the winter, although there is a lot less times of excess power generation in the winter.) You can also add in wind or hydro power.

In many areas of the country, wind is the preferable source of alternative energy. In places such as mountain tops, by the shore, or on the Great Plains. The cost per kW hour is very cost effective. This doesn't apply to the Washington DC area. However, in the summertime in DC, while we get little wind, except for during storms during the summer, we get lots of usable wind in the winter. By adding a small wind generator to the mix, the lack of winter sun on the solar panels can be compensated for.

HOW TO PUT TOGETHER A SYSTEM

It's a scary world out there over the internet. Whether you do it yourself or hire someone, there are a lot of rip-offs out there. In part two of this series, I will give some advice, based on my experience, for selecting the appropriate charger, inverter, and batteries to build a battery backup system. In part three we will be adding solar panels and a solar charger to the system, making the battery backup system nearly independent of the grid. In part four, which may be sometime in coming, I will discuss the use of wind power as part of a hybrid system.