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U.S. ELECTRIC RESTRUCTURING: A LESSON FOR CANADA

William A. Mogel[†]

INTRODUCTION

Good afternoon. It is a pleasure to be here. If you look at your original invitation and agenda for this meeting, you will see that I am not on it. I was asked to participate in this meeting and substitute for Dan Fessler, who, for several years, was the embattled chairman and president of the California Public Utilities Commission. He is no longer there. I asked what Dan was going to talk about, and nobody knew, so that gives me a great deal of latitude.

Since Dan was the original invitee, I thought there must be a connection with California, and since I am doing much of my work in the so-called energy restructuring in California, I am not going to say anything about Canada nor will I talk to the exploitation of any natural resource because, as you probably know, electricity is not a natural resource; it must be manufactured from other energy sources. So, basically, I am here with an open invitation to say what I want.

I will talk about what happened in California and will then raise one fundamental question about electricity restructuring in the U.S. and in other countries: why should we engage in restructuring? As other states in the U.S. going through restructuring, what are the lessons that we can draw? I think once we go through all of that, maybe the lessons for Canada and other places as to whether or not they should restructure will become evident.

THE FAILURE OF ELECTRICITY RESTRUCTURING IN CALIFORNIA

In a word – which this is not – California instituted a bad plan and, in combination with bad luck, achieved a bad result.

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The Bad Plan

I view the electric restructuring plan of California as akin to a Chinese menu. California decided not to restructure fully, but rather chose to pick the parts of a restructuring approach, selecting only the pieces it thought were most appropriate. That was a mistake. First, the plan forced the utilities in the state to sell their generation – the big machines that generate electricity.¹ In retrospect, that was a huge mistake, because it left the utilities – Pacific Gas & Electric and in the northern part, Edison in the south and San Diego Gas & Electric in the southern part of the state – without the ability to generate electricity to meet needs, but instead were forced to buy electricity from outside sellers.

Who were the sellers? A litany of names that have become infamous: Enron, Williams, Mirant, and Southern. They had the three utilities, which were essentially forced into purchasing energy as captive customers, alongside any other entities that wished to buy electricity directly from them.

California has a very strong environmental movement, and that movement has precluded the building of new power plants in the state in the decade prior to the restructuring.² And that was a major problem in California, since this had caused a shortage of generation. While the other states that had been successful with restructuring – particularly Pennsylvania and Ohio and Texas – had excess generation,³ California had a deficiency of generation when it began its restructuring efforts.⁴

Furthermore, at the utilities' encouragement, the plan required that the utilities not enter into long-term contracts for power, but instead purchase power on the spot market.⁵ The utilities thought they were smarter, wiser, and more experienced than everybody else in California and could buy power cheaper than anybody else, and that turned out not to be correct. California then froze 87 percent of the retail rates in the state. Thus, when the crisis hit

¹ See Peter DeFazio & Tony Corcoran, *Stop Deregulation Before it Hurts Oregon*, REGISTER-GUARD (Eugene, Oregon), May 13, 2001, available at <http://www.registerguard.com/news/20010513/1f.ed.col.defazio.0513.html> (stating that the public utilities commission, and not the law itself, required the companies to sell their generating capacity).

² No major power plants have been built in California for the past 10 years. See Kevin Bonsor, "How California's Power Crisis Works", at <http://www.howstuffworks.com/california-power1.htm>.

³ See John Kwoka, *California: The Perfect Electrical Storm*, FTC:WATCH, Feb. 14, 2001, available at <http://www.antitrustinstitute.org/recent/104.cfm> ("[D]eregulation is far less well-suited to dealing with capacity shortages than with periods of ample supply").

⁴ California must import about 20 percent of its power. EDISON ELECTRIC INSTITUTE, LEARNING FROM CALIFORNIA: POWER SHORTAGES AND UNIQUE MARKET RULES LEAD TO PRICE SPIKES 4 (2001).

