

***REPORT TO THE ILLINOIS GENERAL ASSEMBLY
CONCERNING SPENDING LIMITS ON
RENEWABLE ENERGY RESOURCE PROCUREMENT***

Pursuant to subsection (c) of Section 1-75
of the Illinois Power Agency Act



Illinois Commerce Commission

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Springfield, Illinois 62701

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June 2011

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

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ILLINOIS COMMERCE COMMISSION

June 30, 2011

The Honorable Members of the Illinois General Assembly
State House
Springfield, Illinois

Dear Honorable Members of the Illinois General Assembly:

Pursuant to Subsection 1-75(c) of the Illinois Power Agency Act, the Illinois Commerce Commission submits the attached report Concerning Spending Limits on Renewable Energy Resource Procurement.

P.A. 96-159 directs the ICC to submit to the General Assembly this report in regards to the limitation on the amount of energy efficiency and demand-response measures required by the Act. The findings reflect whether there are any undue limitations constraining the procurement of energy efficiency and demand-response measures.

Sincerely

A handwritten signature in black ink that reads "Douglas P. Scott".

Douglas P. Scott
Chairman

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Executive Summary

The Illinois Power Agency Act (“IPA Act”) (20 ILCS 3855/1-1 *et seq.*) created the Illinois Power Agency (“IPA”) with authority to create and implement electric procurement plans on behalf of electric utilities that provided electric service to at least 100,000 customers in Illinois on December 31, 2005. 20 ILCS 3855/1-75(a) The only utilities affected by this standard are Commonwealth Edison Company (“ComEd”) and Ameren Illinois Company (“Ameren”).

Subsection 1-75(c) of the IPA Act sets forth a renewable portfolio standard (“RPS”), and provides for a **limitation** on the amount of renewable energy resources to be purchased if the result would be to increase the retail rates of these utilities by more than certain prescribed percentages. The IPA Act requires the Illinois Commerce Commission (“Commission”) to review this limitation, providing in pertinent part that

No later than June 30, 2011, the Commission shall review the limitation on the amount of renewable energy resources procured pursuant to this subsection (c) and report to the General Assembly its

findings as to whether that limitation unduly constrains the procurement of cost-effective renewable energy resources.
20 ILCS 3855/1-75(c)(2)

In accordance with the above provision, the Commission has reviewed the statute's limitation on the amount of renewable energy resources procured pursuant to subsection 1-75(c) of the IPA Act, and hereby submits to the General Assembly the Commission's findings as to whether the statute's limitation unduly constrains the procurement of cost-effective renewable energy resources.

In brief, the Commission finds that the statute's limitation does not unduly constrain the procurement of cost-effective renewable energy resources and that such a limitation remains appropriate. However, the Commission recommends that legislation be enacted to better enable the Commission to take the spending limitation into account whenever procurement plans include provisions for long-term renewable energy contracts.

Summary of Main Findings and Recommendations

- To date, the required purchases of renewable energy resources have **not** been constrained by the IPA Act's limitation on resulting retail electric price increases. All required purchases have been made without exceeding the statutory spending caps.
- It is expected that the IPA Act's limitation on retail price increases will **not** unduly constrain future purchases of renewable energy resources for several reasons:
 - Renewable energy resource generating capacity has been on the rise and renewable energy prices have been on the decline.
 - Several factors favor the continued development of renewable energy resource generating capacity that will be affordable within the existing spending limits, including:
 - Fossil fuel prices are expected to increase, giving a comparative advantage to renewable energy-fueled generation;
 - Federal subsidies and generally favorable policies toward renewable resources are expected to continue; and

- Federal environmental policies are expected to favor renewable energy resources.
- In assessing whether the spending limit “*unduly*” constrains purchases of renewable energy resources the Commission has taken note of the IPA Act’s legislative declarations and findings, especially¹:
 - The health, welfare, and prosperity of all Illinois citizens require the provision of adequate, reliable, affordable, efficient, and environmentally sustainable electric service at the lowest total cost over time, taking into account any benefits of price stability. (20 ILCS 3855/1-5(1))
 - Escalating prices for electricity in Illinois pose a serious threat to the economic well-being, health, and safety of the residents of and the commerce and industry of the State. (20 ILCS 3855/1-5(3))
- In light of these legislative declarations and findings, the Commission views the spending limit as an appropriate tool to ensure that cleaner renewable energy is encouraged, but that renewable energy subsidies do not drive away energy-intensive businesses from the State and hinder economic development. In other words, the Commission believes that the existing policy strikes a reasonable balance between the competing goals of keeping electricity prices “affordable,” *and* encouraging “environmentally sustainable” generating technologies. The Commission sees no reason to alter that policy.
- While recommending retention of the existing policy, the Commission offers two modest refinements to subsection 1-75(c), pertaining to the spending limitation. When relevant, procurement plans should be required to describe (A) how the annual spending limitation will be distributed between procurement events, and (B) how the statute’s requirements concerning both the type and location of renewable energy resources will be distributed between procurement events. In addition, the Commission recommends a slight rewording of the statute to make it clearer that the spending limitation applies to *expected* expenditures at the time that contracts are entered into, not necessarily to *actual* expenditures. Without these modifications, it is more difficult for the Commission to approve long-term renewable contracts within procurement plans. Recommended legislative language is presented in the Appendix to this report.

¹ In addition to (1) and (3), reproduced here, also see findings (4) through (7) of Section 1-5 of the IPA Act (20 ILCS 3855/1-5).

I. Introduction

The IPA Act (20 ILCS 3855/1-1 *et seq.*) authorized the IPA to create and implement electric procurement plans on behalf of ComEd and Ameren, and subsection 1-75(c) of the IPA Act sets forth a renewable portfolio standard (“RPS”). Responsibility for implementing this RPS rests jointly on ComEd, Ameren, the IPA, and the Commission. The RPS requires the purchase of renewable energy resources in quantities that comprise ever-rising percentages of the utilities’ electricity sales until reaching 25% in 2025. 20 ILCS 3855/1-75(c)(1) In this report, these percentage-of-sales requirements are referred to as the “primary RPS requirements” to distinguish them from the wind and solar and locational preferences that are also a part of the State’s RPS. Subsection 1-75(c)(2) also prescribes that renewable energy purchases shall not cause retail rates to increase by more than certain percentages, providing in pertinent part:

Notwithstanding the requirements of this subsection (c), the total of renewable energy resources procured pursuant to the procurement plan for any single year shall be reduced by an amount necessary to limit the annual estimated average net increase due to the costs of these resources included in the amounts paid by eligible retail customers in connection with electric service to:

(A) in 2008, no more than 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007;

(B) in 2009, the greater of an additional 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2008 or 1% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007;

(C) in 2010, the greater of an additional 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2009 or 1.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007;

(D) in 2011, the greater of an additional 0.5% of the amount paid per kilowatthour by those customers during the year ending

May 31, 2010 or 2% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007; and

(E) thereafter, the amount of renewable energy resources procured pursuant to the procurement plan for any single year shall be reduced by an amount necessary to limit the estimated average net increase due to the cost of these resources included in the amounts paid by eligible retail customers in connection with electric service to no more than the greater of 2.015% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007 or the incremental amount per kilowatthour paid for these resources in 2011.

Finally, subsection 1-75(c)(2) concludes by stating,

No later than June 30, 2011, the Commission shall review the limitation on the amount of renewable energy resources procured pursuant to this subsection (c) and report to the General Assembly its findings as to whether that limitation unduly constrains the procurement of cost-effective renewable energy resources.

The Commission has reviewed the statute's limitation on the amount of renewable energy resources procured pursuant to subsection 1-75(c) of the IPA Act, and hereby makes its report to the General Assembly of the Commission's findings as to whether the statute's limitation unduly constrains the procurement of cost-effective renewable energy resources.

