Risk Assessment, Risk Management and Risk Communication in Power Engineering: Theory and Expertise in the USA

with special attention to changes and potential changes in the wake of the attacks of September 11, 2001, the California deregulation crisis and the bankruptcy of Enron Corporation

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Abstract:
This paper describes the ways in which risk is assessed and managed in the electricity generating industry of the United States of America as it is currently organized, and as it is currently functioning. It also includes a description of some of the ways that compensation is made (or not made) in the event of adverse events. We also give our opinion of likely trends in the future with no substantive change in the *status quo* as described, as well as some potential changes which we believe would have a beneficial effect (and our sense of how they would be beneficial). The three recent historical events noted above are commented upon to the degree we believe there is some clear sense of their effects.

Basic facts about the generation and distribution of electricity in the U.S.

Electricity is produced and distributed primarily through free markets (i.e. production and distribution today are largely in the hands of large-scale entities - municipality-owned utilities and large-scale private investor-owned enterprises permitted to operate as "monopolies" *vis a vis* the customer). A range of social objectives, including basic fairness and low (sustainable) environmental impact are generally addressed through regulation (by imposing standards and controlling operating practices) based on legislation passed by the national Congress and/or state legislatures. For example, in our state (Ohio), the state Public Utilities[1] Commission of Ohio (P.U.C.O.) oversees most aspects of utility operations and pricing. The efficiency of the industry and its impact on citizens and the environment are subject to control by the regulating authorities. Short and long-term impact on the environment and public health, as well as sustainability are dependent upon the regulatory decisions made by the national and state governments, setting policies that restrict certain practices as unacceptable in terms of their social and/or environmental costs, and imposing taxes/fees on other practices, in an attempt to reduce demand and simultaneously reduce the amount of energy being generated using those practices. It is important that energy consumers have the opportunity to make individual choices with full knowledge of the implications of those choices. It is important also that the U.S. government enter into cooperative international agreements in the interest of fairness to all geographical populations and global sustainability.

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[1]Public Utilities are those services provided to citizens either by government entities or regulated private businesses, and delivered directly to the home (e.g. electricity, telephone service, television cable, water, sewer, etc.).

Pricing: Traditionally, the pricing of electricity (the rates charged to customers) has been subject to approval by regulators in each state. The regulators have generally had the objective of insuring fairness to all classes of customers, maintenance of stability of the market, and allowing what they deem a fair rate of return to the utility company's investors. A relatively recent change in policy in many areas of the U.S. permits a relatively free market in electricity through brokerage (a "middle man" between the electric utility and the customer). The brokers enter into long-term contracts with the electric utilities to purchase electricity, and they in turn sell to individual customers (businesses as well as residences). The broker is also able to offer the customer a fixed price for a certain period of time (e.g. in Ohio, residential customers can get a 24-month fixed price. The customer has the option to continue purchasing directly from the utility which delivers the electricity, or they may purchase from a broker which may be able to provide a lower price to the customer, due to its ability to purchase electricity at a lower cost from other utilities. The recent bankruptcy of the world's largest energy broker, Enron Corporation, raises serious questions about the operation of brokerage businesses, and a new sense of risk to the consumer of electric power. It is not clear at this time what actions regulators and legislators will take to reduce the risks to electricity users. The primary focus currently is on the impact of the bankruptcy on the employees of the company, most of whom lost much of their retirement savings.

Rural Electrification: A very significant aspect of federal authority in the U.S. has to do with utilities defined as "rural electric cooperatives". These utilities, primarily engaged in production and distribution of electricity and telephone service to rural communities and individual farms, receive substantial direct and indirect subsidies from the national government designed to maintain a low cost of electricity in rural areas. Indeed, the rural customers pay a small fraction of the actual cost associated with delivering electricity by wire to their location. The U.S. government chose to subsidize "rural electrification" beginning early in the 20th century, mainly to encourage people to continue to live and work on farms, rather than seek the attractive "bright lights of the city". Due to severe power loss in long-distance transmission, America's rural electrification is a major waster of energy. Since the customer is only paying a small fraction of the real cost of providing electricity by wire, demand is unlikely to decrease. Perhaps most important, however, is the fact that a healthy rural economy weighing alternatives in selection of energy sources for heating, lighting and powering machinery, would be a potential consumer of other technologies (e.g. wind power, solar power, biomass conversion, fuel cells, etc.). In current markets, any one of those technologies is priced higher than the heavily subsidized price of electricity available through the cooperatives, so there is little incentive to develop them.

Businesses and bureaucrats have struggled to preserve their favored status under current regulations, resisting any significant effort to alter the *status quo*. Efforts to apply "total cost" analyses to production and use of electric power have been consistently defeated in the legislatures. It is also regarded as politically necessary to direct all efforts to maintaining the availability of electricity at current price levels. Indeed, even much important environmental issues have not been added to regulations, since most of them would increase the cost of electricity. This failure to consider information as it becomes available, and resistance to reconsider operating and regulatory practices threatens eventual crisis, since needed change is not being implemented gradually.

Environmental and Occupational risk management in the electrical utility business

Most electrical utilities in the U.S. are potentially responsible for the impact of any aspect of their operations (including impacts on the environment and the health of people in the area, as well as potential harm due to an accident). The utility companies generally purchase insurance coverage to protect themselves against the cost of such liabilities. A significant exception is the degree of potential liability a utility company might incur due to operations involving nuclear fission. A federal law, known as the Price-Anderson Act, limits the total liability a utility company might be expected to cover in the event of an accident (such as the 1986 event at Chernobyl). Even a conservative calculation of the monetary value of the Chernobyl accident clearly illustrates that American utilities with nuclear reactors are being relieved of a huge financial cost in not being required to insure for these potential events. Of course, this also serves to allow the sale of electricity as an artificially low price, stimulating demand.