⁵ Jerry Taylor & Peter Van Doren, Cato Institute, *California's Troubles Not Caused By Deregulation*, available at <http://www.cato.org/dailys/01-17-01.html> (Jan. 17, 2001).

in the summer of 2000, retail rates were frozen but wholesale rates (*i.e.*, power sold by companies like Enron) were well above those retail rates.⁶ It makes very poor business sense to be in a business where you can only sell at a price that is lower than your procurement costs.

Bad Luck

Everything that possibly could go wrong in California went wrong.

Starting in late 2000, the price of natural gas – the fuel of choice for generating electricity in California – nearly tripled.⁷ Californians had experienced a hotter-than-average summer, so there was a huge demand in California for electricity for air conditioning loads. The state then had a warmer-than-normal winter in the previous year, and that meant that the quantity of hydroelectric power that could be produced was constrained by the lower amount of runoff.

California also was in the midst of a boom in its economy. One of the reasons that California went forward with restructuring was to jump-start its economy, which had been lagging. The economy improved on its own without any intervention, so the demand for energy increased dramatically, and the demand for energy in adjoining western states such as Nevada (given that Las Vegas is the fastest growing community in the United States⁸) increased as well, so California was limited in its ability to import power at reasonable prices from adjoining states.

Furthermore, California had emissions problems.⁹ Some of the power plants had serious maintenance problems.¹⁰ On top of all of this, they had an early onset of winter.¹¹ All of these factors were just plain bad luck and had nothing to do with California's restructuring plan, but all of these factors simply exacerbated the effects of a very bad plan.

⁶ See *id.* (retail rates could not exceed 6.5 cents per kilowatt-hour, yet wholesale rates were as high as 15 cents).

⁷ The price of natural gas was two-and-a-half times more than it was in the previous year. See *News Hour with Jim Lehrer* (PBS television broadcast, Nov. 30, 2000) (statement of Tom Williams, Duke Energy), available at http://www.pbs.org/newshour/bb/economy/july-dec00/electric_11-30.html.

⁸ *City of Las Vegas*, at <http://www.ci.las-vegas.nv.us/> (last visited July 25, 2002).

⁹ See PAUL JOSKOW, CALIFORNIA'S ELECTRICITY CRISIS 30 (Nat'l Bureau of Econ. Res., Working Paper No. 8442, 2001), available at <http://papers.nber.org/papers/w8442.pdf>. (the prices of air emissions permits required by generating plants rose by a factor of more than ten).

¹⁰ See Kwoka, *supra* note 3 (noting that in California, with a razor-thin margin of electricity supply, when one plant goes down for maintenance, the entire grid can experience stress, and rates will multiply).

¹¹ EDISON ELECTRIC INSTITUTE, *supra* note 4, at 1.

Bad Result

What happened? Some of the problems included high utility prices, supply shortages, rolling blackouts,¹² and the bankruptcy of the largest U.S. utility, Pacific Gas & Electric. The last element is very important, because that is what is occupying many people in California today. Because at least two of California's investor-owned utilities (IOUs) had liquidity problems, the Department of Water Resources bought power from companies like Enron when it was extremely expensive, and entered into long-term contracts that have a potential liability of approximately \$40 billion.¹³ That is a big number, even in California, the fifth largest economy in the world.¹⁴

That is what happened in California; I would be surprised if such a thing could or would happen anywhere else, but who knows?

THE UNIQUE CHARACTERISTICS OF ELECTRICITY

Many people who work in the energy business do not have a sense of some of the unique properties of electricity. I am a graduate of the University of Pennsylvania, and our patron is Benjamin Franklin. His experiment with a kite only proved that he was very lucky not to be electrocuted that night he was hit by lightning.

Electricity does not exist in nature; it must be manufactured. You probably know that there are numerous fuel sources that can be used to fuel the machines that generate electricity: oil, natural gas, hydroelectric, solar, geothermal, *etc.*

One of the properties of electricity that is extremely important is that it cannot be stored – except in batteries. Obviously, the battery in your automobile (or for some of us, in our golf cart) is storing it for a limited period of time, but electricity cannot generally be stored. In other words, you cannot make it at off-peak periods, hang on to it until the thermometer reaches 95 degrees, and then release it.

