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Electricity Market Restructuring in Illinois  
WHAT NEXT?

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## Estimated Electric Utility Average Revenue per Kilowatt-hour Year-to-Date December, Illinois

*\*data retrieved from EIA, Electric Power Monthly*

	Residential	Commercial	Industrial
<b>1996</b>	10.4	8.0	5.3
<b>2001</b>	8.7	7.4	4.8
<b>2002</b>	8.4	8.3	5.6



# The Good Old Days

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Pennsylvania electric industry prior to 1997:

- Electric rates varied by as much as 100% within Pennsylvania.
- Rates ranged from about 20% below to 50% above the national average.
- Pennsylvania's average electricity rate about 15% above national average.
- PECO Energy and Duquesne Light had residential electric rates of 14 cents and 12 cents per kwh respectively.
- 55% of generation was coal; 40% was nuclear.



# The Good Old Days

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- Multi-billion dollar nuclear plants placed in rates over consumer opposition
- Little or no utility spending on conservation
- Little or no utility support for renewable energy
- Rolling blackouts January 19, 1994 when coal piles froze and some nukes tripped off in minus 20 degree weather



# Environment and Public Health

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- Electric industry 2% of GNP.
- Electric industry responsible for 70% of sulfur dioxide, 40% of carbon dioxide, 30% of nitrogen oxide, 18% of mercury pollution, and a huge amount of particulate matter.
- One million Pennsylvanians suffer from respiratory illnesses caused or aggravated by air pollution.
- 6,000 miles of streams in Pennsylvania too acidic to support trout.
- Pennsylvania responsible for 1% of global warming emissions.



# Competitive Market

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- 2,654.00 megawatts of load have switched to competitive suppliers:
  - 303,716 customers have switched
  - 226,096 residential customers have switched
  - 76,928 commercial customers have switched
  - 892 industrial customers have switched
  - 25.4% of Duquesne's residential customers are served by competitive suppliers
  - 6.4% of PECO's residential customers are served by competitive suppliers
- Commercial and industrial load served by competitive suppliers increased by 58% in 2002.
- For most residential customers, without stranded costs, competitive rates are from 0.50¢ to 4.0¢ below historic monopoly rates.



# Consumers

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- Consumer savings totaled \$4 billion by 2001 from rate cuts and shopping savings.
- Most consumers received from a 2% to 8% one-year rate cut.
- PECO customers receive rate cuts from 1999 to 2005.
- Total rates are capped at January 1, 1997 levels until at least 2005 in many cases.
- Generation rates are capped at set levels until 2010 in most service territories.
- Basic residential rates dropped approximately 20% in early 2002 when stranded cost charges were eliminated in Duquesne Light territory, a level not seen since 1981.
- Residential heating rates dropped 39% in Feb. 2003 when stranded cost charges eliminated, saving average customer \$444 per year.



# Reliability

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- 8,000 megawatts of new capacity built in PJM between 2001 and 2003.
- Record peak demands met in summer of 1999, 2001 and 2002.
- Forced outage rate of power plants reduced by 50% since 1996.
- Reduced forced outage rate equivalent to building about 1,500 megawatts of new capacity.
- Expansion of PJM has increased number of power plants and geographic scope of market, allowing a reduction in the required reserve margin from 18% to 15%.
- PJM reports generation capacity will exceed reserve until at least 2007.
- \$760 million in transmission upgrades made over last six years.





# Electricity Facts

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## Energy resources used to produce electricity in PJM, 1/1/02 - 12/31/02

Coal	48.0086%
Oil	3.2129%
Natural Gas	10.9187%
Nuclear	35.9645%
*Captured Methane	0.0435%
*Geothermal	0.0000%
*Solar Voltaic	0.0000%
*Solar Thermal	0.0000%
*Solid Waste	0.8471%
*Water	0.8284%
*Wind	0.0144%
*Wood	0.1619%
<b>*Renewable Energy Resources subtotal = 1.8953%</b>	



# Wind Power in Pennsylvania

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**Wind farms currently in operation in Pennsylvania:**

## **PA Humboldt Industrial Park**

Hazleton, Luzerne County, online December, 1999  
The Mid-Atlantic Region's first commercial wind turbines  
.13 megawatts (MW), operated by Energy Unlimited  
Power Purchaser/Marketer: Community Energy, Inc.

## **Green Mountain Garrett Wind Farm**

Garrett, Somerset County  
10.4 MW (2,500 households), developed by National Wind Power, owned and operated by FPL Energy  
Power Purchaser/Marketer: Green Mountain Energy Company

## **Mill Run Wind Project**

Springfield and Stewart Townships, Fayette County about 40 miles southeast of Pittsburgh  
15 MW (5,700 homes)  
Developer: Atlantic Renewable Energy Corporation and Zilkha Renewable Energy  
Power Purchaser: Exelon Power Team/Marketer: Community Energy, Inc.