The individual utility has the primary role in planning and designing its operation, assessing potential risks of that operation. Once the utility begins operating a generating plant, the cost of most losses is borne by private insurance companies. Insurance evaluate the utility's operations for areas of risk and their magnitude and setting the cost of premiums (the price of insurance). From the perspective of the utility company and the insurance company, risk is seen in terms of economic impact based on the likelihood of a specific occurrence and its potential magnitude. For example, if a generator is operating on coal as a fuel, and a boiler explodes, the company would likely be liable for a predictable level of compensation to workers injured or killed by the explosion and the physical damage to the facility. It might have further liability for any effect of released materials (due to toxicity, physical damage or merely soiling the property of citizens in the area). In the process of analyzing operations for risk, insurance companies generally suggest means of reducing the risk, and offer lower premiums where the utility agrees to take recommended action.

Regulation: In establishing operating regulations, the federal and state governments attempt to assess the impact of the utility's operations, both in terms of the possible direct economic costs and in terms of effects which cannot be easily described in economic terms (e.g. the aesthetic value of a clear view of the surrounding countryside, which might be diminished by emissions of particulates from the plant). As a result, regulations prohibit certain practices as having too great a risk, and prescribe specific conduct in some areas of the utility's operations to assure a predictable effect (e.g. for air quality, they might establish specific limits on the quantities of specific emissions). The key difference between insurance and regulation is the fact that regulation seeks to reduce or eliminate the circumstances in which there is a perceived risk, while insurance mainly accepts the burden of compensation for losses which actually occur. Regulation also seeks to reduce risk associated with situations in which the determination of the party affected or even the degree to which that party is affected might be complex. In many cases of adverse health effects of industrial operations, questions of how long someone was subjected to a risk, to what specific extent, and whether the person affected was impacted by other risks (in some cases voluntary, such as cigarette smoking), legislators have generally taken

the position that the activity should be controlled or prohibited to avoid what is believed to be a likely negative result.

The federal government also prescribes certain operating procedures specifically designed to protect workers employed by the utility. Such regulations might include a limit on noise levels and/or a requirement for workers to wear ear protection to reduce potential hearing loss. Similarly, in some areas, workers might be required to use protective eyewear meeting strict specifications. In these cases, the regulation is put in place because it is believed the worker should not be subjected to the risk, regardless of any potential for compensation after the fact.

In the case of nuclear reactor operations, there are various national government requirements including the ability of the reactor vessel to resist a specified impact (such as an airplane crashing into it). The rules specifying the impact resistance of a reactor vessel have been called into question after the events of September 11, since the current requirement would not protect a reactor from the impact of a small single-engine aircraft.

One highly successful effort by the U.S. Environmental Protection Agency to control levels of pollution by market devices is the issuance of pollution "credits" to utilities, based upon a level of specific pollutants which is deemed acceptable in the area in which the utility's generating plant is located. These credits are issued to the utilities and other industries in the same area with the objective of controlling the aggregate amount of the specific pollutants in that geographical area. If the utility or other industry emits less of the specified pollutants (e.g. Sulfur Dioxide, Nitrogen Dioxide, etc.), it is permitted to sell the credits to industries which would otherwise be exceeding their quota for those pollutants.

By this and other market-oriented techniques, overall objectives can be scientifically determined, and the relatively efficient market can control the activities of businesses to meet those objectives without direct intervention or enforcement procedures. Ideally, such mechanisms would be reviewed regularly to insure that the objectives continue to be appropriate and that the mechanisms are clearly functioning to achieve them.

The risk of unavailability

The ability of a utility to continue delivering electricity to its customers in the future is a matter of some concern to corporate planners. In the U.S., a consortium of electric utility companies is engaged in research and sponsors research (in universities and for-profit research companies) to consider alternate operating processes, alternative fuels, more efficient transmission methods, etc. in hopes of being able to discover and implement methods to maintain or improve availability beyond the point where fossil fuel supplies decline and become economically unavailable (i.e. when the "energy" cost of extraction exceeds the energy value of the fuel). This is, of course, also a concern of the national government. This is complicated by the fact that there is great difficulty in achieving consensus as to the true nature of the risk, its timing, political costs of taking action well in advance of the anticipated impact, etc. Also, of course, markets don't function very well in responding to distant scarcity. Those who have fossil fuel resources in their control have a strong incentive to extract and sell the resource. If they choose to hold the resource without extracting it, they run the risk of its value being less than anticipated

in the long run due to a successful switch to alternatives or substantial reduction in demand for other reasons. Also, the potential social impact of a rapid onset of scarcity in the U.S., a society so deeply dependent on fossil-fuel energy, would be severe even by the most conservative reckoning. There is a strong incentive for businesses making profits to continue along their present path, and government is inclined to go along, fearing the possible loss of the U.S. competitive advantage which might accompany any major policy change to reduce generation of the so-called "greenhouse gases". As of this date, the U.S. government has done very little to push electric utilities and their customers toward a sustainable level of energy use, including an acceptably low level of impact on the average global temperature.

Before the events of September 11, 2001, there was some considerable discussion in the U.S. about the possibility of again encouraging the building of nuclear reactors for generation of electricity. That discussion has been tempered somewhat by the realization of just how vulnerable nuclear materials and the reactors themselves might be to the acts of terrorists or saboteurs.