Secondly, electricity must be made, consumed and distributed in fairly localized geographic regions. Theoretically, you *can* transmit electric power from California to Florida, but not much is going come out of the wire in Florida. Electricity, unlike the natural gas or oil that flows through a pipeline, tends to follow the path of least resistance. As a result, the

¹² E.g., Paul Rosta, California Orders Rolling Blackouts, *ENG'G NEWS-RECORD*, Jan. 18, 2001, available at http://enr.construction.com/news/enrpwr_11801a.asp.

¹³ Nancy Vogel, *Sellers Protest State Bid to Void Energy Pacts Electricity*, *L.A. TIMES*, Mar. 22, 2002, at B8, available at 2002 WL 2462963 (notes that the state purchased around \$43 billion in long-term contracts that it cannot afford to pay).

¹⁴ *California Technology, Trade and Commerce Agency*, at http://commerce.ca.gov/state/tca/tca_homepage.jsp (last visited July 30, 2002).

properties of electricity that make it unique, and these properties *in toto* make a truly national electric market much more difficult in the United States than a national natural gas market.

PRINCIPLES OF ELECTRICITY RESTRUCTURING

What is restructuring in the United States all about? In other countries where we have worked, we call it “liberalization” of the electric market. Basically, restructuring “unbundles” or separates the pricing of the generation component from the two other major components, transmission and distribution, in the price of delivered electricity.

The transmission and distribution components of electricity remain regulated on the state level subject to traditional public utility regulatory review, but the unbundled or deregulated generation is unregulated and can be sold at market prices. The theory behind this is that if you have many sellers competing to sell generation, the price will go down, and consumers will be able to shop around and buy generation from multiple sellers instead of just buying it from only one seller. Furthermore, due to competition among sellers, in addition to lower prices, you will have innovations and possibly other services that will be bundled with generation to maximize consumers’ benefits. These restructuring principles have worked in the natural gas industry, but are struggling to work within the context of the electric industry.

These are some other principles that are inherent in restructuring that transmission. In the restructured distribution system, the wires that are used for transmission are treated as “open access,” meaning they are akin to a common carrier and the entities that own the wires cannot restrict who uses them and must offer the same non-discriminatory terms and conditions to all third parties.

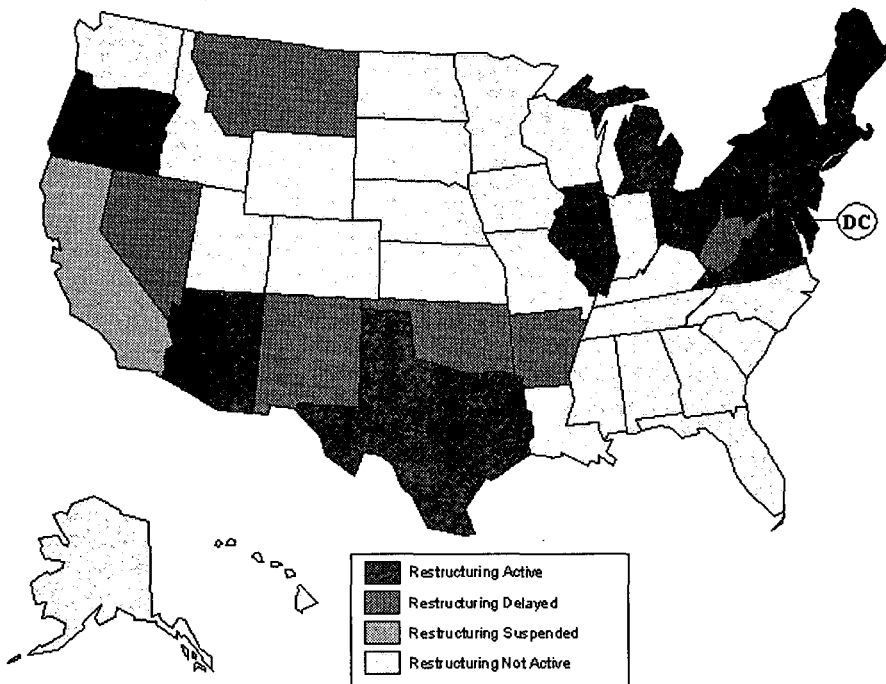
The second important part of restructuring is transparency: customers must know the price that power is being sold and the prices are being charged for transmission and distribution. Along with this issue is the concern with “stranded costs recovery” – a very sensitive issue in the United States. That is, the investor-owned utilities made significant investments in past years for equipment and other electricity generating, transmitting and distributing facilities. If those facilities are not used because of this competition from new sellers, someone must pay for those utility investments; the utilities themselves have taken the position that the shareholders should not have to pay. Ratepayers, naturally, believe that the cost should not be passed on to them. Some sort of compromise is usually worked out.