II. Rationales for the Existing Policy

Examining the IPA Act's legislative declarations and findings (20 ILCS 3855/1-5), it is clear that the General Assembly sees certain benefits from renewable energy resources that it does not see in conventional energy resources.² The Commission

² Specifically, see paragraphs (1) and (3) through (7) of Section 1-5:

(1) The health, welfare, and prosperity of all Illinois citizens require the provision of adequate, reliable, affordable, efficient, and environmentally sustainable electric service at the lowest total cost over time, taking into account any benefits of price stability.

(3) Escalating prices for electricity in Illinois pose a serious threat to the economic well-being, health, and safety of the residents of and the commerce and industry of the State.

concurr with this assessment. For example, while wind and solar photovoltaic generating facilities are not always the least expensive option, they clearly represent environmentally friendly sources of electricity. They do not emit sulfur dioxide, oxides of nitrogen, volatile organic chemicals or particulate matter, and they have very small “carbon footprints.” Thus, the Commission understands why the General Assembly would want to encourage the development and use of renewable energy resources.

On the other hand, the Commission also understands that the General Assembly is equally concerned with keeping electric utility rates affordable.³ This is why incorporating a spending cap into the renewable portfolio standard is viewed by the Commission as a reasonable way to balance the competing policy objectives. The Commission uses the remainder of this report to explicitly quantify the RPS spending constraint and to show how close the utilities have come to reaching these constraints, to date. In addition, the Commission provides some analysis demonstrating that the existing constraint is likely to be high enough to allow for the continued attainment of the primary RPS requirements.

(4) To protect against this threat to economic well-being, health, and safety it is necessary to improve the process of procuring electricity to serve Illinois residents, to promote investment in energy efficiency and demand-response measures, and to support development of clean coal technologies and renewable resources.

(5) Procuring a diverse electricity supply portfolio will ensure the lowest total cost over time for adequate, reliable, efficient, and environmentally sustainable electric service.

(6) Including cost-effective renewable resources in that portfolio will reduce long-term direct and indirect costs to consumers by decreasing environmental impacts and by avoiding or delaying the need for new generation, transmission, and distribution infrastructure.

(7) Energy efficiency, demand-response measures, and renewable energy are resources currently underused in Illinois.

(20 ILCS 3855/1-5)

³ *Ibid.*

III. Review of Renewable Resource Procurements

Since enactment of the IPA Act, the primary RPS requirements have all been satisfied within the spending limits imposed by subsection 1-75(c). The first year's expenditures reached the limit, and the second year's expenditures came relatively close to the limit. However, the exhaustion and near exhaustion of the renewable budgets in the first two years were due not to the primary percentage-of-sales RPS requirements, which were satisfied, but to the locational preferences specified in subsection 1-75(c). Specifically, in the first two years, there was very little wind farm generating capacity within Illinois. As a result, in the Commission's judgment, the locational preferences may have enabled a small handful of bidders to exercise market power. That is, some bidders were able to charge more than they would have been able to had there been more competitors. Since the third year, however, as the number of competitors and the amount of renewable generating capacity has continuously expanded, actual expenditures have been well under the spending limits. In fact, as shown in the following table, in the most recent procurement, the spending limits were 34 to 38 times greater than actual expenditures.

| RPS Compliance Period | | PERCENT OF SALES REQ. | COMED | | | |
|-----------------------|-----------|-----------------------|-----------|-----------|--------------|--------------|
| | | | MWH | | Spending | |
| From | To | | Goal | Actual | Limit | Actual |
| 1-Jun-08 | 31-May-09 | 2% | 796,049 | 796,040 | \$18,683,750 | \$18,483,740 |
| 1-Jun-09 | 31-May-10 | 4% | 1,564,366 | 1,564,360 | \$39,747,813 | \$30,147,973 |
| 1-Jun-10 | 31-May-11 | 5% | 1,887,014 | 1,887,014 | \$57,523,728 | \$9,203,237 |
| 1-Jun-11 | 31-May-12 | 6% | 2,117,054 | 2,117,054 | \$76,262,590 | \$2,005,768 |
| | | | | | | |
| RPS Compliance Period | | PERCENT OF SALES REQ. | AMEREN | | | |
| | | | MWH | | Spending | |
| From | To | | Goal | Actual | Limit | Actual |
| 1-Jun-08 | 31-May-09 | 2% | 414,392 | 415,000 | \$8,052,533 | \$7,208,250 |
| 1-Jun-09 | 31-May-10 | 4% | 719,383 | 720,000 | \$16,601,474 | \$11,420,450 |
| 1-Jun-10 | 31-May-11 | 5% | 860,860 | 860,860 | \$24,394,776 | \$3,486,252 |
| 1-Jun-11 | 31-May-12 | 6% | 952,145 | 952,145 | \$30,180,309 | \$878,818 |

Source: ICC

With respect to the above results, there are three points of clarification that need to be made:

First, as permitted by the IPA Act, these were procurements of unbundled renewable energy certificates. A renewable energy certificate (“REC”) is a certification that electricity has been generated from a specific facility, using a specific renewable energy fuel, during a specific time frame. RECs can be bought unbundled (i.e., by themselves) or bundled with the facility’s actual energy output. Thus, the price of an unbundled REC can be viewed most appropriately as the cost above and beyond the cost of buying unbundled electric energy (regardless of source).

Second, in addition to the above-described annual procurement of unbundled RECs, for one-year periods beginning June 2009 and ending May 2012, the IPA has also held an RFP for 20-year contracts for RECs bundled with energy.⁴ The delivery period of these 20-year contracts is June 2012 through May 2032. The target quantities to procure were limited to approximately one-half the total renewable energy requirements for 2012. Since these contracts provide not just RECs, but also energy, it would be improper to count the entire cost of these contracts toward the law’s spending limits. Only the portion of the costs above the cost of buying unbundled energy, regardless of its source, should be counted. Arguably, it is impossible to determine the cost of buying just unbundled energy, regardless of its source, over the same time period, unless a parallel procurement were held for that purpose, but such a parallel procurement was not held.⁵ Indeed, so far,

⁴ The exact nature of these 20-year contracts may have been somewhat unusual among bundled REC plus renewable energy contracts. The energy component had many of the same features as an energy swap contract, but with quantities that were tied to the output of the renewable energy resource. However, many of the features of these contracts were deemed necessary to adapt to certain requirements of the IPA Act and the Public Utilities Act.

⁵ Even if parallel procurements were held, there most likely would be significant differences between the nature of the standard energy contracts and the renewable energy contracts, which would render a direct

the IPA's plans have called for the procurement of just energy, regardless of its source, up to just three years in advance, using a combination of individual month and multi-month forward contracts, plus day-ahead and real-time spot market purchases by the utilities. Hence, in lieu of a direct comparison, it is necessary to rely upon a forecast of future market prices for electric energy. Using this type of analysis at the time that the procurement took place, it was determined that the total cost of the bundled RECs plus renewable energy, for 2012 alone, was \$30,264,801 for Ameren and \$69,620,885 for ComEd, but the portion of that total cost above the cost of buying just energy was determined to be only around \$7.5 million and \$21.6 million, respectively. Since the spending limits for that year were estimated to be about \$30 million for Ameren and \$76 million for ComEd, there are still ample budgetary resources to acquire the remaining renewable energy resource requirements for 2012, when the time comes.