Insurance costs

In the wake of 9/11, insurance premiums[2] in the U.S. have increased substantially. To some extent this is to cover the enormous cost of the destruction of that date. But it also reflects a more conservative assessment of risk in general, in recognition of just how unprepared the U.S. was for those events. At best, risk assessment is an imprecise art. In preparing to accept monetary risks, insurance companies develop methods based on experience. There is always the potential for the unforeseen event, and occasionally its magnitude can be nearly overwhelming. In addition, those attempting to assess risk in setting insurance prices generally do not attempt to project significant changes in circumstances (e.g. major changes in energy costs, onset of an epidemic, etc.). Their working assumption is that most "loss" events, regardless of magnitude, are geographically or otherwise isolated, and therefore, the use of "reinsurance" (a transaction in which an insurance company purchases a relatively unspecific block of protection from another large, preferably international, insurance company to protect against losses of much greater magnitude than anticipated) is sufficient to cover for events unforeseen in fact or underestimated in magnitude. The U.S. Congress recently passed legislation providing generous compensation for the victims of the attacks of 9/11. For persons considering the implications of 9/11 in greater depth, there is the clear recognition that such generosity simply can't be offered in response to all tragedies, and given an event of sufficient magnitude, even the most rudimentary assistance might be impossible to provide. For such risks, it may simply be impractical to attempt to assess or manage them. To the degree, however, that changes in public policy can reduce the array of small troubles which have the potential to reach "critical mass", we can only hope that our government can objectively gain the wisdom to make effective long-term changes.

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[2]"Premiums" are the payments made to an insurance company in exchange for the insurance company's promise to pay the cost of any losses due to specified events (such as fire, explosion, negligence, etc.)

The electric utility industry, already under pressure due to various cost increases, must now add in the additional cost of insurance. While noone ever wishes for a crisis, it is not clear that there is the political will in the U.S. to make substantive changes until a crisis occurs.

Conclusion

In the U.S., a combination of for-profit companies and political oversight (regulation) have provided a relatively efficient process for delivering valuable electricity to homes and businesses. There is a growing recognition, however, that at some point there must be substantial change to move toward some combination, probably including less energy use overall, adaptation of various "sustainable" technologies, and especially the use of technologies better suited to a specific usage environment (i.e. certain technologies for use in rural areas, but different technologies for use in areas of high population density).

Our company, GAIA Unlimited, Inc. believes that users of electricity will opt for sustainable, environmentally "friendly" generating technologies if given the information and the ability to choose. GAIA's Kyoto Index™ for assessing the environmental impact of electrical generating technologies is one way of providing needed information to the customer. Clearly, a limiting factor in the current environment is the fact that the user of electricity currently has no direct opportunity to share in the future viability or cost savings which are likely to result from adoption of such new approaches. We will be working to encourage the creation of new laws guaranteeing that customers choosing those options will share in the long-term savings in exchange for their willingness to pay the higher current cost of change at a time when the prices of fossil fuels are relatively low. Naturally, it will be important for the U.S. government and other world governments to impose surcharges and other controls to strongly discourage the continued use of fossil fuels at current or even higher levels of demand.

Perhaps the best motivator is for all of us to think about the world our grandchildren will inherit. One thing we all seem to be able to agree on is the idea that life should be better for our children and grandchildren. Our current patterns of energy use and waste don't give us much hope for the welfare of future generations.

Note: A separate paper by Mr. Murphy is available to conference participants. It deals somewhat more generally with issues of risk assessment and management in the wake of the September 11, 2001 attacks on the United States, and raises questions of appropriate policies of national governments to reduce the incidence and magnitude of such violent acts in the future.

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Mr. Philip J. Murphy is a native of Allentown, Pennsylvania, and has lived for the past 28 years in the city of Cincinnati, Ohio. He has some renown as a linguist, having studied Latin and German in high school, Korean and Russian while serving in the U.S. Air Force, earning a B.A. degree from the University of Michigan (1969) in Japanese Language and Literature, and studying Spanish and Portuguese with private tutors while working as a Director of International Marketing for Cincinnati Electronics Corporation with a territory including the Caribbean basin and Central and South America.

For most of Mr. Murphy's adult life, he has been engaged in public policy advocacy, specializing in areas of environmental protection. His service includes six years on Cincinnati's Environmental Advisory Council, by appointment of the city manager.

In recent years, Mr. Murphy served on the Board of Trustees of the Cincinnati-Kharkiv Sister City Project, during which time he chaired the Business and Trade Committee. He later served on the Board of Directors of Kexim, Inc., a for-profit corporation attempting to establish long-term business relationships with organizations in the Kharkiv, Ukraine region. Recognizing the significant obstacles to such business relationships in the former Soviet Union, he joined with others to form the Center for Economic Initiatives, a non-profit corporation engaged in business education similar to the post World War II Marshall Plan's Technical Assistance Program.

Mr. Murphy's work experience includes fifteen years in the insurance business and many years in sales and marketing of industrial products, transportation services, and investment products (Mutual Funds, Direct Participation Investments, etc.). Mr. Murphy also does free-lance writing and photography, and is a "desk top publisher". His participation in the 9th International Conference "Mathematics, Computers, and Education" is a result of his work as the Chief Financial Officer of Cincinnati-based GAIA UNLIMITED, Inc., a consultancy seeking to further the establishment of sustainable energy production and distribution. GAIA is working with Dr. Vsevolod V. Shakin of the Dorodnicyn Computing Centre of the Russian Academy of Sciences to create software designed to compute a value known as the "Kyoto Index" (***KI***™) to assess the total environmental impact of power generating facilities (including their contribution to "global warming"), and to offer energy consumers the opportunity to knowledgeably select energy sources which would have a minimal impact on the environment.