The federal government, through the Federal Energy Regulatory Commission (FERC), has created organizations called independent system

operators (ISOs) or regional transmission operators (RTOs) to be the unbiased, detached, and separately-regulated entities that oversee transmission and congestion relief issues on a nondiscriminatory basis. In any particular region or state, the wires themselves are generally owned by third parties (usually by the utilities), but the capacity is allocated for use by these independent agencies. These agencies use a tariff structure that is regulated by FERC.

RESTRUCTURING EFFORTS OUTSIDE CALIFORNIA

Figure 1. State-by-State Restructuring



Source: DOE EIA

Restructuring Delay and the “Enron Effect”

What Figure 1 shows is that the states in the darkest colors – seventeen out of fifty – have deregulated electricity. Seven states have delayed looking into restructuring and 26 are not restructuring. You can see from this patchwork map that restructuring has not swept the United States with the enthusiasm. Moreover, the restructuring in many of the states is different from the restructuring in neighboring states, so even in the states that have

fully restructured electricity, there may be few common threads and many inconsistencies.

Restructuring in Ohio

One of the reasons why I will talk about Ohio is because it is one of the better examples of successful restructuring in the United States. Ohio began with what is termed “retail choice” a year ago, and it has worked fairly well. The state’s siting board policy encouraged the construction of new generation.¹⁵ The policy has been positive toward merchant companies coming in and building generation within the state.

Restructuring in Texas

Texas has excess generation capacity. The state has enough excess generation to light New York City continuously; that is, it does not mean just for one day, it means *every* day. There are simply far more sellers in the market than there are consumers. Texas, like Ohio, has a very strong policy encouraging the siting of new plants.¹⁶ Texas also has a very mature natural gas pipeline system to deliver the fuel of choice to those plants. Furthermore, the state has encouraged investment in upgraded transmission lines.

Texas has another virtue: when it comes to electricity, Texas is a country unto itself and it is not integrated into the grid that connects the lower 48 states.¹⁷ Thus, Texas does not have problems of power leaving the state, as they basically have all the power they need and can keep it within their own state. It is a very unique arrangement.

Restructuring Efforts in Other States

Pennsylvania is also considered to be one of the positive examples of electric restructuring in the United States. Pennsylvania, like its neighbor Ohio, has a surplus of generating capacity. In contrast with California, the utilities there were not required to divest themselves of generation.

¹⁵ See, e.g., *News Release: Ohio Power Siting Board Approves the Construction of Three New Major Electric Generation Facilities* (May 20, 2002), at <http://www.puco.ohio.gov/media/2002/02041.cfm>.

¹⁶ Texas, in the midst of deregulation, decided to rid itself of a siting board. *Legislative Transition Task Force (Virginia Electric Utility Restructuring Act)*, at http://dls.state.va.us/groups/electutil/10_16_01/aepstates.htm (last visited July 30, 2002).

¹⁷ *Watt's In the News*, at <http://www.snopud.com/swarchives/wn01/052901.htm> (May 29, 2001) (the Bush Administration is studying whether to bring Texas into the grid because it has a surplus in generation.).

