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*This report is also available as a PDF at www.RenewableEnergy.ilstu.edu.*
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We would like to thank our member companies for their support of the Center for Renewable Energy and its research. This report is based on Antonio Pagan’s senior capstone project during his undergraduate studies at Illinois State University.

We also thank Kevin Borgia for his helpful insight into the long-term procurement process.
The Illinois Wind Working Group (IWWG) is affiliated with the Department of Energy’s Wind Powering America’s State Wind Working Groups. The group is administered by the Center for Renewable Energy at Illinois State University, including Dr. David Loomis (Economics), David Kennell (Technology), and Dr. J. Randy Winter (Agriculture).

Wind Powering America (WPA) is a regionally-based collaborative initiative to increase the nation’s domestic energy supply by promoting the use of Wind Energy Technology, to increase rural economic development, protect the environment, and enhance the nation’s energy security. WPA provides technical support and educational outreach materials about utility-scale development and small wind electric systems to utilities, rural cooperatives, federal property managers, rural landowners, Native Americans, and the general public.

IWWG is an organization whose purposes are to communicate wind opportunities honestly and objectively; to interact with various stakeholders at the local, state, regional, and national levels; and to promote economic development of wind energy in the state of Illinois.

The organization is comprised of 192 key wind energy stakeholders from the state of Illinois, and hosts an annual Advancing Wind Power in Illinois Conference; an annual Siting, Zoning and Taxing Wind Farms in Illinois Conference; and Landowner Forums throughout the state.

www.RenewableEnergy.ilstu.edu/wind/
Illinois State University established the Center for Renewable Energy, and it received Illinois Board of Higher Education approval in 2008. The Center was initially funded by a $990,000 grant from the U.S. Department of Energy (US DOE) to research renewable energy, to establish a major in renewable energy at Illinois State and to administer the Illinois Wind Working Group (IWWG). The Center also received a grant from the Illinois Clean Energy Community Foundation to help complete its state-of-the-art renewable energy laboratory.

The Center has three major functional areas:

- Supporting the renewable energy major at Illinois State University
- Serving the Illinois renewable energy community by providing information to the public
- Encouraging applied research on renewable energy at Illinois State University and through collaborations with other universities.

Founding Members:

Founding members include Horizon Wind Energy LLC, Iberdrola Renewables, State Farm Insurance, and Suzlon Wind Energy Corp.

Support of the Renewable Energy Major:

Many new workers will be needed in the renewable energy industry. To meet the growing demand for trained and educated workers, we have developed an interdisciplinary renewable energy major at Illinois State University. Graduates of the renewable energy program are well-positioned to compete for new and existing jobs.

The Center supports the renewable energy major through:

- Creation of an advisory board of outside experts
- Establishing a renewable energy internship program
- Bringing renewable energy experts to campus for seminars for faculty and students
- Funding scholarships to ensure high quality students in the major
- Providing ongoing financial support for the major.

For more information about the Renewable Energy Undergraduate Major, please visit www.RenewableEnergy.ilstu.edu/major/.
Illinois electricity markets have experienced profound changes over the past decade. Some of the changes have come from federal legislative and regulatory changes, but the majority has come from state-level policy initiatives. These changes have resulted in massive shifts in generation, business structure and consumer options, and helped facilitate wind energy’s growth from zero megawatts (MW) in 2002 to over 2,000 MW in 2010 (IWEA 2010).

These changes have been dramatic and have created an extraordinarily complex electric market that is often the result of political compromises. This report aims to explain the legislative and regulatory changes that enabled wind energy development and help the reader understand how Illinois electricity markets and renewable energy procurement work.

To understand the current Illinois market, it is first important to look at the past 30 years of energy policy in the United States. In 1978, U.S. Congress passed the Public Utility Regulatory Policies Act (PURPA), which required utilities to purchase power generated by independent facilities at or below their “avoided cost” of generation (Brennan 1996). The idea behind this order was to encourage diversification of the national energy portfolio that would encourage implementation of renewable technologies. It also promoted competition among electric generators, which was intended to drive prices down. Prior to this, large investor-owned electric utilities (IOUs), which had a monopoly over distribution, transmission and generation, were vertically integrated and controlled the electricity market from beginning to end. Generation and distribution were regulated by state public utility commissions and transmission was regulated by the Federal Energy Regulatory Commission (FERC). All of the regulatory agencies used rate-of-return regulation to limit the companies to a fair return of their investments. Access to the utilities’ transmission was either denied or users were charged exorbitant fees to access their lines. In 1973, the U.S. Supreme Court ruled in Otter Tail v. U.S. that an IOU was required to “wheel” power to a municipally-owned system and that industry arrangements for transmitting electricity are within antitrust law domain.