On-line bibliography:

1. On the California de-regulation crisis

http://www.thenation.com/docPrint.mhtml?i=20010212&s=wasserman

http://www.urc.ukans.edu/News/01N/AugNews/Aug15/deregulation.html

http://northbeach.about.com/library/weekly/aa030601a.htm

2. On the bankruptcy of Enron Corporation

http://www.cnn.com/2002/US/01/12/enron.qanda.focus/index.html

http://www.usatoday.com/money/bcovmon.htm

3. On utilities (operation, regulation, investment information, etc.) in the United States

http://www.eia.doe.gov/

http://elp.pennnet.com/home.cfm

http://www.energy.gov/

Contact: Douglas Houston, School of Business, (785) 864-7564.

KU prof says Kansas can avoid California's deregulation nightmares

LAWRENCE -- Kansans can avoid the electric utility deregulation mistakes made in California, University of Kansas business professor Douglas A. Houston says.

"In my opinion, deregulation only means putting market forces to work where they can ÉÉ do some good,ÓÓ says Houston, who researches electric power deregulation. ÒÒCalifornia failed to do this."

Like California, Kansas is experiencing an increase in demand for electric power prompted by use of new technology. Without an increase in the supply to meet that idemand, Kansans will see rising retail energy prices. Should that happen, Kansas utilities could be forced to purchase power from wholesale markets at higher prices and pass the costs on to the consumer, Houston says.

While there is nothing wrong with buying power in wholesale markets, the problems occur when there are roadblocks to doing this cost-effectively, Houston says. Kansas utilities, such as Western Resources, are taking the first step toward the transition from a regulated to a deregulated, free market, Houston says.

"Kansas utilities have realized that, in order to raise the capital necessary to build the billions of dollars worth of power plants necessary to meet projected energy demand, they must restructure themselves at the corporate level," he says.

In a policy study released this week by the Kansas Public Policy Institute in Topeka, Houston introduces "Lights Out: California's Electricity Debacle vs. Real Deregulation for States" by Lance T. Izumi of the Pacific Research Institute in San Francisco. In his commentary, Houston reviews Kansas' plans for deregulation.

Sound deregulation policies use a long-term energy strategy, an open market and incentives to conserve power, Houston says. "The main thing when you move forward to deregulation is you do not want to stop suppliers from having incentive to supply moreÉÉ in a cost-effective way."

At the same time, Houston cautions an important missing piece in California's deregulation efforts was making sure consumers paid the underlying costs of electric power. Price serves as an incentive to conserve in our daily lives, he notes.

"We all want to see lower electric bills but we also want to conserve for other reasons, environmental reasons included,ÓÓ he says. ÒÒThe first thing we need to think about is how can we do this more effectively in our own livesÉÉ[P]ricing that reflects the underlying costs will help us to make better decisions and as we look at how we use electricity in our households."

Over the long term, Houston says, if as consumers we reduce demand, we can hold down prices.

Houston notes two fundamental flaws in California's deregulation efforts. "One ÉÉ they put caps on the prices that retail customers pay for electricity but allowed the cost to the utilities to rise. Though this was a deal that was bought into by the utilities it was a bad one because wholesale energy costs then did start to rise, driving California utilities to absorb massive losses. Selling into a market where the retail prices are capped is a recipe for bankruptcy," he says.

"The other problem is they only allowed the utilities to buy power daily in what is called a spot market. As a result, they could not form long-term contracts for power nor were they allowed to keep their electric power plants. This made utilities extraordinarily vulnerable to short-term price fluctuations and, for most purposes, is unacceptably risky behavior."

California proposes to replace markets and consumer choice by mandating many aspects of production, distribution and use of electricity, Houston says.

Success stories of power deregulation haven't grabbed as much press, but Houston estimates nearly 60 percent of Americans obtain their power from companies operating in an at least partially deregulated environment. He offers Pennsylvania and Texas as examples of states that have deregulated wholesale electric utilities successfully.

The California Energy Crisis

Current and historic energy usage, and the origins of the California Energy Crisis

OK, so we're short of energy at the moment. Everyone knows that. But did you know that California ranks 47th in per-capita energy use among the states, according to the Energy Information Administration? "When looking specifically at per-capita electricity consumption, California ranks 49th, at 24.2 million BTUs, the agency said. Californians' per-capita electricity use is only 60 percent of the national average.

Much of California's success has been due to progressive programs to increase energy efficiency. "If it (California) is not the leading state, they are at least tied for it in efficiency standards," said Ed Wisniewski, deputy director of the Boston-based Consortium for Energy Efficiency. "Historically, they have been very progressive, and many of the programs we advocate nationally were started in California."

And it's funny, but we in California aren't using any more electricity than we did last year, when there were no blackouts. Is there something wrong with the deregulation legislation that was cobbled together by the energy companies and the California State Legislature? Check the links below and make up your own mind.

Did you know that you can monitor the real-time energy usage of the State of California vs. the projected usage? Find out if those rolling blackouts are legit! California ISO will let you know the **System Status** of the grid.

But better yet, the California Manufacturers & Technology Association provides us with a comprehensive page of information, including the latest news on the likelihood of blackouts. The page is called **Powerwatch 2001.**

For more on the origins of the crisis, check the links below. The latest additions are on top.

Other California Energy Crisis Links:

Enron-gate. Molly Ivins writes on Ken Lay and Enron's manipulation of politicians and the energy market.