Third, the Commission notes that all of the above applies only to renewable energy resources purchased by the utilities for so-called "eligible retail customers"; i.e. those customers who purchase electricity from the utilities rather than from alternative retail electric suppliers ("ARES"). Roughly half the electricity sold in Illinois is sold by ARES and the other half by the utilities. Thus, these figures exclude comparable renewable energy expenditures made by ARES in order to comply with a parallel renewable portfolio standard applicable to ARES.⁶

IV. Prospects for the Future of Renewable Energy

As shown in the previous section, historically, the spending limitation imposed by subsection 1-75(c) has not unduly constrained the procurement of cost-effective

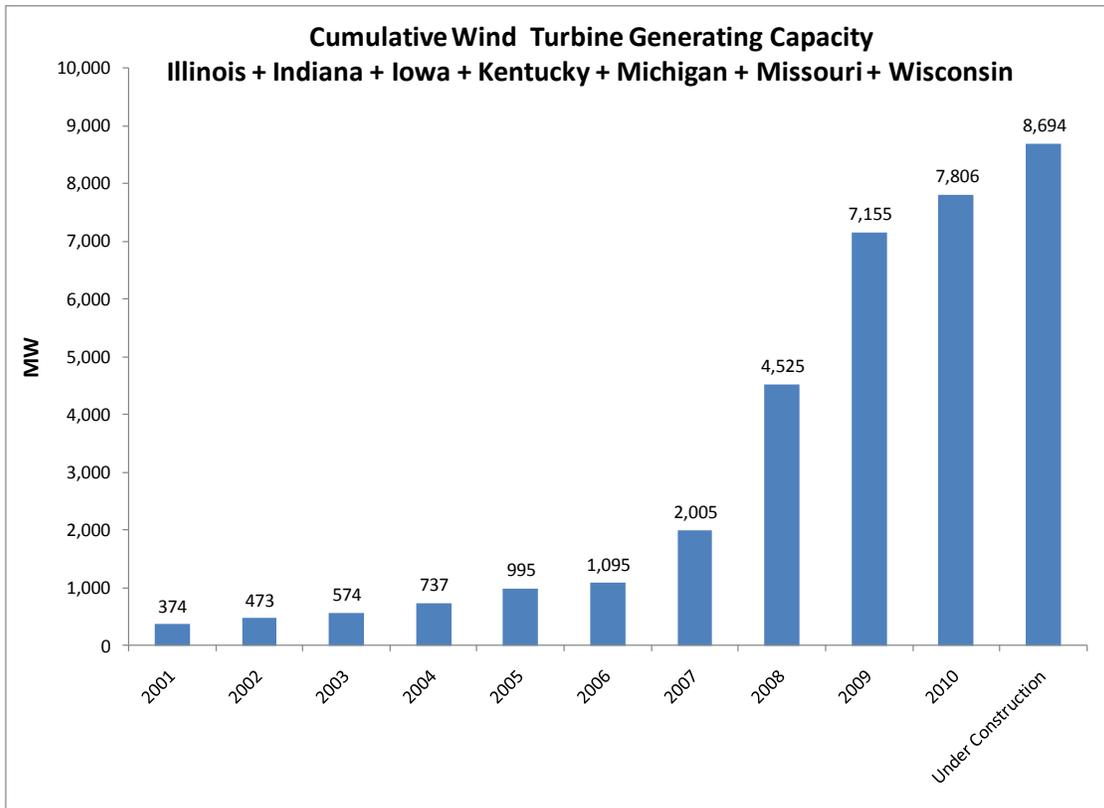
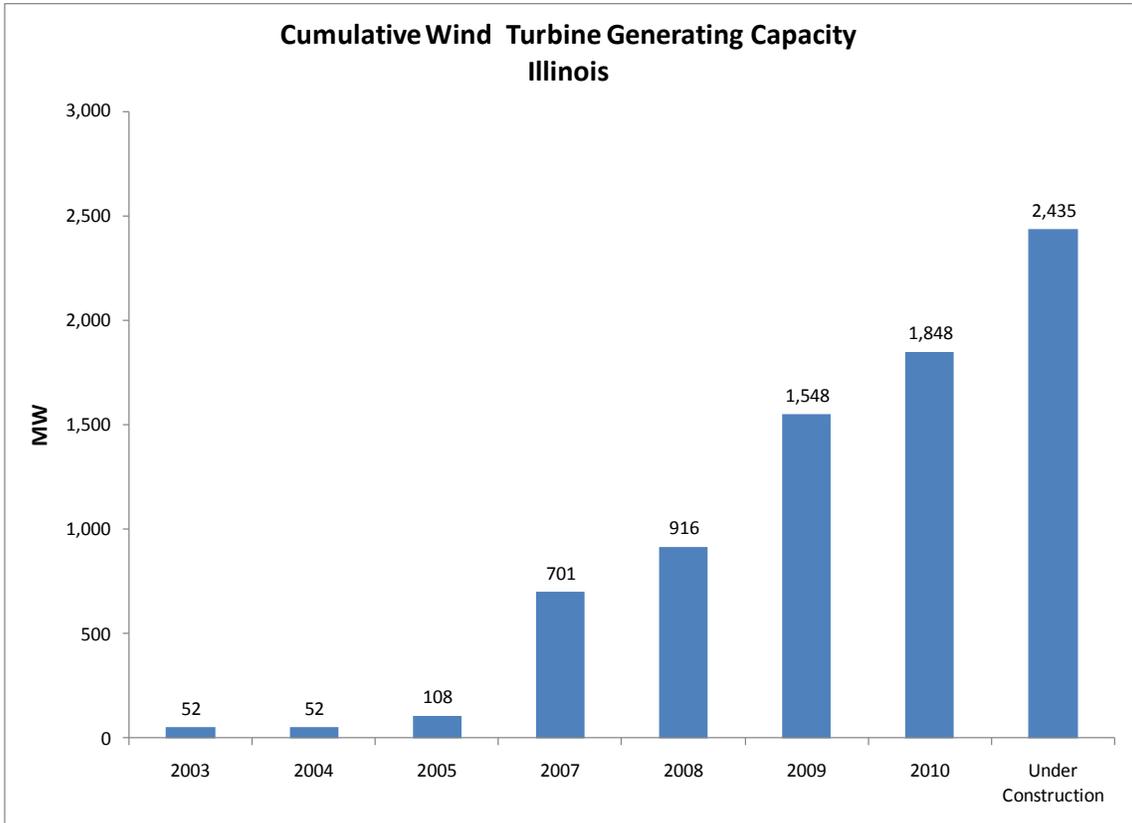
comparison misleading and inappropriate. Analytical adjustments would be required to produce a valid comparison.

⁶ See Section 16-115D of the Public Utilities Act.

renewable energy resources. As for the future, the Commission expects that renewable energy resource capacity will continue to grow and that the primary RPS requirements will continue to be satisfied without increasing the spending limits of subsection 1-75(c). This conclusion is based on several factors: (A) increases in renewable energy resource capacity; (B) expected increases in fossil fuel prices; (C) expected maintenance of federal renewable energy incentives; and (D) possible strengthening of greenhouse gas reduction policies.