Because the IOUs were allowed to charge rates that reflected their costs and a fair return, they had little incentive to produce at the lowest possible cost. In addition, government-owned municipal utilities and customer-owned rural electric co-ops also had muted financial rewards to drive down costs.¹

Thanks in part to PURPA, wind generation expanded in parts of the U.S., especially in California during the late 70’s and 80’s. However, due to the subsequent rise in low-cost fossil fuel generation and a lack of federal or state incentives for renewable energy sources, large scale renewable generation failed to take hold in Illinois until after the state’s power markets were deregulated 20 years later.

¹ For further reading on PURPA’s effect on electricity generation and purchasing read the Illinois Institute for Rural Affairs’ Harvest the Wind, which provides an in depth explanation of the act’s provisions in Chapter 7.
The deregulation of Illinois’ electricity market ultimately began with Federal Energy Regulatory Commission (FERC) Order 888 and 889 in 1996. Order 888 mandated utilities to allow independent power marketers to access their transmission lines, and established Independent System Operators (ISOs) to manage grid stability and set operating guidelines. This act effectively unbundled generation from transmission, creating an open market for independent generators (Hirst and Kirby 1998). Order 889 established Open Access Same-Time Information System (or OASIS) nodes which act as a central point for gathering information about spot electricity demand and transmission availability. All aggregators and utilities were required to use the nodes as their sole source of retrieving this information, effectively barring distribution utilities from acquiring the information from their functionally separate transmission companies (FERC 1996).

Order 888 started a wave of utility deregulation nationwide that has taken hold in 21 states thus far. In 1997, the Illinois General Assembly passed the Electric Service Customer Choice and Rate Relief Law, officially beginning the process of deregulation in Illinois. The two primary utilities, ComEd (now owned by Exelon) and Illinois Power (now owned by Ameren), were subject to rate cuts of approximately 20% (ILGA 2007). The rates for these two utilities were then frozen at this level until 2005 and then extended to 2007. During this rate freeze, the competition was phased in and the utilities were given time to adjust to full competition. This law opened the electricity market to Alternative Retail Electric Suppliers (ARES) that would compete with Investor Owned Utilities (IOUs) to supply power to customers. ARES are like regulated utilities in that they buy power from independent power producers and use it to serve customers’ electric loads. In some cases, ARES have their own generation facilities. Unlike IOUs, they don’t own any transmission or distribution lines. In addition, their rates do not have to be approved by the Illinois Commerce Commission. However, customers who switched to an ARES had to pay a transition charge, presumably to pay for the stranded costs of the utilities caused by this transition.

This transition period from 1997 to 2007 was also a time of tremendous industry consolidation in Illinois. Commonwealth Edison merged with PECO in Philadelphia to form Exelon. Ameren bought out Illinois Power, CIPS, and CILCO and renamed them AmerenIP, AmerenCIPS and AmerenCILCO. As permitted by the state’s deregulation statute, generating assets were spun off into separate companies from the load-serving entities (LSEs). Illinois Power sold the Clinton Nuclear facility to a company that eventually became Exelon Generation, and Commonwealth Edison sold all its coal-fired generating plants to Midwest Generation, a subsidiary of Edison Mission Energy. Commonwealth Edison renamed itself ComEd, and moved all its generation units into its sister subsidiary (Exelon Generation), both owned by the parent company Exelon. Likewise,
Ameren moved their generating units into a separate subsidiary. Though the wholesale markets would soon be deregulated, incumbent utilities would remain subject to rate-of-return regulation by the Illinois Commerce Commission.

As competition grew, the vast majority of large commercial and industrial (C&I) customers switched to competitive service, while a significantly smaller fraction of residential and small C&I customers have switched. Table 1 shows the number of customers who have switched to an ARES and are now using only “Delivery Services” from the utility. Of large C&I customers, 91.5% have switched to ARES. The percentage of small C&I customers (<1MW) who have switched is much lower at 16.7%, but they represent 59% of usage.

The Illinois Power Agency Act (IPAA) set specific terms for declaring certain customers as competitive. As of May 30, 2010, all ComEd C&I customer classes with demand greater than 100kW were deemed competitive, as were Ameren C&I customers with demand of at least 400kW. According to the 2011 IPA Draft Plan, “ComEd and Ameren will procure power for customers in classes deemed competitive only in the hourly spot market and pass through those variable market prices to the competitively declared customers that choose not to select supply service from an ARES.”