## **Somerset Wind Farm**

Somerset Township, Somerset County, online October, 2001  
9 MW (2,500 households)  
Developer: Atlantic Renewable Energy and Zilkha Renewable Energy  
Power Purchaser: Exelon Power Team/Marketer: Community Energy

## **Waymart Farm Wind**

Near Waymart, Wayne County  
61.5 MW (20,000 households)  
Developer: National Wind Power/Orion Energy  
Power Purchaser: Exelon Power Team/Marketer: Community Energy, Inc.



# Wind Power in Pennsylvania

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## Planned wind farms in PA for 2003-2004:

### Meyersdale Wind Farm

Summit Township, Somerset County

Proposed for 30 MW

Developers: Atlantic Renewable Energy Corp. and Zilkha Renewable Energy

### Keystone Wind

Somerset, Somerset County

Proposed for 25 MW

Developer: Disgen

### Bear Creek

Bear Creek Township, Luzerne County

Proposed for 46.5 MW

Developer: Global Winds Harvest

### Forward

Shade Township, Somerset County

Proposed for 36 MW

Developer: Generation Resource Holdings

### Mountain High

Bear Creek Township, Luzerne County

Proposed for 26 MW

Developer: Energy Unlimited

### Stony Creek

Stony Creek Township, Somerset County

Proposed for 54 MW

Developer: Generation Resource Holdings

### Brothers Valley

Garrett, Somerset County

Proposed for 15 MW

Developer: US Windforce



# Wholesale Market Prices

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- PJM wholesale spot market prices have averaged about 3.2¢ per kilowatt hour since January 1, 1999.
- The one-year forward contract within PJM has ranged from about 2.8¢ per kilowatt hour to 5¢ per kilowatt hour since 1999.



# Prices

	1996 Residential G&T Prices (cents)	1996 Residential G&T Prices in Constant Dollars (cents)
DQE	8.75	9.90
PECO	8.65	9.80
PPL	6.26	7.10
GPU/MetEd	5.70	6.40
GPU/Penelec	5.40	6.10
Allegheny	5.30	6.00

PECO total residential rate was 14.2 cents per kilowatt hour in 1996 or 16.0 cents in 2003 constant dollars.



# Prices

	2003 G&T Prices for Residential
ECAP	5.87¢
ECAP 100%	7.18¢
electricAmerica	5.79¢
Green Mountain 50%	6.89¢ + \$3.95 monthly fee
Green Mountain 100%	7.56¢ + \$3.95 monthly fee
Community Energy 100% wind	8.43¢

\*Stranded cost charges are added to competitive prices and conceal BARGAIN levels of wholesale and retail market prices.



# Market Interventions

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- Rate caps to protect consumers
- Stranded cost recovery to protect incumbents' past investments
- Default rates set well below the incumbent's unbundled generation numbers
- All these policies make market entry difficult



# Lessons Learned

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1. The goal of transition must first be determined:
  - Genuine retail competition featuring four or five companies competing for all customer classes;
  - Wholesale competition with a dominant retail company subject to price regulation; or
  - Wholesale competition with a dominant retail company *not* subject to price competition.





# Lessons Learned

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2. Retail competition is vital to healthy wholesale markets.

The retail market establishes demand and demands responses to prices.



# Lessons Learned

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## 3. Wholesale competition is vital to robust retail competition.

FERC and Congress have failed so far to meet their constitutional duty to ensure the interstate commerce of electricity, which has created increased costs, market power abuses and avoidable risks to reliability. FERC must mandate membership in appropriately-sized, independent regional transmission organizations.



# Lessons Learned

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## 4. Demand-side response is critical.

Electric restructuring in any state won't be complete until consumers are able to modify their electricity usage in response to prices, through such means as remote appliance controls, time-of-use meters and Internet-based energy management platforms. Until this happens, there will be higher prices, greater risks of blackouts, and more pollution than should be the case.



# Lessons Learned

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5. Competitive markets increase pressure to use fuel and capital efficiently.
  - Fuel efficiency of new plants greatly improved
  - High capital costs plants like nuclear and coal disfavored
  - Is efficiency putting too many eggs in the natural gas basket?



# Lessons Learned

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6. Vigilant market monitoring to insure integrity and genuinely competitive markets is vital.

- California
- Manipulation of gas price indices



# Lessons Learned

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7. Regional transmission organizations (RTO) are essential.

Long live PJM and may it grow.



# Reforms Needed

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1. Promote demand response through deployment of time-of-use meters in all premises over a reasonable period;
2. Adopt policies facilitating customer aggregation and auctions for large groups of customers;
3. Limit POLR service to residential customers.



# Reforms Needed

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4. Replace capacity markets with a policy requiring regional transmission organizations or the distribution company to perform an annual review of generation adequacy over a three-year period, and, if and only if review identifies a supply shortage, to conduct an auction for new generation. All resources – distributed generation, demand resources and central stations – should be allowed to bid.





# Reforms Needed

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5. Adopt a Renewable Portfolio Standard (RPS) requiring 10% of generation capacity to come from renewable resources by 2014. An RPS would:
- Diversify the fuel mix of generation
  - Improve reliability
  - Spur economic development
  - Reduce pollution which causes smog, acid rain, habitat damage, global warming, illnesses and premature deaths