The results of restructuring have generally been mixed. In Texas, only 5 percent of residential consumers have expressed any interest in switching away from a utility to an unregulated merchant power seller.¹⁸ In Maryland, the place where I live, approximately 2 percent of homeowners have switched.¹⁹ In Virginia, customers who have switched have reported \$10 per month savings on an average utility bill of about \$100-140 per month. In Pennsylvania, less than ten percent of residential customers have switched,²⁰ generally, those who have switched have been large industrial consumers, factories, fast food restaurants, *et cetera*. It has not really become a factor in the residential market.

THE FUTURE OF ELECTRICITY RESTRUCTURING

Notwithstanding my dim report to you, I think that the future of restructuring is bright. I think there are many benefits that can be achieved. Right now, in the short term, restructuring is having problems, and the largest problem – putting Enron aside – is that if you look at the other major merchant companies that are active national players, they are all showing significant problems on their balance sheets. One of the reasons for this, in my view, is because of the uncertainty of restructuring in the United States and the inconsistencies in restructuring among the several states.

Is there going to be a national market for what we do? Do we really have a business that we can grow and develop? Right now, the answer seems to be *not* yes. We have (and I assume most other countries have) an electric grid that was designed for the old days, when vertically integrated, investor-owned utilities owned the generation, transmission and distribution, and the grids were interconnected. As I said, in the lower 48, all but Texas are interconnected, but that interconnection was largely for safety reasons as opposed to an attempt to market energy produced by, say, Texas plants to consumers in Ohio. There are not enough ways to move electricity around so as to have a truly national electricity market. It has been estimated by the federal government (who we all can trust when they make estimates) that the expenditure requirement would be around \$13 billion.

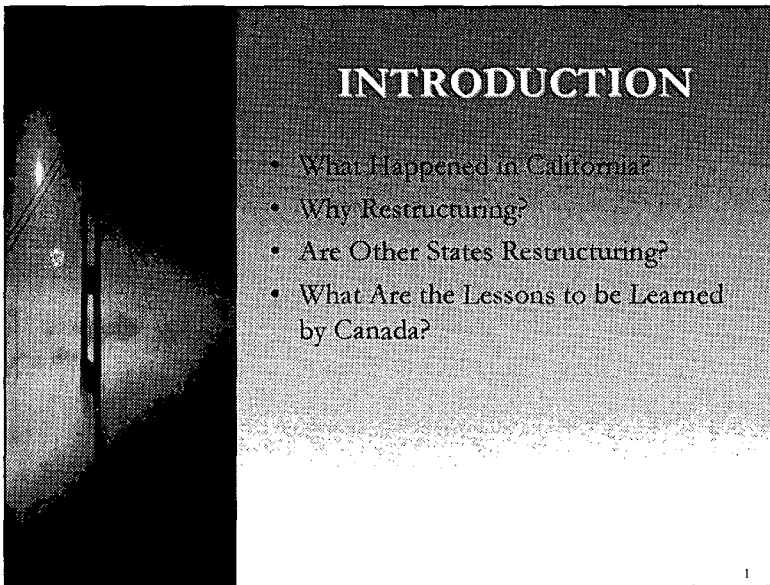
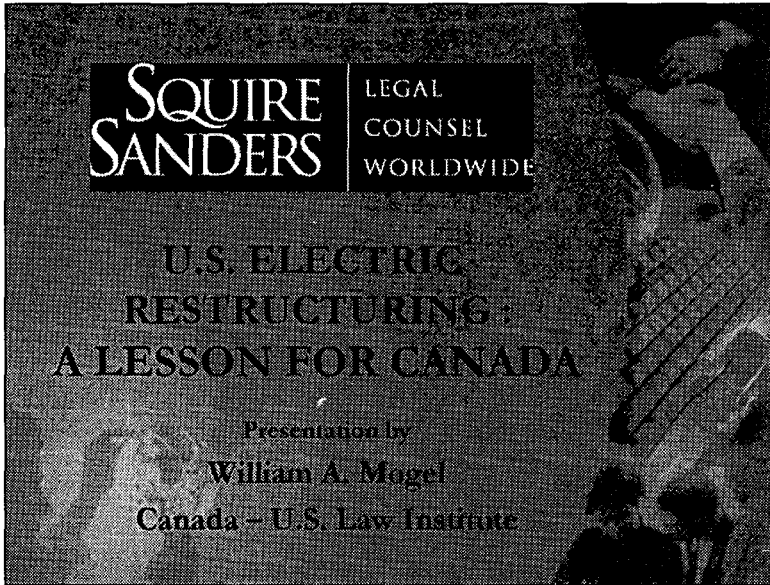
¹⁸ Only about 3 percent of Texas consumers have switched utilities. *Electric Structuring Weekly Update*, Feb. 15, 2002, at http://www.eren.doe.gov/electricity_restructuring/weekly/feb15_02.html#tx.