At the end of August, 2010, the C&I classes declared competitive received 89% (Ameren) and 87.9% (ComEd) of their usage from ARES.
As the end of the rate freeze approached, no ARES had come forth to actively market to residential and small commercial customers. Thus, the Illinois Commerce Commission (ICC) sought to implement a process to procure electricity for utility customers. After a long workshop process, the ICC approved a procurement process similar to the reverse auction bidding process that was used in New Jersey. In this system, the sellers bid on a tranche that was a fixed percentage of customer demand. Rather than bidding on a fixed amount of power at a given time of day, sellers were required to supply electricity demand that varied widely over a day, season or year. The auction process was repeated for a series of rounds until the bidding settled at its lowest price for the estimated quantity demanded. The contracts were then signed between the winning bidders and the utilities. This process was expected to lower electric prices, but instead rates actually increased dramatically. The result of the auction was an increase in residential rates of 21 percent for Commonwealth Edison customers and 36-53 percent for Ameren customers. Although the real average residential price of electricity was still lower in 2007 than it was in 1997, few customers understood this fact.

ComEd’s President Barry Mitchell defended the price spike, citing the growing market price of energy over the nine years that prices were frozen. The freeze also had the adverse effect of limiting competition, as few power marketers had incentive to enter a market with artificially low prices caused by the rate freeze. Despite this, the disparity between energy prices and the actual cost of generation resulted in a 73% increase in profits for ComEd’s parent company, Exelon. This led to a considerable backlash against large utilities and power marketers (Online NewsHour 2007). In March of 2007, Attorney General Lisa Madigan filed a formal complaint with FERC accusing Ameren, Exelon and 13 power marketers of price manipulation in the 2006 auction (Madigan 2007).

Another reason for the increase was not the auction process itself, but rather in the definition of contracts. These “tranche” contracts were agreements to supply a percentage of the total energy load at any given time, both baseload and peak, which hindered small generators with limited portfolios. If a bidder’s generation portfolio did not include base load generation as well as peaker plants, that bidder had to sign side contracts with other generators to fulfill the portions of the demand. This structure forced these bidders to take a massive amount of risk into account when formulating their bids, because bidders were responsible for forecasting future electric demand. Small generators who could not afford to take these risks either had to partner with other firms or be forced out of the market (Castro, Negrete-Pincetic and Gross 2008).

Because of their large portfolio of generating assets in Illinois, Exelon and Ameren had a clear advantage in bidding in the auction. In fact, Exelon ended up winning 97% of ComEd’s contracts over 41 months (Jaeger 2009). The forced conglomeration of small generators also lowered competition since they then bid as large groups, not as individual generators.

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To illustrate how much this market structure resulted in higher bids, compare the Locational Marginal Prices (LMPs) at the Illinois Hub for 2007 to the final auction price for Ameren. LMP represents the actual cost of the electricity at the time it is being used.

Although such a comparison assumes perfect knowledge of future prices, the comparison shows the risk premium that is built into the fixed price auction. **Figure A** shows the average and daily LMP along with the auction prices (BGS). As the chart indicates, the spot market cost of electricity came in significantly lower (approximately 2.0 cents per kWh) than the lowest of the contracted prices. In fact, the price only spikes above the contract prices a handful of times and for very brief periods. These inflated wholesale prices were then passed on to consumers. The dramatic retail price increases caused by the high auction prices created a large public backlash against the utilities, the Illinois Commerce Commission, and anyone associated with the auction. The Illinois Commerce Commission stepped in and negotiated a $1 billion dollar payout to customers from Ameren and Exelon. During this time, the General Assembly was putting the legal framework in place for the formation of the Illinois Power Agency, which would then take on the task of procuring all of the electricity for Illinois utilities (Jaeger 2009).

Figure A: Comparison LMPs at the Illinois-Hub for Year 2007 and Ameren Final Auction Prices (Castro, Negrete-Pincetic and Gross 2008)
In response to these price shocks, the Illinois Power Agency Act (IPAA) was signed into law in August, 2007. The IPAA had several major provisions. First, the IPAA created a new state government agency, the Illinois Power Agency (IPA) whose job is to procure power for all Illinois utilities serving over 100,000 customers (essentially ComEd and Ameren). The purpose of the IPA is to “ensure adequate, reliable, affordable, efficient, and environmentally sustainable electric service at the lowest total cost over time for Illinois consumers.” The IPA is an agency of the State of Illinois with a five-member board appointed by the Governor. Second, the IPAA also introduced a Renewable Portfolio Standard requiring 25% of Illinois’ electricity to be sourced from renewable technologies by the year 2025 and made the IPA responsible for meeting these goals (see page 13). Third, the IPAA eased the cost of restructuring that had occurred while rates were frozen by providing over $1 billion in new rate relief over four years to residential and certain non-residential electric customers.

The Illinois Power Agency was created as an entirely new entity within state government to act as an intermediary for wholesale power sales to Illinois utilities. However, the IPA does not actually purchase anything, per se. It merely brokers all contracts between utilities and suppliers. Under the IPAA, the utilities submit load projections to the IPA, and the Agency is tasked with formulating a procurement plan for each utility. This plan must be approved by the Illinois Commerce Commission each year before the IPA can solicit bids.