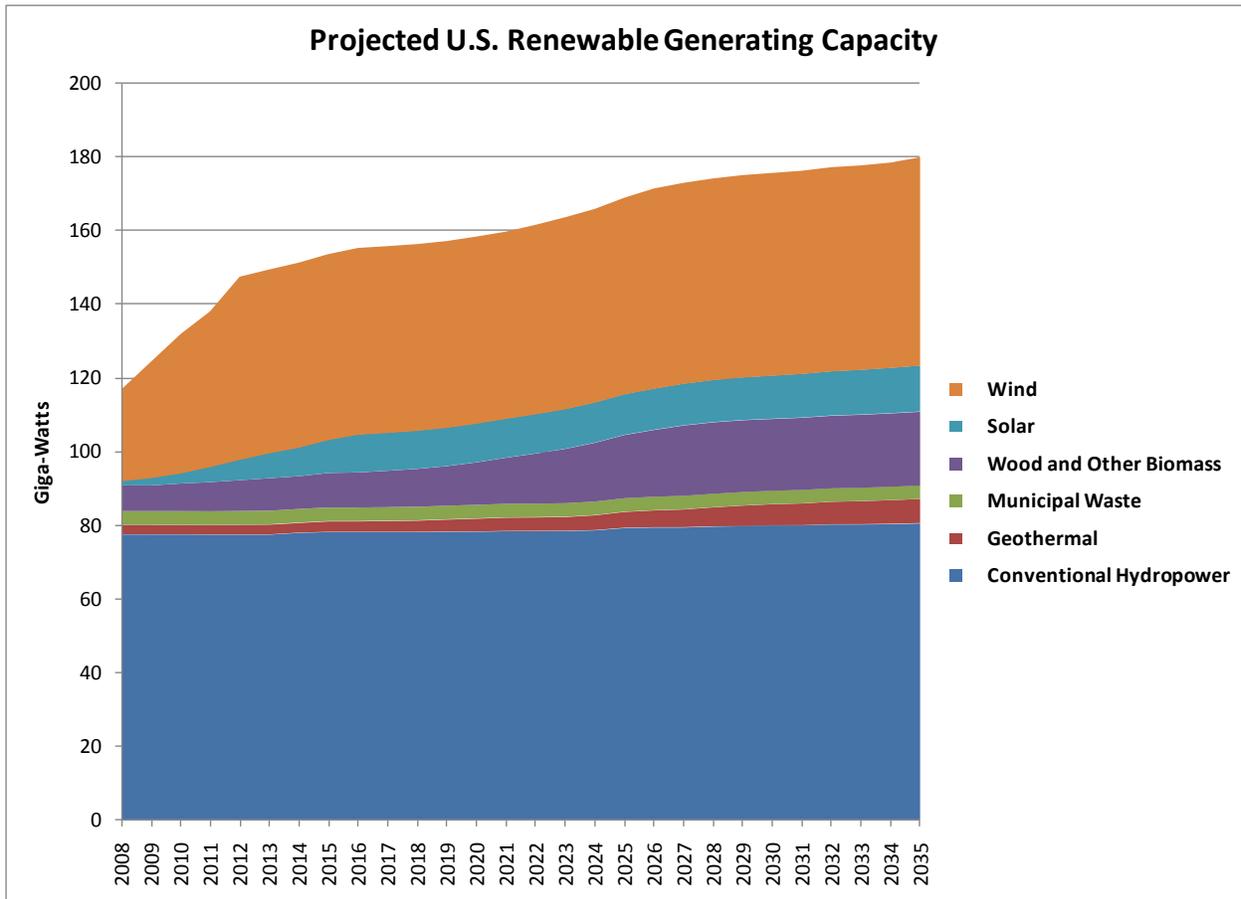
A. Increases in Renewable Energy Resource Capacity

Both before and after the introduction of the Illinois RPS, renewable energy resource capacity was and has been on the rise. This is especially true of wind turbines, for which the increase in capacity has been substantial and sustained. As shown in the two charts below, which focus on (1) Illinois and (2) Illinois and its adjoining states, wind capacity has increased on average 115% per year in Illinois since 2003, and 41% per year in Illinois and its adjoining states since 2001.



Source: American Wind Energy Associated Projects Database

Looking toward the future, the Department of Energy’s Energy Information Administration (“EIA”) forecasts over 20 Gigawatts⁷ of wind turbine capacity (and over 26 Gigawatts of other renewable resource capacity) to be added in the U.S. over the next 25 years. Although, under the EIA’s projection, wind turbines account for the largest increase, the largest *percentage* increase will come from solar photovoltaic resources (comprising approximately 10 Gigawatts of added generating capacity). However, this should be understood for what it is: an informed projection. The actual amount and relative cost of future renewable resources will depend on several factors, which cannot be predicted with certainty, but are nevertheless discussed, below.



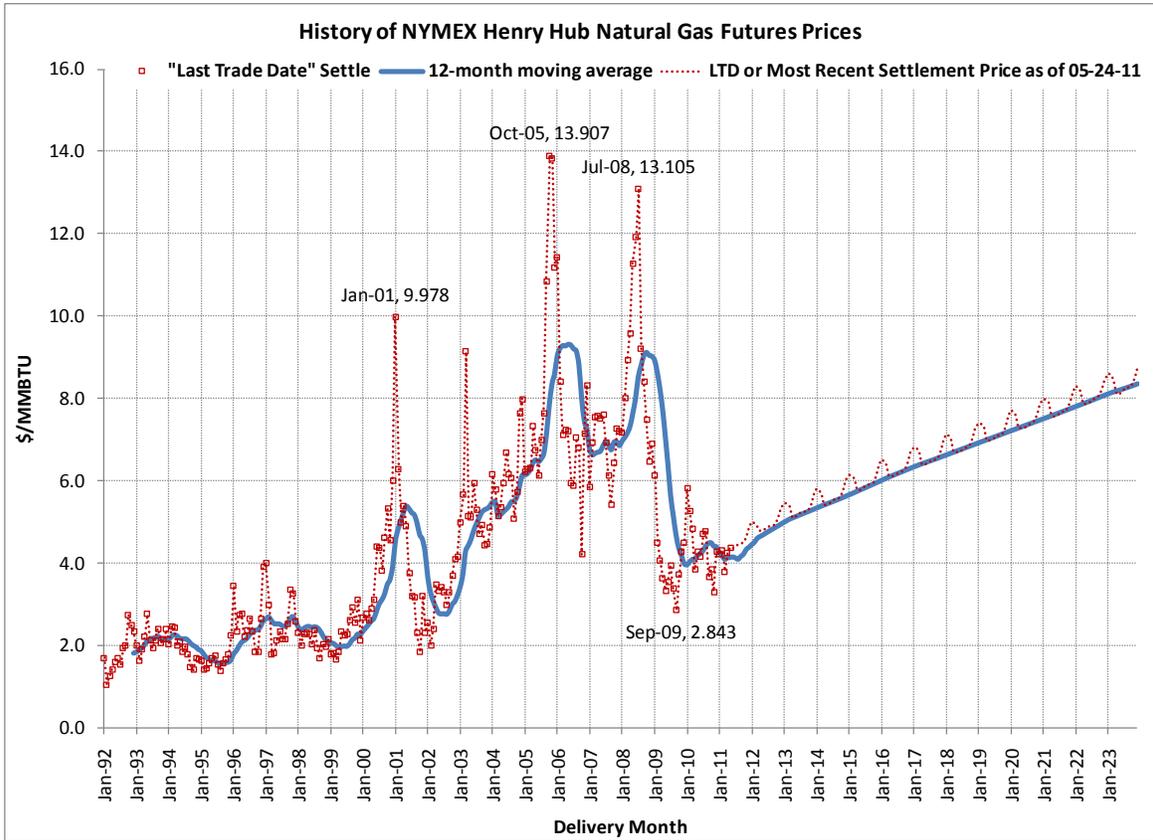
Source: EIA, Annual Energy Outlook 2011, April 2011 Release

⁷ Note: 1 Gigawatt (GW) = 1,000 Megawatts (MW) = 1,000,000 Kilowatts (KW) = 1,000,000,000 Watts (W).