PG&E Energy Rate-Hike Scam. SF Indymedia tells it like it is, and covers the public power election scandal as well.

At Enron, the Fall Came Quickly. Yeah, pay your accountant a million a week and maybe he'll make you look good too. Nice story of the fall.

George W. Bush Gets Layed. Contribute enough bucks to politicians and they'll let you give the public all the fetid air it can't breathe.

California Energy: Steps to a Solution Dennis Silverman assembles a bulleted list of energy facts.

State Power Regulator Holds Energy Stocks (SF Chronicle) - Just what we wanted--a regulator who is more interested in the bottom line on his stock holdings than the public interest. And here's a quote from the alleged miscreant William Keese, chairman of the California Energy Commission, "....You can impute knowledge to me, but I don't pay any attention." Just the kinda attitude we need in our Commission Chairmen.

Energy Official had $1 Million in Enron Stock (LA Times) Bruce G. Willison, a member of the Electricity Oversite Board, reports owning more than $1 million in Enron Stock. The Board

"...monitors electricity market activities, represents California in legal disputes before federal regulators and oversees the state's independent grid operator."

The State Will Pay for Davis' Panic (LA Times) Yes, and dearly. That cartel was looking for a way to keep the gravy train rolling, and they found it in Davis' purchasing of long term energy contracts at ridiculously high prices. Good read for a summary of events leading up to the crisis.

Power Users' Conservation Confirmed (LA Times) Yep, we're doing our part.

Power Rates Dropping. Juice on the spot market is the lowest it's been in a year. Why? Well, maybe it's the Feds threatening to step in with "price mitigation." Those power price controls just might slow down the gravy train for the cartel.

There's a new call for criminal investigation of power prices going on. It may be too little too late. Still, what would the government do if prices of fundamental foods spiked as high as power prices in California? "If the average price of milk went up the way the average price of electricity went up, we would be paying $190 for a gallon of milk," Senator Barbara Boxer said. "No we wouldn't," says your guide, who'd choose espresso over his morning cappuccino if such nonsense were to occur.

PUC Chief Alleges Price Collusion (05/18/01, LA Times) "State investigators have uncovered evidence that a "cartel" of power companies shut down plants for unnecessary maintenance to ratchet up prices, the head of the California Public Utilities Commission asserted Thursday."

A Quantitative Analysis of Pricing Behavior In California's Wholesale Electricity Market During Summer 2000 by Paul Joskow and Edward Kahn (PDF file) A technical report by a Professor of Economics and Management at MIT and a member of the Analysis Group/Economics, San Francisco, CA. Conclusions: ..." there is considerable empirical evidence to support a presumption that the high prices experienced in the summer of 2000 reflect the withholding of supplies from the market by suppliers (generators or marketers).

Cooking the Books (PDF): How PG&E and SCE hide assets, artificially inflate their power purchase costs, and want consumers to pay for it. A pretty good review of what got us into this mess.

"California's major utilities were primary architects of AB 1890. In particular, Pacific Gas & Electric and Southern California Edison expended a great deal of resources to design and support the legislation. At the time, they argued that deregulation would expose them to risks never before assumed by a regulated monopoly. In order to prove the existence of this risk, PG&E created the concept of a multi-rate freeze that would require the utility to live with the revenue it receives."

California Energy Crisis Facts. Did you know that California has 55,000 megawatts of production capability and has weathered consumption of 45,000 megawatts, but on January 17th, 2001, when blackouts started, peak demand was less than 30,000 megawatts? Or, that in "1995, the California Public Utilities Commission ordered the state's investor-owned utilities to contract with private companies that were planning to build 1,400 megawatts of new power plants. Southern California Edison convinced federal regulators to block this order, arguing it would 'not need this power until 2005.' The power plants were never built."

California's Energy Crisis - Who's to Blame? Even the money and banking folks are eyeing the Texas Cartel for manipulation of the markets.

"Credit Suisse First Boston, the Wall Street investment Bank, which has been advising Senate Speaker Robert Hertzberg on the energy crisis, suggested the state's rolling blackouts were probably 'intended to soften up the legislature and the voters to the need for rate increases.'"

And will the crisis continue? Probably. Enron's profits continue to rise after their $550,000 contributions started during George Bush's tenure as Governor. Why would anyone put a halt to such good economic news? Don't look toward the demos: Gray Davis pocketed $75,000 from Enron for his bid for Governor. Is there anyone out there who's not bought and paid for?

Clean Air and Energy - The Big Myth and the Reality Search out the facts about the effect of clean air legislation on energy availability.

Texas energy broker empowered by balancing act in California The San Jose Mercury News exposes the ways the Texas cartel is profiting from a market they helped to break. And it won't get fixed soon if political clout works: Enron and its employees "gave $2.3 million to federal campaigns in the last election cycle, according to the non-partisan Center for Responsive Politics. Enron donated $235,000 to California campaigns in 1998, including $75,000 to Gov. Gray Davis." Didn't politicians used to work for the common folk's votes instead of filthy lucre?

PG&E's Other Pocket The Bay Guardian's research shows that the company isn't even near broke, but a corporate shell game can make it look that way. Besides, the company gave out 50 million bucks in bonuses the day before filing bankruptcy.

PG&E got what it wanted They made the rules, let 'em live with them says Pacific News Service commentator Peter Asmus, author of Reaping the Wind, a new book from Island Press

State's long road to current problems: How large industrial customers, utilities, lawmakers created California's troubles electric system from the San Jose Mercury News, a real investigative treasure about how the energy crisis got started.