By statute, the IPA must submit its draft procurement plan by August 15th every year. There is then a comment period, followed by revisions and the ICC’s final approval must be issued by December 31st.

The following spring, the Agency solicited contracts by issuing a Request for Proposal (RFP) and accepted sealed envelope bids. A third party consultant was selected as Procurement Administrator, and the Agency and Administrator then analyzed the bids to determine the lowest-cost means of filling each utility’s needs. An independent monitor was also selected to oversee the procurement process and report its findings to the IPA. In the end, the ICC had to approve the results of all procurement events.

In the first year, it was clear that because the utilities were locked into long-term contracts from past auctions, the IPAs procurement for IOUs would have to be phased in as the contracts expired (CUB 2009). It will not take over full procurement for IOUs until 2013. Table 2 shows the percentage of load procured by the IPA each year during the phase-in.

The initial approved plan allowed for the IPA to purchase power contracts over the course of three solicitations, by purchasing 20 to 40 percent of any given year’s electricity two years prior to the delivery year. This structure allowed the IPA the flexibility to purchase more when prices are lower and vice versa (CUB 2009).
The agency also redefined the products it purchased, opting for more standardized products that have a measurable market price. The IPA procures energy in more specific blocks of power, both baseload and peak, rather than in percentages of demand. In doing this, risk was more evenly balanced between generators and utilities. The IPA also utilizes benchmarks to ensure winning bids are not higher than market prices. These benchmarks are different for different sources, be they peak or off peak, and are kept confidential.

The Agency's first and current Director, Mark Pruitt, was appointed by then-governor Rod Blagojevich. Pruitt came from a career in power procurement with municipal utilities and had worked in power purchasing for the University of Illinois campuses, making him an ideal candidate for the position (Blagojevich 2008). Currently, Pruitt is the sole employee of the IPA. With a budget of only $1 million dollars, he has been required to run the agency on a pittance (Holland 2010).

Filling the position was difficult, as the IPA Act requires the Director to have: A) At least 15 years experience in the electric industry; B) An “advanced degree in economics, risk management, law, business, [or] engineering;” and C) Managerial experience. In addition, for ethics purposes, the director could not have, “for two years prior to appointment or for two years after he or she leaves his or her position, be employed by an electric utility, independent power producer, power marketer, or alternative retail electric supplier.” On top of those requirements, the Act stipulates that the position pay just $100,000 per year (ILGA 2007).

It was extremely difficult to fill this position because the vast majority of individuals with the mandated qualifications were already working for a utility or in some other part of the power sector. Plus, few individuals with advanced degrees in the field and 15 years experience are willing to work for $100,000 a year. Pruitt was one of the only qualified people in the state who could take the job (Borgia 2010).

The results from the 2009 procurement saw a significant drop in prices from the prior auction method. Ameren saw a 13.6% decrease in wholesale prices, and an 8% overall drop after adding in distribution charges. ComEd saw a 12.5% drop in the wholesale price, with a 9% overall decrease (Jaeger 2009).

While some may say this was due to a nationwide drop in wholesale prices in 2009, New Jersey’s prices, procured through the “reverse auction” process that was rejected by Illinois, remained the same (CUB 2009). Also, with long-term contracts awarded under the old system still claiming approximately 70% of the load of Ameren and ComEd (Table 2), it is likely that prices will drop even further over the next three years as the IPA procures a higher percentage of the load using the current bid method.
The IPA is also responsible for keeping Illinois utilities in compliance with the state’s Renewable Portfolio Standard (RPS), which mandates that 25% of Illinois’ electricity come from renewable sources by the year 2025. The IPAA also contains a cost-cap provision stating that the RPS cannot cause utility bills to increase by more than 0.5% annually, with 2007 being the base price year. This provision will be reviewed by the ICC in 2011 to determine if it has hindered the procurement of renewable energy (Public Act 095-1027). Electric cooperatives and municipal utilities are exempt from the RPS requirement. The RPS requires utilities to meet the benchmarks outlined in Table 3. The RPS has a specific carve out for wind, with a mandate that 75% of all renewables procured for IOUs come from wind (see Figure B). A solar carve-out was added in 2009, requiring that by 2015, 6% of the renewables mandate come from solar photovoltaics.

The amount of energy a utility is required to purchase is determined by applying the mandated percentage to the utility’s eligible retail sales from the prior planning year. This means that the 2010-2011 compliance period, beginning June 1, 2011, the mandated renewable energy procurement will equal 5% of eligible retail sales from June 1, 2008 to May 31, 2009. The IPAA gives the Agency the authority to fulfill its renewable energy requirement through the purchase of bundled products (i.e. renewable power and its associated renewable energy credits (RECs), or by just procuring RECs). In 2008 and 2009, the RPS targets were met using RECs only. This means that only the credit is purchased and not the power generated.