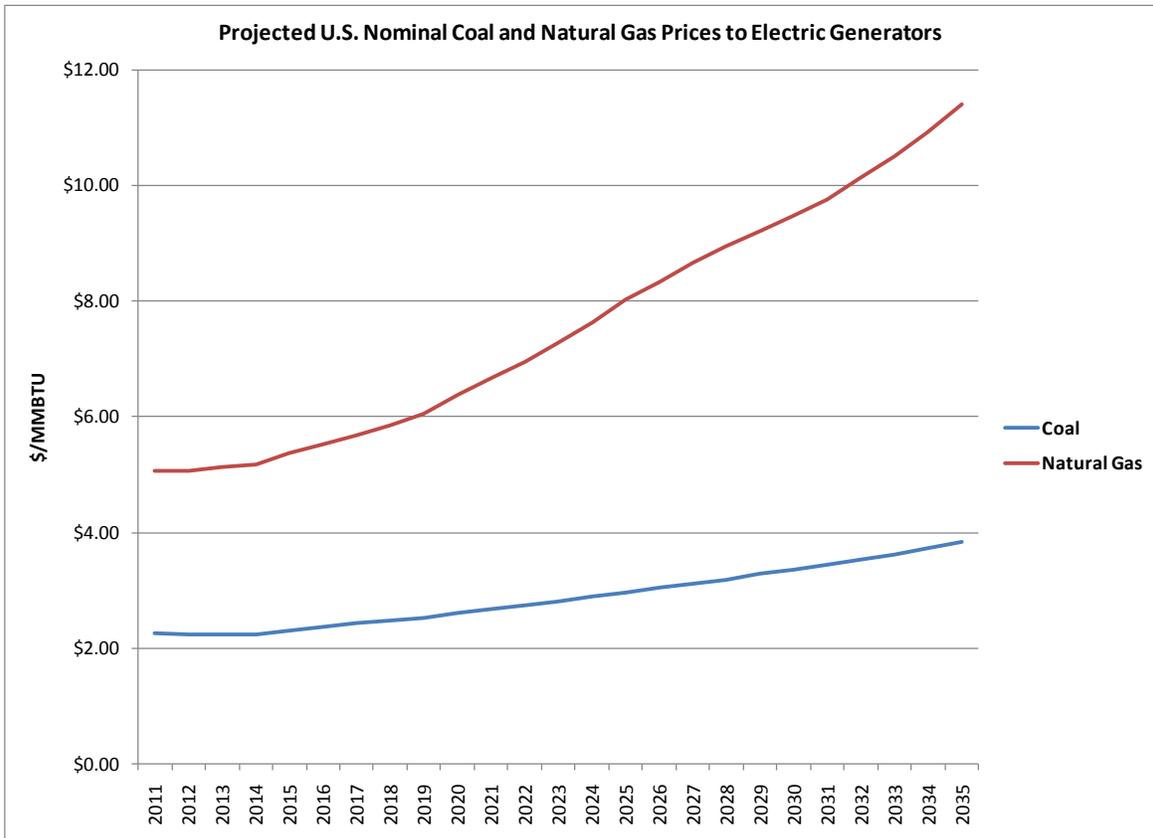
B. Expected Increases in Fossil Fuel Prices

One factor that favors the continued development of renewable energy resources is the expectation of fossil fuel price increases. As fossil fuel prices increase, the relative cost of fossil fuel-derived electricity increases, and the relative cost of renewable energy-derived electricity decreases. Among renewable energy sources, of particular interest are those that are essentially “free,” such as wind and solar energy. With respect to fossil fuels, of particular interest is natural gas, since new natural gas-fueled generating resources are currently the main competitors to new renewable energy resources, and existing natural gas resources are very often the generators “at the margin” (their marginal costs very often setting the market clearing price of electricity in spot markets).

In general, natural gas prices trended upward from the early 1990s through 2008. Recently, starting with the major economic recession in the U.S., natural gas prices have fallen dramatically. Nevertheless, as the market re-adjusts and as the economy continues to improve, both market participants and government forecasters expect natural gas prices to rise, as shown in the two graphs below.



Source: NYMEX



Source: EIA, Annual Energy Outlook 2011, April 2011 Release

If such fuel price forecasts are at least qualitatively accurate, the incremental cost to produce electricity from renewable energy sources (rather than conventional sources) will decline over time, and required subsidies eventually may be eliminated altogether. In other words, the restrictions on retail rate increases specified in subsection 1-75(c) of the IPA Act will become moot, as the least-cost portfolio of energy supply may already incorporate more than the minimum percentages of renewable energy resources.

C. Expected Maintenance of Federal Renewable Energy Incentives

Another factor that favors the continued development of renewable energy resources is the expected maintenance of federal renewable energy incentives. Presently, these incentives include tax incentives (production tax credits, investment tax credits, and extraordinary accelerated depreciation schedules), monetary grants, and research and development funding. For renewable energy, tax incentives are the most significant form of federal support.

As documented in an Energy Information Administration report, Federal subsidies and support are not limited to renewable energy resources:

Total Federal energy-specific subsidies and support to all forms of energy are estimated at \$16.6 billion for fiscal year (FY) 2007 (Table ES1). Total energy subsidies have more than doubled in real terms (2007 dollars), increasing from an estimated \$8.2 billion in FY 1999. Tax expenditures have more than tripled since 1999, rising from \$3.2 billion that year to more than \$10.4 billion in 2007.⁸

However, that report further states:

Changes in the distribution of subsidies by fuel type between 1999 and 2007 reflect a redirection of priorities. For example, subsidies for renewables increased from 17 percent of total subsidies and support in 1999 to 29 percent in 2007. Natural gas and petroleum related subsidies declined as a share of total subsidies....⁹

⁸ Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels, U.S. Department of Energy, *Federal Financial Interventions and Subsidies in Energy Markets 2007*, April 2008, SR/CNEAF/2008-01, p. xi.

⁹ *Id.*, pp. xi-xii.

Maintenance of tax incentives for renewable energy resources seems likely, at least in the intermediate term. As shown in a recent report from the Office of Management and Budget (“OMB”), between 2012 and 2016, energy production tax credits and energy investment tax credits are projected to be \$9.25 billion and \$4.65 billion, respectively.¹⁰ The OMB report does not show the value of extraordinary accelerated depreciation schedules afforded to renewable energy investments. However, the value of the markedly accelerated depreciation benefit can be estimated and is likely to exceed the value of the more direct production and investment tax credit. For instance, assuming an installed cost of new wind farm capacity of \$2,438,000 per MW¹¹, wind farm capacity increases of 5000 MW per year¹², and a social discount rate of 4.24 percent¹³, the present value of the deferred tax revenues would be approximately \$1.0 billion per year. From the perspective of wind developers, the present value of these tax deferrals is undoubtedly greater, assuming that in light of their own capital costs, they perceive a private discount rate in excess of 4.24%. For instance, if the discount rate is increased to 11%, the present value of wind developers’ tax savings, due to the accelerated depreciation, would be approximately \$1.6 billion per year.¹⁴

¹⁰ (Office of Management and Budget, 2011, p. 241) These tax advantages are available to tax payers selling electricity produced from wind energy, biomass, geothermal energy, solar energy, small irrigation power, municipal solid waste, or qualified hydropower. (Office of Management and Budget, 2011, p. 259)

¹¹ EIA Updated Capital Cost Estimates for Electricity Generation Plants, November 2010, p. 7. Expressed in real 2010 dollars.

¹² (which is slightly less than the amount added in 2010 and about half what was added in 2009) (AWEA, U.S. Wind Industry Year-End 2010 Market Report, January 2011) http://www.awea.org/la_pubs_reports.cfm

¹³ This 4.24 percent was the rate for 20-year Treasury Bonds on April 21, 2011. FED release, Release Date: April 25, 2011. <http://www.federalreserve.gov/releases/h15/Current/>

¹⁴ These figures also assume that all projects owners also choose to take advantage of the production tax credit rather than the investment tax credit. If they all chose the investment tax credit, instead, then the discounted values associated with the extraordinary accelerated depreciation benefit would be approximately 85% of what is shown, here. Hence, the actual numbers would be at some level between 85% and 100% of the quoted figures.