California Energy Crisis JBS Energy's fine paper on what went wrong, beginning with an interesting commentary on natural gas storage in California. Their conclusion presents an often ignored factor of California's plan: The public interest. "Electricity has a large public interest component that must be explicitly addressed in the design of a reformed electricity sector or the public''s interests will not be met. Protecting against improper use of market power, protection of smaller consumers and good quality public information become important tasks for government under market-based utility structures. Robust competition, informed consumers and a fair marketplace result from explicit action, they don''t happen automatically."

Dim Bulbs "Greedy Out-of-state Profiteers make easy targets, but it's our own elected leaders - including former Gov. Pete Wilson - who were the real villains of California's Energy Debacle."

California's Power Play -- Program transcript (unfortunately in all capital letters) of a PBS broadcast: "DURING THIS HOUR, WE'LL ADDRESS SEVERAL KEY QUESTIONS. HOW DID WE GET IN THIS FIX? CAN THE GOVERNOR AND STATE LAW MAKERS GET US OUT? WHO WILL END UP PAYING? AND HOW MUCH WILL WE AS CONSUMERS HAVE TO CONSERVE?"

California's Electricity Crisis -- Susan Erwin, your Electric Power Guide, sums up the California electrical experience.

California's Deregulation Disaster -- Harvey Wasserman writes about the roots of the energy crisis for The Nation.

Enron's Chief Denies Role as Energy Villain -- Yes, but not very convincingly, from the SF Chronicle.

"Those familiar with the state's deregulation efforts said Enron was especially eager to ensure that a newly created Power Exchange, where wholesale power would be bought and sold, was separate from the Independent System Operator, which would oversee the electricity grid."

This fragments the market, and makes it harder to track what's going into the pipe and what's coming out. That means Enron and other companies in the Texas cartel can refuse to sell what energy they produce until the price rises, at which time they can then sell energy at an artificially inflated price *while at the very same time buying exactly the same energy* back from the grid at the lower, regulated price. In other words, a transaction that would normally be a wash can create millions in profits without any value added to the product. Cool, huh? Doncha wish you could do that to grow your savings?

Pacific Gas and Electric -- access this site and you'll be told the next rotating outage block. Match it to your own, found on the lower left corner of that outrageous bill you receive every month.

SF Gate News Special: California's Energy Crisis -- lots of links to the latest news stories, information and alternative energy sources.

California Alliance for Competitive Energy -- Will open competition lower prices? Will free market economics work for something like heat and electricity, which most people can't (or won't) give up if the price is too high? Read the Alliance's arguments for competition and deregulation.

What to do if there are Blackouts from the California Energy Commission -- Stuff you outta know already, like "drive carefully" and "don't burn your house down if you use candles for lighting." You'd think your tax dollars would work harder, wouldn't you?

Historical Energy Information from the California Energy Commission -- find out where the energy comes from, who's using it, and how we get the raw materials to generate it.

California Energy Fast Facts -- Get quick info on energy in California fuels for energy and transportation as well as some info on energy efficiency.

Bankruptcy: PG&E Files for Bankruptcy. Press Release from PG&E: Pacific Gas and Electric Company Files for Chapter 11 Reorganization.

Employees' faith in Enron cost them life savings

By Christine Dugas, USA TODAY

HOUSTON —— In the downtown Hyatt ballroom, Enron employees last August welcomed back Ken Lay as their CEO with a standing ovation. The loyal Enron troops had little reason to doubt that Lay, a popular executive, could turn around the company as he promised to do in a rousing speech. As a gesture of his confidence, he announced that all full-time workers would get stock options. "It brought the house down," says Sherri Saunders, a senior administrative assistant who worked at Enron for 24 years. "It was like a promise that the stock would come back."

Lay was replacing Jeff Skilling, who had resigned abruptly two days earlier. Skilling had predicted at the beginning of the year that Enron stock could go as high as $125. Instead it had plunged to near $40, from more than $80.

Saunders, 54, hung on to the stock in her retirement plan. "Why would you get out then and lose $40 a share when top management was saying it's going back up?"

By October, though, Enron had announced a third-quarter loss of $618 million. And Saunders and other workers were prevented from selling stock because of a temporary freeze on the retirement plan. By the time they could sell, the company was on the verge of collapse. Stunned workers were left with retirement plans that in many cases are nearly worthless.

Saunders sold some stock at $10.50. She says she "salvaged a little," but lost about $1 million. And after Enron filed for protection from its creditors in bankruptcy court, Saunders also lost her job.

Today, as members of Congress, regulators, lawyers and others try to dissect what went wrong at Enron, they are also looking into the devastating losses in the company's retirement plan. Among the many questions: Why did so many Enron employees ignore conventional wisdom about diversification and plow most of their own 401(k) plan contributions into Enron stock? And why didn't Enron do something to protect them as the stock collapsed?

The dream job

While investigators focus on Enron's accounting shenanigans and insider stock sales, many former employees express disbelief. Stories abound of workers who stuck with the stock until the very end. "We all agreed that we hadn't lost anything until we sold. It was just a paper loss," says Tom Padgett, 59, a senior lab analyst at EOTT Energy Partners. "As long as the company was strong, it would bounce back."

Padgett says his 401(k) plan was worth about $750,000 at the stock's high point. He figures it's now worth about $10,000.

At Enron, as at many other firms, matching contributions in the 401(k) plan were automatically invested in its stock. And workers couldn't sell that stock until they reached age 50. But Padgett and thousands of others also chose to invest most or all of their own contributions in Enron stock. In January 2001, when the stock was trading at $70 and more, 62% of the 401(k) plan's assets were invested in Enron stock.