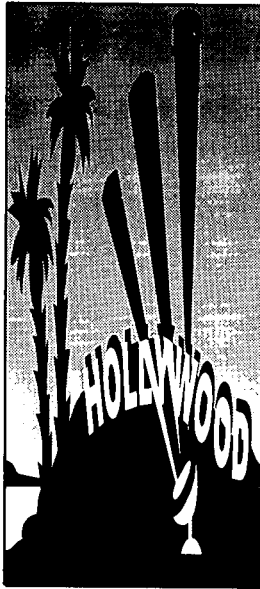
¹⁹ MARYLAND OFFICE OF PEOPLE'S COUNSEL, REPORT ON ELECTRIC CHOICE 5 (2002) (according to the State of Maryland, 2.6 percent of residential customers have switched).

²⁰ See Lois Caliri, *Rush to Switch Providers Unlikely After Deregulation*, ROANOKE TIMES, Nov. 9, 2001, available at <http://www.roanoke.com/roatimes/news/story121939.html> (after deregulation in PA, around 10 percent of eligible consumers have switched utilities).

In summary, we in the United States have invested an enormous amount of intellectual capital into electric restructuring but have only gotten uneven results. Thank you very much.

VISUAL PRESENTATION





CALIFORNIA

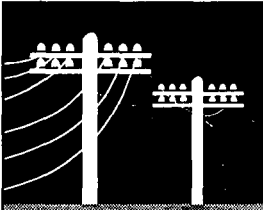
- BAD PLAN
 - Forced sale of utilities' generation units
 - A decade old policy that prevented the siting of new power plants
 - Precluded long-term bilateral contracts (required all transactions to go through Power Exchange's spot market)
 - Price cap imposed on retail rates while wholesale rates were at higher market based rates

2

CALIFORNIA

- BAD LUCK
 - Natural gas prices tripled
 - Hotter than normal summer (second hottest in 100 years)
 - Warmer than normal winter in 1999 reduced availability of hydroelectric power
 - Demand increased (since 1990: employment +12%, population +16%, state economy +45%)
 - Increased demand for power in adjoining western states
 - Forced shutdown of some power plants because exhausted air emission credits
 - Greater than normal usage of peaking units resulted in shutdowns for maintenance
 - Excessive reliance on volatile spot market for short term purchases
 - Early onset of cold weather


3



CALIFORNIA

- **BAD RESULT**
 - High prices; supply shortages
 - State intervention by diverting public funds for spot purchases
 - Rolling blackouts
 - Bankruptcy of PG&E and PX
 - \$40 Billion liability for DWR Power Purchases

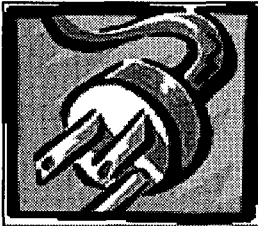
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UNIQUE CHARACTERISTICS OF ELECTRICITY

- Cannot be economically stored in large quantities
- Demand and supply must be continuously balanced
- Electricity follows a path of least resistance and does not necessarily follow the shortest route or the assumed contract path
- Generators within an interconnected network must be synchronized to avoid disruptions and insure reliability
- Generation must be relatively close to the point of consumption