It is also important to realize that federal subsidies for renewable energy resources used for electricity generation, on a per-unit-of-output basis, are generally more significant than federal subsidies for most other forms of energy used for electricity generation. For example, according to the EIA, in 2007 the federal subsidy was \$24.34 per MWH for solar-powered generation and \$23.37 per MWH for wind-powered generation. In contrast, for coal-fired generation the federal subsidy was only \$0.44 per MWH, and for natural gas and petroleum liquids only \$0.25 per MWH. Given average market prices in the range of \$30 to \$50 per MWH (using annual averages of PJM ComEd Zone day-ahead spot prices, between 2005 through 2010), this differential in subsidies is quite significant. For instance, the wind subsidy of \$23.37 per MWH amounted to over 50% of the average market price of \$45 per MWH that year. The Commission has no reason to believe that the advantages of renewable energy over conventional energy provided by Federal tax and other policies will not continue well into the future.

D. Possible Strengthening of Federal Greenhouse Gas Reduction Policies

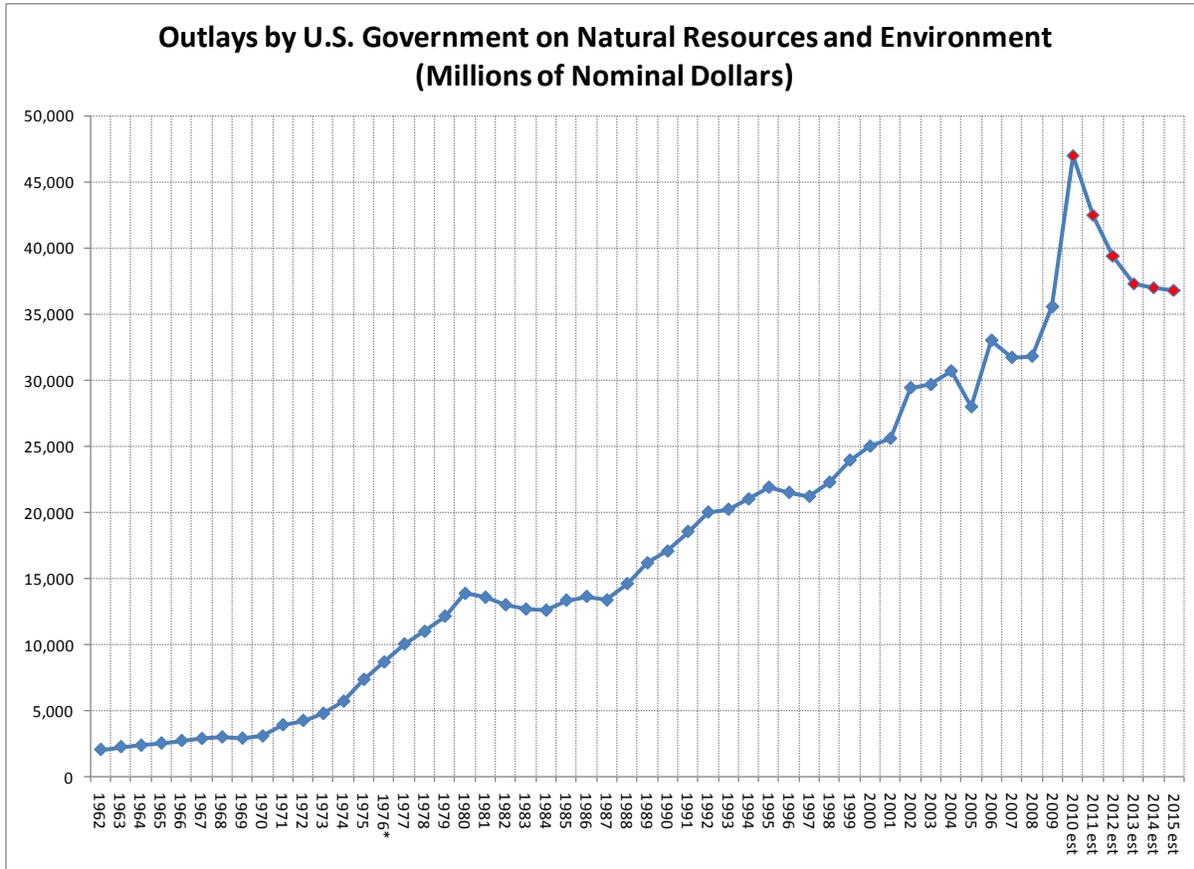
Another factor that would favor the continued development of renewable energy resources is the establishment of more aggressive environmental policies, especially Federal policies aimed at addressing global climate change. For example, the Congress could create a new (or join an existing) cap-and-trade system for greenhouse gas emission allowances, with material and binding caps; the Congress could establish a new tax on greenhouse gas emissions; the U.S. EPA (perhaps with more explicit authority from the Congress) could establish new regulations limiting greenhouse gas emissions or requiring their capture and sequestration; and/or the Congress could expand its current level of direct and indirect support for those renewable energy resources that result in low levels of greenhouse gas emissions. All such initiatives would have the effect of lowering

the **relative cost** of wind and solar resources (that is, relative to such alternatives as coal and natural gas fueled electricity generation).

There are a number of competing theories attempting to explain from an economic perspective the manner in which environmental laws and regulations develop. Nevertheless, it has been observed, at an aggregate level, that environmental quality acts like a “normal good” (meaning a good whose consumption increases with income). More generally, in what has been dubbed the “Environmental Kuznets Curve,” the relationship between different pollutants and per capita income tends to look like an inverted U. Dasgupta, et al., describe the theory of the Environmental Kuznets Curve as follows:

In the first stage of industrialization, pollution in the environmental Kuznets curve world grows rapidly because people are more interested in jobs and income than clean air and water, communities are too poor to pay for abatement, and environmental regulation is correspondingly weak. The balance shifts as income rises. Leading industrial sectors become cleaner, people value the environment more highly, and regulatory institutions become more effective. Along the curve, pollution levels off in the middle-income range and then falls toward pre-industrial levels in wealthy societies. (Dasputa, 2002, p. 147)

In any event, sensitivity to environmental issues and the pursuit of environmental quality appear firmly established in the U.S. and other developed countries, and the trend of ever more aggressive environmental protection is unlikely to be reversed. In the U.S. this trend can be seen in such things as government expenditures on natural resource and environment functions, as well as actual physical changes, as illustrated below.