Loyalty to Enron played a big role in workers' eagerness to invest retirement savings in company stock. Many employees describe an open, caring corporate culture —— one that paid for workers to continue their education, encouraged an entrepreneurial spirit and rewarded workers for accomplishments.

During an online chat with Lay in September, one worker thanked Lay for $1,000 received after Tropical Storm Allison. "What a joy to work for a company that displays love and kindness to its employees," the worker said.

"I loved Enron," says Jan Dobernecker, who started as a legal secretary and moved up to become a paralegal over 7 ½ years. Dobernecker, 54, diversified her contributions to her 401(k) plan. But she never sold the Enron stock she'd accumulated through matching contributions. Her 401(k) assets and stock options have fallen from about $165,000 to $36,000.

As she sat in the living room of her one-story brick home in Humble, Texas, a well-kept suburb, she spoke of the personal financial toll of Enron's fall.

"My husband was going to retire this September, and I was going to work until 62," she says. Her husband, 58, now has no to plans to retire.

At one point the Doberneckers worried they would have to sell their home, But Enron recently called her back to work on the onslaught of litigation. The job will last six months to a year. After that, all bets are off.

Like many of her colleagues, Dobernecker says she was devoted to the company. "I believed Ken Lay until I walked out of the door on Dec. 3." That's the day that she was unceremoniously laid off. "I felt so betrayed."

Greed or loyalty

Enron workers face huge challenges: finding new jobs, working years longer than planned to try to make up for steep losses in their 401(k) plans. Now, a backlash accuses them of greed —— chasing the promise of riches by betting too heavily on Enron stock.

"I suppose if I was on the outside looking in, I might say that," responds Saunders, who put most of her contributions into Enron stock. "But if you were in my shoes, you'd probably do the same thing."

In fact, thousands of U.S. workers do just that: A recent study by DC Plan Investing found that 44 companies had 50% or more of their 401(k) plan assets invested in company stock as of Nov. 30.

Greed and loyalty are not the only reason for owning company stock. Many workers believe that if the company makes its own matching contributions in stock it must be a good thing.

"They see it has a tacit endorsement of the investment," says Michael Scarborough, CEO of the Scarborough Group, a 401(k) plan consultant. Research shows that if matching contributions are invested in company stock, workers are more likely to spend their own money on the stock, he says.

Now, experts say workers at other companies should heed the Enron warning signal.

"Employees bore substantial risk," says Shaun O'Brien, senior policy analyst at the AFL-CIO. " Many had both their career and retirement savings linked to the fate of the company."

Says Scarborough: "I can guarantee you that there are more Enrons out there."

After Skilling resigned and the stock began its plunge, no one —— not Wall Street analysts nor Enron executives —— warned workers that the stock was no longer a good bet. "We had no reason to believe it was going to bottom out and they were going to wind up in bankruptcy," Padgett says.

As late as Sept. 26, Lay was promoting the stock to employees. In a chat with workers on the company's intranet, he said: "My personal belief is that Enron stock is an incredible bargain at current prices and we will look back in a couple of years from now and see the great opportunity that we currently have." (Story, above.) That was less than a month before Enron reported the devastating third-quarter loss, and well after he had sold some 600,000 shares of his own stock.

Enron's fiduciary duty

Federal pension law is clear on one thing. Companies have a responsibility to manage the 401(k) plan taking into account only what is in the best interest of the workers. Several lawsuits filed against Enron allege that it breached its "fiduciary" duty. An Enron spokesman did not return calls for comment.

"You knew the top executives were constantly selling stock because they have options," Saunders says. "But then you realize that they were dumping their stock, and we were living in a make-believe world."

Lawyers say that Enron also breached its duty to workers when it allowed plan assets to be frozen while it switched 401(k) plan administrators. There are disputes about how long the lockout lasted. Whatever the case, it came at a time when the stock was getting pummeled. One Enron memo said workers would be unable to access accounts from Oct. 21 to Nov. 19, a period in which the stock price fell 65%, from $26.05 to $9.06. Enron has said the lockdown actually lasted from Oct. 29 to Nov. 13, when the stock declined 40%, from $15.40 to $9.24.

The administrative change was undoubtedly in the works for months, experts say. "But there is no reason why they couldn't postpone it," says Fred Reish, a pension lawyer based in Los Angeles.

Even if the lawyers for the 401(k) plan members ultimately prevail, it's unclear how much they will be able to recover. Experts say 401(k) plans typically have fiduciary liability insurance. In Enron's case the policy carries abut $85 million in coverage, says Doug Dalton, a Phoenix-based lawyer representing some Enron workers. Since January 2001, Enron stock in the 401(k) plan has lost about $1 billion in value.

The various lawsuits also name members of the 401(k) plan administrative committee, company executives and directors. If they are held liable, their assets could be seized.

Meanwhile, Enron workers are trying to put their lives back together. Tom Padgett had planned to retire this year. "I'll have to work another 10 years if my health holds out," he says. He and his wife, Karen, will have to forget plans to buy a house in the country. "We'd planned on leaving our kids a pretty good chunk of money so they'd be better off then we are," Padgett says. "Now they may have to take care of us."