5



PRINCIPLES OF RESTRUCTURING

- Restructuring defined: “Unbundling” of generation from transmission and distribution services which remain regulated
 - Market Based Rates
- Objective: to provide consumers with choices among sellers of electric power
- Belief that competition will result in lower prices for electricity

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PRINCIPLES OF RESTRUCTURING

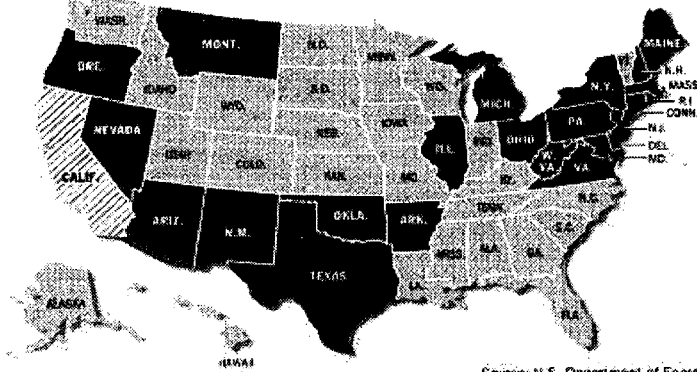
- Transmission: Open Access/Nondiscriminatory Tariffs (OATI)
- Transparency of Information (OASIS)
- Stranded Cost Recovery
- Independent System Operators (ISOs)/RTOs

7

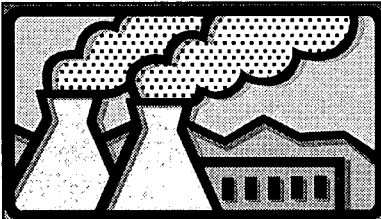
The Enron Effect?

While 17 states are deregulating their electricity systems, legislatures in seven others are delaying their plans, partly due to the issue's identification with one of its biggest backers: Enron Corp. The remaining 26 states haven't taken action to deregulate.

Deregulated electricity
 Delayed deregulation
 Haven't acted
 Suspended deregulation




Source: U.S. Department of Energy



RESTRUCTURING IN KEY STATES

OHIO

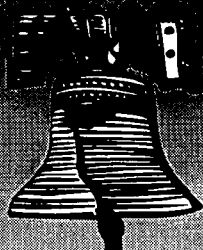
- Retail Choice began January 1, 2001
- Five Year Rate Freeze (except Dayton Power & Light)
- Stranded Cost Recovery: \$4-\$12 billion
- Siting Board
 - 3,500 MW new generation approved
 - Applications for 5,000 MW pending approval
- Greenpower



TEXAS

- Excess Generating Capacity
 - 11,000 MW (enough to light New York City)
- Policy Favoring New Generation
 - 8,652 MW added during past 5 years; 27 new plants under construction
- Investment in Upgraded Transmission Facilities
 - TXU's new 88-mile transmission line to move power to northern part of State
 - Extensive natural gas production and mature pipeline industry
- Price to Beat" structure that encourages competition

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PENNSYLVANIA

- A net surplus of generating capacity
- The second largest power generating state
 - 15,000 MW of new generation capacity is being developed
 - Gradual phase-in of opening retail market
- Utilities were not required to fully divest generation
- Stranded cost recovery was limited and spread over extended period

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**RESULTS OF
RESTRUCTURING**



TEXAS
Claims of Market Manipulation
Only 5% of Residential Customers expressed interest in switching

MARYLAND
1.7% Homeowners switched to new power supplier

VIRGINIA
Customers that switched only saved \$10/month

12

**RESULTS OF
RESTRUCTURING**

PENNSYLVANIA
Less than 10% of residential consumers switched
Primary participants are commercial and residential customers

CALIFORNIA
Litigation to recover DWR costs estimated to be \$40 billion

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**THE FUTURE OF
RESTRUCTURING**

- Financial Strength of Merchant Companies
- Regional Differences in Demand/Supply and Siting Requirements
- Supply/Price of Natural Gas
- Transmission Constraints
 - Investment of \$12.6 Billion Needed (FERC estimate)
- Standardize Market Design (RTOs)

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