The reliance on such one-year REC-only contracts would become problematic for the wind industry in Illinois in 2009 and 2010, as these short-term contracts did not help the industry build new projects (more on this topic later).

In 2008, the RPS only applied to utilities regulated under the IPA; the ARES (representing almost 50 percent of the state’s overall load) did not have to meet a renewable energy mandate. This difference put the utilities at a competitive disadvantage to the ARES due to the asymmetric regulation

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### IV. The IPA and Renewable Energy

**Renewable Portfolio Standard**

<table>
<thead>
<tr>
<th>Year</th>
<th>RPS</th>
<th>Wind (IOUs)</th>
<th>Wind (ARES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>2.0%</td>
<td>1.50%</td>
<td>1.2%</td>
</tr>
<tr>
<td>2009</td>
<td>4.0%</td>
<td>3.00%</td>
<td>2.4%</td>
</tr>
<tr>
<td>2010</td>
<td>5.0%</td>
<td>3.75%</td>
<td>3.0%</td>
</tr>
<tr>
<td>2011</td>
<td>6.0%</td>
<td>4.50%</td>
<td>3.6%</td>
</tr>
<tr>
<td>2012</td>
<td>7.0%</td>
<td>5.25%</td>
<td>4.2%</td>
</tr>
<tr>
<td>2013</td>
<td>8.0%</td>
<td>6.00%</td>
<td>4.8%</td>
</tr>
<tr>
<td>2014</td>
<td>9.0%</td>
<td>6.75%</td>
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<td>2015</td>
<td>10.0%</td>
<td>7.50%</td>
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<td>2016</td>
<td>11.5%</td>
<td>8.63%</td>
<td>6.9%</td>
</tr>
<tr>
<td>2017</td>
<td>13.0%</td>
<td>9.75%</td>
<td>7.8%</td>
</tr>
<tr>
<td>2018</td>
<td>14.5%</td>
<td>10.88%</td>
<td>8.7%</td>
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<td>2019</td>
<td>16.0%</td>
<td>12.00%</td>
<td>9.6%</td>
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<td>2020</td>
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<td>13.13%</td>
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<td>14.25%</td>
<td>11.4%</td>
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<td>2022</td>
<td>20.5%</td>
<td>15.38%</td>
<td>12.3%</td>
</tr>
<tr>
<td>2023</td>
<td>22.0%</td>
<td>16.50%</td>
<td>13.2%</td>
</tr>
<tr>
<td>2024</td>
<td>23.5%</td>
<td>17.63%</td>
<td>14.1%</td>
</tr>
<tr>
<td>2025</td>
<td>25.0%</td>
<td>18.75%</td>
<td>15.0%</td>
</tr>
</tbody>
</table>

Figure B: Percentage of Illinois Utility RPS From Wind and Other Renewables (IWEA 2010)
placing a mandate on some market participants and not others. To address this, the legislature amended the IPAA in 2008 to cover all competitive electric suppliers in Illinois, essentially doubling the size of the RPS.

The methods allowed for ARES’ renewable energy purchases to differ considerably under the law. ARES must meet at least 50% of the mandate through Alternative Compliance Payments (ACPs). The price of these payments is determined by averaging the REC prices in the most recent IPA REC procurement event. The ACP rate is different for each utility, and an ARES’ ACP varies depending on which utility service territory that particular ARES operates. Then, the percentage mandated in the RPS is applied to the actual amount of metered electricity the ARES provided their customers to determine how many ACPs they owe. At their discretion, ARES may fill the remaining 50% of their compliance through bi-lateral REC or bundled power procurement, or from within their own portfolio, or simply by paying more ACPs to the Agency. The ACPs go directly to the Agency’s Renewable Resources Fund, which is statutorily required to utilize them to procure RECs. In addition, the RPS for ARES only has a 60% carve out for wind instead of the 75% wind carve out for utilities.

Figure C: Structure of Illinois Renewable Procurement (IWEA 2010)

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3 ARES were required to deliver their first ACPs by September 2010. Though the IPA is statutorily required to use these funds for REC procurements (20 ILCS 3855/1.56), the Illinois General Assembly “swept” or “borrowed” nearly seven million dollars from this account in fall 2010 to cover part of the state’s $13 billion budget gap. The IPA account was one of many state accounts whose funds were raided by the legislature during the budget crisis. The future of the account is currently uncertain.
Clearly, using these two different methods for ARES and utilities can seem very convoluted, and it is. However, like many other government regulations, this structure is the result of a hard-fought political compromise. To help explain the processes, the Illinois Wind Energy Association (IWEA) expressed the overall structure in the diagram on shown in Figure C. The result of the structure set out in the IPAA is such that the Agency is responsible for procuring at least 75% of the renewable energy to serve the RPS.