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Dr. Vlasta Molak is the founder and President of GAIA UNLIMITED, Inc., a consulting company dealing with environmental and occupational risk assessment, risk management and general environmental problems, including strategies for pollution prevention and sustainable development. She has been teaching courses for risk analysis, and sustainability (including courses for local and state governments). Dr. Molak represented the United States at a 4-day workshop on "How to Improve Environmental Awareness of Local Decision Makers in Eastern Europe", sponsored by the European Commission. She also taught in a training program organized by Tufts University's Environmental Management Program in Brazil at the University of Curitiba and University of Sao Paulo on "Environmental Risk Assessment and Risk Management" for professionals involved in Brazilian environmental management. Additionally, Dr. Molak taught a course at the United Nations headquarters (New York City) on "The Use of Risk Analysis in Sustainable Development". Dr. Molak was the editor of, and a major contributor to a reference and textbook FUNDAMENTALS OF RISK ANALYSIS AND RISK MANAGEMENT, which was published in 1997 by CRC Press/Lewis Publishers, and THE ALASKA STORY: Comprehensive Approach to Problems with Oil Spills in Marine Environments, a Proceeding of the Workshop she organized as president of the non-profit organization, "The Biotechnology Forum".

In 1999 she worked as a Congressional fellow in the U.S. Congress on environmental issues and the Kyoto Protocol. Her research was on how energy conservation and efficiency combined with emission trading can decrease U.S. dependence on fossil fuels and contribute to economic improvement. Also, she has been developing a Kyoto Index (***KI***™), a comprehensive index that will predict the ecological footprint (environmental impact) of various energy producers and thus enable an educated and environmentally conscious consumer to make better energy choices when the electric energy deregulation becomes complete in the USA.

Dr. Molak has served as the International Coordinator and Secretary of the Society for Risk Analysis (SRA). In that role she served to increase the SRA standing in the international community and the establishment of sections of the SRA in developing countries and the countries of Eastern Europe. She convened an "International Communication" network to promote uses of risk analysis in solving some of the environmental problems resulting from misuse of technology. As a part of her international activities she also chaired the Environmental Committee of the Cincinnati- Kharkov Sister City Project. She has also given lectures and conducted round table discussions in Zagreb, Croatia and Kharkov, Ukraine on The Uses of Risk Analysis in Evaluating and Ranking Environmental Problems. These programs were attended by professionals from diverse fields with an interest in solving their countries' pressing environmental problems.

Dr. Molak is the founder and president of the Biotechnology Forum, Inc. in Cincinnati and chairs the Subcommittee for Technical Interpretation of the Local Emergency Planning Committee for Hamilton County, Ohio. Under her leadership, the Biotechnology Forum has organized series of lectures and workshops in biotechnology area. The workshop, "The Alaska Story: In the Context of Oil Spill Problems in the Marine Environments", with special emphasis on the biological clean-up efforts, resulted in the proceedings edited by Dr. Molak. As a chair of the Subcommittee for Technical Interpretation, Dr. Molak initiated the efforts for hazard analysis in Hamilton County (Ohio, U.S.A.) and formulated the strategy to complete the first stage of hazard analysis. She coordinated the efforts to deal with more complex aspects of chemical safety (e.g. process safety in manufacturing plants, transportation of hazardous materials, and adverse effects of routine chronic releases of toxic chemicals). Dr. Molak believes that her professional expertise in risk analysis should be applied first and foremost for the betterment of the community in which she lives.). She was also a member of the planning committee for Comparative Risk Analysis for Hamilton County (Cincinnati, Ohio, U.S.A.) and a Member of the Quality of Life Committee of the Ohio Comparative Risk Analysis Project.

Dr. Molak has worked at the U.S. Environmental Protection Agency and at the National Institute for Occupational Safety and Health (NIOSH) on developing methodologies for risk analysis of toxic chemicals, genetically engineered organisms and technologies. These methodologies are used to derive various environmental and occupational criteria, which serve as a basis for standards. Her training is interdisciplinary: she has a B.S. degree in physical engineering, an M.S. degree in chemistry, a Ph.D. in biochemistry and post-doctoral training in molecular genetics.

FOR IMMEDIATE RELEASE

OHIO CONSUMERS' COUNSEL MAKES NEW CONSUMER HANDBOOK AVAILABLE TO UTILITY CUSTOMERS

COLUMBUS, Ohio, January 18, 2002 - The Ohio Consumers' Counsel (OCC) has recently completed the second edition of its Consumer Assistance Handbook, which is designed to provide information and tips about utilities. Some of the topics that consumers can expect to find included in the handbook are: understanding how to read utility bills; what rights consumers have; how to guard against being crammed or slammed; information on energy choice programs; and important utility telephone numbers.

Consumers will find diagrams of several different utility bills with descriptions of what each items is on the bill. This is designed to assist in reading and understanding the charges listed on the bill.

The consumer resources sections lists ways to contact the various utility companies and organizations established to assist consumers.

In addition there is information on several assistance programs consumers can sign up for if they are having difficulty paying utility bills. Some of these programs include the Ohio Energy Credits Program, Energy Efficiency Revolving Loan Fund, and the Ohio Home Weatherization Assistance Program.

The handbook is free and can be obtained by calling the OCC at 1-877- PICKOCC or via email at occ@occ.state.oh.us. Consumers can also view a copy of the handbook on the OCC website found at www.pickocc.org/handbook/.

The Ohio Consumers' Counsel (OCC) is the legal representative and residential consumer utility advocate serving as a resource for individuals who have questions and concerns, or would like more information, about the services provided by their publicly owned electric, natural gas, telephone and water companies. The agency also educates consumers about utility issues and resolves complaints from individuals. To receive utility information brochures, schedule a presentation or file a utility complaint, residential consumers may contact 1-877-PICKOCC (1-877-742-5622) or visit the OCC website at www.pickocc.org.

For more information, visit the OCC site at:

http://www.pickocc.org