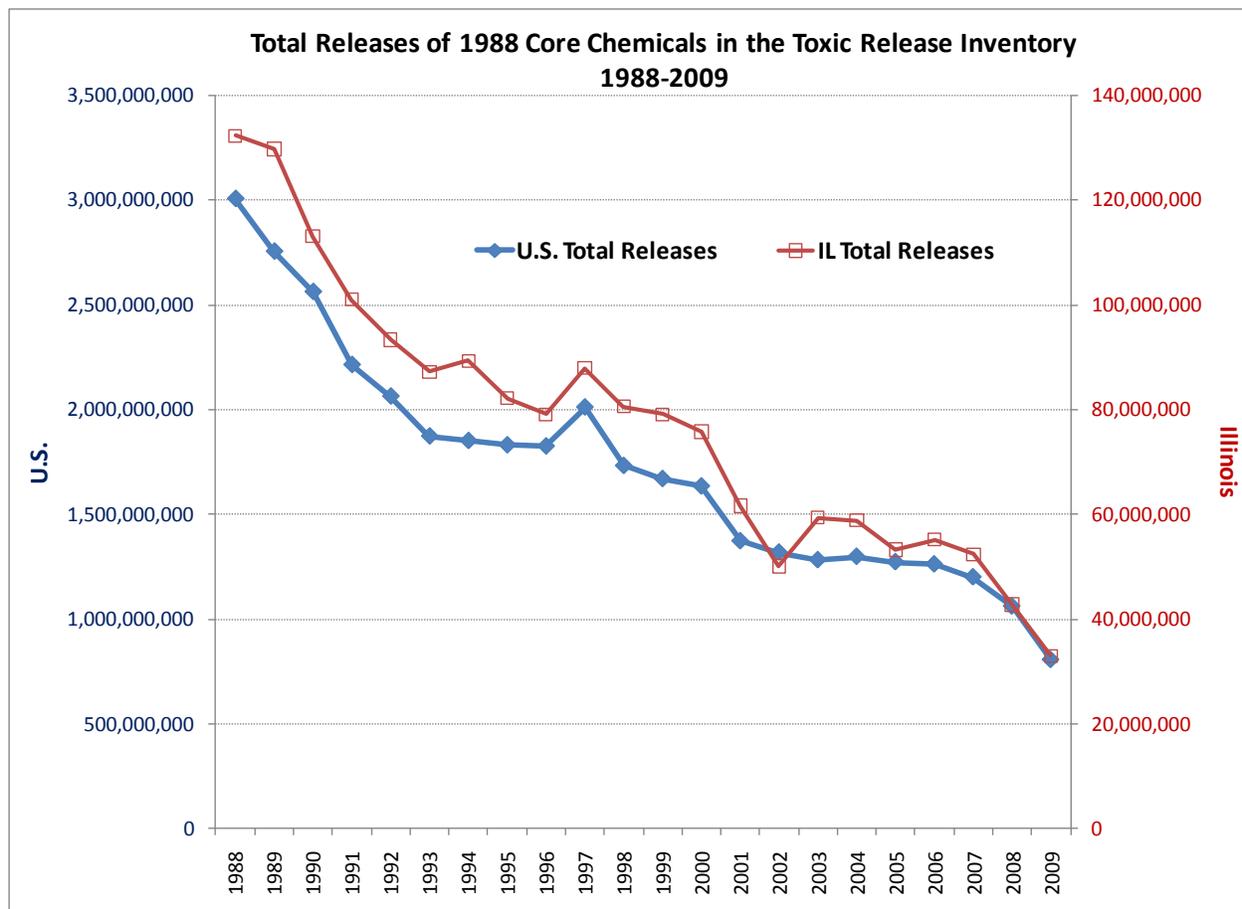
Source: Table 3.2—Outlays by Function and Subfunction: 1962–2015 (Office of Management and Budget, 2011 Fiscal Year, p. 56)

As shown in the above graph, outlays by the U.S. Government on natural resources and environment functions have risen steadily from about \$2 billion in 1962 to over \$35 billion in 2009, and are projected to exceed \$35 billion in years 2010 through 2015. As shown in the following table, concentration and deposition of various compounds related to acid rain (and other environmental problems) declined by as much as 63%, over the last 18 years. And as shown in the graph that follows, the release of “Core” chemicals in the U.S. EPA’s Toxic Release Inventory (including air, water, and land releases) decreased 73% in the U.S. as a whole, and 75% in Illinois, between 1988 and 2009.

Changes in Air Quality and Deposition of Sulfur and Nitrogen Compounds in the Midwest Region

| | Average, 1989-1991 | Average, 2007-2009 | Percent Change |
|---|-----------------------|-----------------------|-------------------|
| Ambient SO ₂ Concentration (µg/m ³) | 11 | 4.1 | -63 |
| Ambient Sulfate Concentration (µg/m ³) | 5.8 | 3.1 | -47 |
| Wet Sulfate Deposition (kg-S/ha) | 7.1 | 4 | -44 |
| Dry Sulfur Deposition (kg-S/ha) | 6.5 | 2.8 | -57 |
| Total Sulfur Deposition (kg-S/ha) | 15 | 7 | -53 |
| Total Ambient Nitrate Concentration (Nitrate + Nitric Acid) (µg/m ³) | 4.6 | 3.2 | -30 |
| Wet Inorganic Nitrogen Deposition (kg-N/ha) | 5.8 | 4.9 | -16 |
| Dry Inorganic Nitrogen Deposition (kg-N/ha) | 2.5 | 1.8 | -28 |
| Total Inorganic Nitrogen Deposition (kg-N/ha) | 9 | 6.9 | -23 |

Source: Table 1: Regional Changes in Air Quality and Deposition of Sulfur and Nitrogen Compounds, 1989–1991 versus 2007–2009, from Rural Monitoring Networks (US EPA, 2010, p. 2)



Source: US EPA TRI Explorer (<http://www.epa.gov/triexplorer/trends.htm>)

The Commission is not suggesting that all the environmental trends have been positive ones. Further, it is not the Commission's intent to minimize the environmental concerns that confront the nation and the State. To the contrary, the Commission posits that we can reasonably expect the federal government to continue pursuing policies directed toward achieving ever-greater levels of environmental quality. Many environmental issues are currently being addressed, in one manner or another. Global climate change is one such issue, and it is one that is extremely relevant to assessing the relative future cost of certain renewable energy resources. In the Commission's view, it is more likely than not that, eventually, policies directed toward slowing global climate change, and other environmental policies, will render less and less necessary the need for supplemental rate-payer funded incentives for renewable energy resources.

V. Conclusions and Recommendations

It is the Commission's opinion that a statutory restriction on how much is spent for renewable energy resources (above and beyond the least-cost portfolio of resources) is appropriate and necessary to protect the best interests of the vast majority of Illinois consumers of electricity. The existing spending cap in subsection 1-75(c) of the IPA Act is aimed at ensuring retail rates will not rise by more than about 2% of the average customer's total bill. While 2% may seem small in the abstract, when it is applied to an element of the Illinois economy as large and crucial as the electric utility sector, it amounts to over \$100 million per year. This is equivalent to about a 1% increase in State income taxes, or about a 1.4% increase in State sales taxes, but without **any** corresponding increase in government services.¹⁵ Further, the actual amount of money in question is

¹⁵ This is based on Fiscal Year 2010 actual tax revenues, as reported in the Illinois State Operating Budget for Fiscal Year 2012 (http://www.state.il.us/budget/FY2012/FY12_Operating_Budget.pdf), Table II-B, Chapter 2, page 34.

likely to be about twice the above-stated level (i.e., more like \$200 million per year), for the following reason. While the statute's spending limitation applies **directly** only to the utilities' eligible retail customers, it also applies **indirectly** to the customers of alternative retail electric suppliers, who are subject to a parallel renewable portfolio standard, with alternative compliance payment requirements that are dependent upon the amounts spent by the utilities. With such sums at stake, it is the Commission's opinion that increases in (or the abolition of) the renewable spending limit should be avoided, lest the resulting increase in subsidies result in reductions both in consumer spending and in business investment (especially by energy-intensive industries), negatively affecting economic development in the State.

In light of the IPA Act's declarations and findings¹⁶, the Commission views the spending limit as an appropriate tool to ensure that cleaner renewable energy is encouraged, but that renewable energy subsidies do not drive away energy-intensive businesses from the State and hinder economic development. In other words, the Commission believes that the existing policy strikes a reasonable balance between the competing goals of keeping electricity prices "affordable," and encouraging "environmentally sustainable" generating technologies. The Commission sees no reason to alter that policy. The General Assembly was obviously prepared to live with some increase in retail rates to attain the benefits of renewable energy, but not an unlimited increase. The General Assembly was clearly prepared to accept, if necessary, a lower level of renewable energy attainment than as set forth in the statute's requirements in order to prevent excessive increases in consumer prices and the potentially negative impact that would have on the remainder of the Illinois economy. The Commission not

¹⁶ See footnote 2.

only agrees with such a rationale, the Commission sees no basis for upsetting the specific balance between competing objectives that was struck with the enactment of the IPA Act.