In order to promote economic development in Illinois, the legislature inserted a provision into the law that requires the IPA to purchase renewables from Illinois before purchasing from adjacent states or other states. This preference has resulted in much consternation among politicians, the media and others in electric power industries in Illinois, with some believing that the lowest-cost options are preferable, and others advocating that the RPS should be used to incent economic development in the state. Through June 1, 2011, there are three tiers of renewables. Tier 1 is Illinois renewable resources, Tier 2 is resources from adjoining states and Tier 3 is other states. Until June 1, 2011, the IPA must purchase renewables from Tier 1 before purchasing from Tier 2 or Tier 3. The three tiers are then separated into wind and non-wind, for a total of six tranches of renewables. Unless the law is changed, after June 1, 2011, Tier 1 will include resources from both Illinois and adjacent states and Tier 2 will be resources from everywhere else.

In the Spring 2010 legislative session, Senate Bill 3686 was introduced to extend the mandate through 2016, but was not passed. The primary actor attempting to block an extension of the preference in the legislature was Exelon. Many in the power industry began speculating during the debate on the bill that Exelon's opposition was because of a “negative pricing” dynamic that has occurred in the PJM (and other) markets in recent years.

When power demand is low and the wind is blowing hardest, there are times when wind generation spikes. This depresses wholesale LMP, at times even driving prices into the negative, meaning generators literally pay to unload their power. A wind generator can actually operate profitably in this scenario, because it has little to no marginal cost of production and often receives 2.1 cents per kWh in a Production Tax Credit (PTC), as well as generating RECs for power produced. Coal, gas and nuclear generators obviously cannot operate profitably under negative pricing. Nuclear facilities are especially hit hard, because they are not able to power down to follow load due to safety regulations, and are essentially forced to pay to unload large amounts of power.

The frequency of this dynamic has not been adequately quantified, but many in the power sector have speculated that Exelon was being hit hard by this negative pricing, and thus sought to decrease the amount of wind generation in the state of Illinois (Daniels 2010).
As stated, the IPAA allows the use of RECs or bundled contracts to meet the RPS targets. The utilities handled the first procurement in 2008, opting to solicit one-year, REC-only contracts. In 2009, the IPA handled the procurement, and also used one-year RECs. The wind industry pushed hard for Power Purchase Agreements (PPAs) in the 2010 procurement, and won a victory with about half the 2010 requirement coming from bundled products. Pricing has fluctuated wildly in these procurements as indicated in Table 4 below.

The 2008 procurement was managed by the individual utilities. Both opted to use one-year, REC-only contracts. For several reasons, the price dynamics were higher than many expected, but were largely representative of the market structure in place. Pricing results were due to the interplay of several factors, most notably: the status of the Illinois wind market, the structure of the REC procurement, and the existence of the Illinois Preference. First, there was just over 600 MW of installed, operating wind capacity in Illinois when the procurement was conducted, and most of this capacity already had off-take agreements with LSEs. By simple supply and demand, this greatly increased the value of Illinois RECs. Second, the structure of the procurement was such that the utilities essentially issued an RFP for a specific number of RECs, announced the total budget, and asked for bids. Third, because the Illinois Preference was in place (and said in-state RECs were in short supply), the value of Illinois RECs further increased.

<table>
<thead>
<tr>
<th>Illinois REC Prices</th>
<th>Commonwealth Edison</th>
<th>Ameren</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wind</td>
<td>Non-Wind</td>
</tr>
<tr>
<td>Year</td>
<td>Location</td>
<td>$/REC</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>2008</td>
<td>Illinois</td>
<td>$35.72</td>
</tr>
<tr>
<td></td>
<td>Adjoining State</td>
<td>$18.35</td>
</tr>
<tr>
<td></td>
<td>Other State</td>
<td>$7.34</td>
</tr>
<tr>
<td>2009</td>
<td>Illinois</td>
<td>$21.13</td>
</tr>
<tr>
<td></td>
<td>Adjoining State</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Other State</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>Illinois</td>
<td>$5.00</td>
</tr>
<tr>
<td></td>
<td>Adjoining State</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Other State</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4: Average Illinois REC Prices in the 2008-2010 Procurements
Amid this dynamic, third party REC trading firms stepped in to sell RECs to the utilities at prices reflective of these market conditions. Only one Illinois wind farm owner, Iberdrola, sold RECs into the process in 2008. The rest were purchased from third party aggregators.4

By statute, the full pricing results are not made public, only the winning bidders and the overall weighted average price for each tranche is released. The utilities did not release if they had reached the cost cap or not. Of course, the above-mentioned market dynamics were also not expressed when the pricing was released. Without this context, the in-state wind ($35.72) tranche stood in stark contrast to other state non-wind ($4.25)

The announcement of the pricing caused a media and political backlash (Stevens). To combat what was being perceived as price manipulation, the legislature added an amendment to the IPAA in 2008 requiring that price benchmarks be implemented in future procurements. The benchmarks are set at the discretion of the IPA, approved by the ICC, and are not made public. Separate benchmarks are used for each tranche (i.e. in-state wind, other state non-wind, etc) and if the benchmark is exceeded by a bidder, the IPA will discard that bid.

The 2009 REC procurement was the first managed by the IPA and the results were quite different. As Figure F indicates, the 2009 results were almost half of the 2008 levels. This was in some quarters seen as an indication that the benchmarks were working, and there is little doubt that the benchmarks did have some impact on prices. However, by the time the 2009 procurement was conducted, there was nearly 1200 MW of wind generation in Illinois, almost double the 2008 level. Not surprisingly, twice the supply helped cut prices in half. The number of Illinois wind farm owners that won bids also increased dramatically; reducing the participation of middlemen likely helped decrease prices.5

The 2010 REC procurement saw prices fall even further. The decrease in pricing was in line with a nationwide decrease in REC prices during this time, but was also reflective of the much greater supply in Illinois at the time of the procurement event.6

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Long-term power purchase agreements are vital for the wind energy industry today. In today’s power markets, developers are only building projects that have already secured a PPA with a load-serving entity or other buyer. Lenders are simply not providing non-recourse financing to wind projects without a PPA. Though many merchant projects were built in recent years, this business model became infeasible when the economic crisis set in, meaning only projects with signed PPAs have a real chance of being built. Due to this dynamic, IWEA, Wind on the Wires and several individual developers organized in 2009 to petition the ICC to require the IPA to use 20-year bundled PPAs instead of just REC-only contracts during the 2010 procurement.

However, wind developers were hit with strong opposition to the PPAs proposal from utilities and ARES in discussions of the IPA Procurement Plan (ICC Docket 09-0373). Opponents argued that REC prices were the lowest-cost compliance option (especially when Texas and Iowa RECs were available at that time in the high single-digits). Another forecasted problem with using PPAs is the risk of “load-migration,” or a concern that small commercial or residential retail customers could dramatically switch from Ameren and ComEd to an Alternative Retail Electric Supplier. This would mean the two large IOUs had effectively “over-procured” their renewables requirements, leaving them with stranded costs. (Jaeger 2009). As Table 1 in the Retail Choice section demonstrates, over one third of Illinois’ electricity usage is residential. Should ARES successfully move into this market en masse, then concerns over load migration would prove valid.

Advocates of using PPAs, including the Office of Illinois Attorney General Lisa Madigan, said that although REC prices appeared to be lower, these prices are not likely to remain this low permanently, and that long-term PPAs would provide stability to the market. Madigan’s office also argued that long-term PPAs would serve as a hedge against future price increases due to carbon control regulations, thereby protecting Illinois ratepayers.

At the direction of Governor Pat Quinn, the Agency announced plans to integrate long-term contracts into the utilities’ renewables portfolio. According to the new IPA structure, the Agency would issue a request for proposals (RFP) for 20-year bundled PPAs. The RFP was to occur in mid-2010, with contracts set to commence delivery June 1, 2012. The IPA would seek contracts to supply 600,000 MWH per year for Ameren and 1,400,000 MWh annually for ComEd. This would amount to approximately 60 percent of the mandate in 2012, with the remainder made up of REC-only purchases. At the end of December 2009, the ICC approved this proposal 3-2.
Under the ICC order, the IPA was to hold a series of “workshops” to discuss contract terms and conditions before holding the procurement. The workshops didn’t begin until August. At these workshops, potential suppliers expressed consternation about the contract terms. Few changes were made when the final contract was released in early September. The Agency began accepting preliminary bids, but suddenly halted the procurement in order to make additional changes. Another series of workshops commenced, and a final contract was put forth in November. The terms of that contract were very contentious, and the procurement was even described in the New York Times as a “byzantine process” that would hinder wind development in the state (Lydersen).

One of the main concerns developers had was concerning the disconnect between price points in the contract. As dictated in the IPA Procurement Plan, suppliers would be paid via a fixed-for-floating financial swap, under which the utility would pay the project owner the full bundled contract price per megawatt-hour (the fixed price). The project owner would then pay back to the utility the LMP at the utility’s load zone in the day-ahead market (the floating price). The project owner can then sell their power on the spot market at real-time LMP. See Figure D below.