Nevertheless, even if the General Assembly were to reconsider its original decision to impose a spending limit for achieving the goals and requirements of the State's renewable energy standard, to date and for the foreseeable future, the spending limit does not appear to be constraining procurement of renewable resources. As shown earlier in this report, the primary requirements of the RPS have been met each year since enactment of the IPA Act. Further, conditions appear favorable for such a trend to continue into the future, due to forecasted increases in renewable energy resource capacity, expected increases in fossil fuel prices, expected maintenance of federal renewable energy incentives, and possible strengthening of global climate change and other environmental policies, all of which favor a lowering of renewable energy resource costs relative to the costs of fossil fuel generating resources. It is quite conceivable that the State's goal of utilizing renewable energy to meet 25% of consumer demand for electricity *eventually* will require no subsidies at all, even though, *presently*, that is not the case.

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Appendix: Recommended Legislative Changes

The Commission does recommend a refinement to subsection 1-75(c) as it pertains to the spending limitation. In particular, the Commission recommends that any procurement plan with provisions for procurement events that would contractually obligate a utility to purchase less than 100% of the required quantity of renewable energy resources for one or more future planning years be required to describe: (A) how the annual spending limitation will be distributed between procurement events; and (B) how the statute's requirements concerning both the type and location of renewable energy resources will be distributed between procurement events. Finally, the Commission recommends a slight rewording of the statute to make it clearer that the spending limitation applies to **expected** expenditures at the time that contracts are entered into, not necessarily to **actual** expenditures. Without these modifications, it is more difficult for the Commission to approve long-term renewable contracts within procurement plans. More specific legislative language is presented below.

Modify Section 1-75 (c) of the IPA Act (20 ILCS 3855/1-75(c)) as follows:

(c) Renewable portfolio standard.

(1) The procurement plans shall include cost-effective renewable energy resources. A minimum percentage of each utility's total supply to serve the load of eligible retail customers, as defined in Section 16-111.5(a) of the Public Utilities Act, procured for each of the following years shall be generated from cost-effective renewable energy resources: at least 2% by June 1, 2008; at least 4% by June 1, 2009; at least 5% by June 1, 2010; at least 6% by June 1, 2011; at least 7% by June 1, 2012; at least 8% by June 1, 2013; at least 9% by June 1, 2014; at least 10% by June 1, 2015; and increasing by at least 1.5% each year thereafter to at least 25% by June 1, 2025. To the extent that it is available, at least 75% of the

renewable energy resources used to meet these standards shall come from wind generation and, beginning on June 1, 2011, at least the following percentages of the renewable energy resources used to meet these standards shall come from photovoltaics on the following schedule: 0.5% by June 1, 2012, 1.5% by June 1, 2013; 3% by June 1, 2014; and 6% by June 1, 2015 and thereafter. For purposes of this subsection (c), "cost-effective" means that the costs of procuring renewable energy resources are not expected to~~do not~~ cause the limit stated in paragraph (2) of this subsection (c) to be exceeded and do not exceed benchmarks based on market prices for renewable energy resources in the region, which shall be developed by the procurement administrator, in consultation with the Commission staff, Agency staff, and the procurement monitor and shall be subject to Commission review and approval.

(2) For purposes of this subsection (c), the required procurement of cost-effective renewable energy resources for a particular year shall be measured as a percentage of the actual amount of electricity (megawatt-hours) supplied by the electric utility to eligible retail customers in the planning year ending immediately prior to the procurement. For purposes of this subsection (c), the amount paid per kilowatthour means the total amount paid for electric service expressed on a per kilowatthour basis. For purposes of this subsection (c), the total amount paid for electric service includes without limitation amounts paid for supply, transmission, distribution, surcharges, and add-on taxes.

Notwithstanding the requirements of this subsection (c), the total of renewable energy resources procured pursuant to the procurement plan for any single year shall be reduced by an amount necessary to limit the annual estimated average net increase due to the costs of these resources included in the amounts paid by eligible retail customers in connection with electric service to:

(A) in 2008, no more than 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007;

(B) in 2009, the greater of an additional 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2008 or 1%

of the amount paid per kilowatthour by those customers during the year ending May 31, 2007;

(C) in 2010, the greater of an additional 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2009 or 1.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007;

(D) in 2011, the greater of an additional 0.5% of the amount paid per kilowatthour by those customers during the year ending May 31, 2010 or 2% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007; and

(E) thereafter, the amount of renewable energy resources procured pursuant to the procurement plan for any single year shall be reduced by an amount necessary to limit the estimated average net increase due to the cost of these resources included in the amounts paid by eligible retail customers in connection with electric service to no more than the greater of 2.015% of the amount paid per kilowatthour by those customers during the year ending May 31, 2007 or the incremental amount per kilowatthour paid for these resources in 2011.

~~No later than June 30, 2011, the Commission shall review the limitation on the amount of renewable energy resources procured pursuant to this subsection (c) and report to the General Assembly its findings as to whether that limitation unduly constrains the procurement of cost-effective renewable energy resources.~~

(3) Through June 1, 2011, renewable energy resources shall be counted for the purpose of meeting the renewable energy standards set forth in paragraph (1) of this subsection (c) only if they are generated from facilities located in the State, provided that cost-effective renewable energy resources are available from those facilities. If those cost-effective resources are not available in Illinois, they shall be procured in states that adjoin Illinois and may be counted towards compliance. If those cost-effective resources are not available in Illinois or in states that adjoin Illinois, they shall be purchased elsewhere and shall be counted towards compliance. After June 1, 2011, cost-effective renewable energy resources located

in Illinois and in states that adjoin Illinois may be counted towards compliance with the standards set forth in paragraph (1) of this subsection (c). If those cost-effective resources are not available in Illinois or in states that adjoin Illinois, they shall be purchased elsewhere and shall be counted towards compliance.

(4) If any procurement plan includes provisions for procurement events that would contractually obligate a utility to purchase less than 100% of the required renewable energy resources set forth in paragraph (1) of this subsection, for one or more future planning years, then the procurement plan:

(A) shall identify how the annual spending limitation imposed by paragraphs (1) and (2) of this subsection will be distributed between procurement events; and

(B) shall identify how the requirements concerning both the type and location of renewable energy resources imposed by paragraphs (1) and (3) of this subsection shall be distributed between procurement events.

(4) The electric utility shall retire all renewable energy credits used to comply with the standard.

(5) Beginning with the year commencing June 1, 2010, an electric utility subject to this subsection (c) shall apply the lesser of the maximum alternative compliance payment rate or the most recent estimated alternative compliance payment rate for its service territory for the corresponding compliance period, established pursuant to subsection (d) of Section 16-115D of the Public Utilities Act to its retail customers that take service pursuant to the electric utility's hourly pricing tariff or tariffs. The electric utility shall retain all amounts collected as a result of the application of the alternative compliance payment rate or rates to such customers, and, beginning in 2011, the utility shall include in the information provided under item (1) of subsection (d) of Section 16-111.5 of the Public Utilities Act the amounts collected under the alternative compliance payment rate or rates for the prior year ending May 31. Notwithstanding any limitation on the procurement of renewable energy resources imposed by item (2) of this subsection (c), the Agency shall increase its spending on the purchase of renewable energy resources to be procured by the electric utility for the next plan year by an amount equal to the

amounts collected by the utility under the alternative compliance payment rate or rates in the prior year ending May 31.