![IPA Fixed-for-Floating Swap Contract](image)

The drawback of this structure was that the day-ahead price and the real-time LMP price were rarely going to be identical. While this theoretically would even out over time, the developers argued that it added an unnecessary layer of uncertainty. Though day-ahead and LMP price may be similar, it is difficult to hedge this price risk for more than a few years, no less for 20 years. This would cause problems when seeking credit, as lenders would be wary of a contract with such large risks. This meant the procurement was skewed in the favor of existing, merchant projects (which did not need to secure financing) or projects developed by players that could take on these pricing risks and finance from their large balance sheets.
Another major grievance the developers had was over the contract’s large, lopsided credit requirements, particularly because the utilities were not required to put up significant credit. This had the effect of pushing smaller developers out of contention, as TradeWind and MidWest Wind Energy publicly announced that they would not bid on the contracts. Both have shovel-ready projects in Illinois.

Bidding began again in November 2010, and final bids were due by early December. On December 15th, the IPA released the names of the winning bidders and the weighted average contract price.

Costs and quantities procured are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Total Quantity (MWH)</th>
<th>Avg Price ($/MWH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ameren</td>
<td>600,000</td>
<td>$50.44</td>
</tr>
<tr>
<td>ComEd</td>
<td>1,261,725</td>
<td>$55.18</td>
</tr>
</tbody>
</table>

The wind projects that won bids and their capacity are as follows:

<table>
<thead>
<tr>
<th>Project</th>
<th>Developer</th>
<th>Status</th>
<th>State</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bishop Hill II</td>
<td>Invenergy</td>
<td>Permitted</td>
<td>IL</td>
<td>200</td>
</tr>
<tr>
<td>TianRun Shady Oaks</td>
<td>Mainstream</td>
<td>Permitted</td>
<td>IL</td>
<td>120</td>
</tr>
<tr>
<td>Lee-Dekalb</td>
<td>FPL/Nextera</td>
<td>Completed</td>
<td>IL</td>
<td>226.5</td>
</tr>
<tr>
<td>Grand Ridge IV</td>
<td>Invenergy</td>
<td>Completed</td>
<td>IL</td>
<td>10.5</td>
</tr>
<tr>
<td>Blackstone</td>
<td>Horizon</td>
<td>Completed</td>
<td>IL</td>
<td>300</td>
</tr>
<tr>
<td>Meadow Lake I</td>
<td>Horizon</td>
<td>Completed</td>
<td>IN</td>
<td>199.5</td>
</tr>
<tr>
<td>Meadow Lake II</td>
<td>Horizon</td>
<td>Completed</td>
<td>IN</td>
<td>99</td>
</tr>
<tr>
<td>Meadow Lake III</td>
<td>Horizon</td>
<td>Completed</td>
<td>IN</td>
<td>103.5</td>
</tr>
<tr>
<td>Meadow Lake IV</td>
<td>Horizon</td>
<td>Construction</td>
<td>IN</td>
<td>98.7</td>
</tr>
<tr>
<td>New Harvest Wind Project</td>
<td>Iberdrola</td>
<td>Completed</td>
<td>IA</td>
<td>100</td>
</tr>
</tbody>
</table>

While some new developments in Illinois won contracts, the vast majority of the winning bidders were operating, merchant projects. While the procurement certainly boded well for merchant projects that were lacking PPAs, it did not attract many developers trying to build projects in Illinois, as the wind industry had warned.

As in the previous, REC-only procurements, only the winning bidders and weighted average prices were released. Individual bidders’ prices or quantities were not disclosed, meaning it is impossible to determine how many megawatt-hours from each project were sold to the utilities and at how much per unit. It is also notable that the ComEd procurement only resulted in 1.26 million MWh, just short of the 1.4 million the IPA sought. This indicates that the IPA reached the cost cap in the ComEd procurement.
As any industry will tell you, what they want from the government is stability. This is beginning to be realized with the move towards long term implementation of the IPA’s procurement strategies, however the inherently political nature of the IPA results in a continuous effort to change and clarify the law’s provisions. Though unique in its structure, this regulatory framework has been more effective at addressing the needs of the consumer, promoting the development of wind in Illinois, increasing competition in the market, and properly balancing risks.

There have been some clear successes, but some areas undoubtedly need work. With only one employee and a meager budget, the IPA needs more staff and support to explore and implement the mandates in the statute. It’s also imperative that all stakeholders work together to create a business environment that allows for continued growth in supply of renewable energy to Illinois ratepayers at low cost. With the proper staff, support and collaborative effort, this agency can more effectively provide Illinois consumers with “adequate, reliable, affordable, efficient, and environmentally sustainable electric service at the lowest total cost over time.”

V. Looking Ahead
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