

# ***Fiscal Note & Local Impact Statement***

*127<sup>th</sup> General Assembly of Ohio*

Ohio Legislative Service Commission  
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BILL: **Sub. S.B. 221**

DATE: **November 7, 2007**

STATUS: **As Passed by the Senate**

SPONSOR: **Sen. Schuler**

LOCAL IMPACT STATEMENT REQUIRED: **Yes**

CONTENTS: **Would revise state energy policy to address: electric service price regulation, new bonding authority for advanced energy projects, advanced energy portfolio standards, and greenhouse gas emission reporting and carbon control planning requirements**

## ***State Fiscal Highlights***

STATE FUND	FY 2008	FY 2009	FUTURE YEARS
<b>General Revenue Fund – Department of Natural Resources</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	Possible minimal increase in administrative expenses	Possible minimal increase in administrative expenses	Additional costs will depend on the timing and development of federal carbon sequestration regulations
<b>Public Utilities Fund (Fund 5F6)</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	Increase up to \$274,000	Increase up to \$528,000	Increase up to \$528,000
<b>Unspecified Operating Funds – Environmental Protection Agency</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	Possible minimal increase in administrative expenses	Possible minimal increase in administrative expenses	Additional costs will depend on the timing and development of federal carbon sequestration regulations
<b>Facilities Establishment Funds – Department of Development</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	Possible increase in development loans/grants for advanced energy facilities	Possible increase in development loans/grants for advanced energy facilities	Possible increase in development loans/grants for advanced energy facilities
<b>Mortgage Insurance Fund – Department of Development</b>			
Revenues	- 0 -	- 0 -	- 0 -



Expenditures	Possible increase in mortgage insurance payments for advanced energy facilities	Possible increase in mortgage insurance payments for advanced energy facilities	Possible increase in mortgage insurance payments for advanced energy facilities
<b>General Revenue Fund – expenditures for electricity</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	- 0 -	Potential decrease up to \$13.6 million or more	Potential decrease up to \$13.6 million or more, or potential increase up to \$1.2 million or more, or anywhere in between
<b>Highway Operating Fund (Fund 002) – expenditures for electricity</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	- 0 -	Potential decrease up to \$3.8 million or more	Potential decrease up to \$3.8 million or more, or potential increase up to \$0.3 million or more, or anywhere in between
<b>Other State Funds – expenditures for electricity</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	- 0 -	Potential decrease in the millions	Potential decrease in the millions, or potential increase up to \$0.7 million or more, or anywhere in between

Note: The state fiscal year is July 1 through June 30. For example, FY 2007 is July 1, 2006 – June 30, 2007.

- PUCO would need to add six new staff positions to perform the new duties established by the bill, at a payroll cost of approximately \$427,000 per year. Additional costs for maintenance (approximately \$51,200) and for contracting with a Washington attorney for aid in preparing federal filings (approximately \$50,000) would increase annual costs by approximately \$528,000 per year. There would be a one-time increase in costs of \$10,000 to provide equipment for the new staff positions. The cost estimates in the table assume that ongoing annual costs begin January 1, 2008. These expenditures would be paid from Fund 5F6.
- The several funds within the Facilities Establishment Fund Group (Department of Development – DEV) may experience increased expenditures for development loans and grants issued to advanced energy facility projects.
- The Mortgage Insurance Fund (DEV) may experience an increase in bond-secured mortgage insurance payments for advanced energy facility projects.
- There could be a minimal increase in GRF expenditures for administrative costs in the Department of Natural Resources' Division of Geological Survey and a possible minimal increase in unspecified operating expenditures in the Environmental Protection Agency for their roles in developing a carbon sequestration policy and regulatory framework.
- In the future, the federal government is likely to develop regulations concerning carbon sequestration projects. Presumably, this would affect state regulations and oversight of those projects.

- The bill would grant stronger regulatory authority over electric generation rates to the Public Utilities Commission (PUCO) and would require electric utilities subject to PUCO regulation to meet an advanced energy portfolio requirement. Both provisions have the potential to impact prices the state pays for electricity. The most likely effect of the former provision is to reduce electricity rates, as compared with what they would be without the authority granted to PUCO by the bill, while the most likely effect of the latter would be to increase rates. The net result could be either a savings for the state or a cost, depending on which provision has the stronger effect on electricity prices.
- The timing is different for the potential savings on expenditures for electricity as compared with the potential cost. The potential savings, if realized, would begin in FY 2009 for most state spending, after the expiration of the rate stabilization plan for most electric utilities; facilities in the Dayton Power & Light area would experience the savings, if realized, beginning in FY 2011. The potential cost would not materialize until nearly 2025, when the advanced energy requirement is imposed.

### ***Local Fiscal Highlights***

<b>LOCAL GOVERNMENT</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FUTURE YEARS</b>
<b>Counties, municipalities, townships, school districts</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	- 0 -	Potential decrease up to \$227.6 million	Potential decrease up to \$227.6 million or more, or potential increase up to \$20.5 million or more, or anywhere in between
<b>Other Local Governments</b>			
Revenues	- 0 -	- 0 -	- 0 -
Expenditures	- 0 -	- 0 -	- 0 -

Note: For most local governments, the fiscal year is the calendar year. The school district fiscal year is July 1 through June 30.

- The bill would grant stronger regulatory authority over electric generation rates to PUCO and would require electric utilities subject to PUCO regulation to meet an advanced energy portfolio requirement. Both provisions have the potential to impact prices local governments pay for electricity. The most likely effect of the former provision is to reduce electricity rates, as compared with what they would be without the authority granted to PUCO by the bill, while the most likely effect of the latter would be to increase rates. The net result could be either a savings for local governments or a cost, depending on which provision has the stronger effect on electricity prices.
- The timing is different for the potential savings as compared with the potential cost. The potential savings, if realized, would begin in FY 2009 for most political subdivisions, after the expiration of the rate stabilization plan of their local electric utility; customers of Dayton Power & Light would experience the savings, if realized, beginning in FY 2011. The potential cost would not materialize until nearly 2025, when the advanced energy requirement is imposed.

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## ***Detailed Fiscal Analysis***

S.B. 221 would make a number of changes to state law related to the generation and sale of electric power in Ohio. Some provisions of the bill have no significant fiscal effect. Those provisions that do have an effect include changes to the authority and duties of several state agencies, including the Public Utilities Commission (PUCO), the Ohio Air Quality Development Authority (OAQDA), the Department of Natural Resources (DNR), and the Ohio Environmental Protection Agency (EPA). Fiscal effects are also likely to follow from the advanced energy portfolio standard requirement imposed by the bill on utilities regulated by PUCO.

The bill would increase the authority of PUCO over the generation of electricity in Ohio, if PUCO determines that that authority is needed to implement the statutory electric services policy.<sup>1</sup> The bill specifies that an electric utility's standard service offer that is in effect on the first day of February of the year that its rate stabilization plan is scheduled to expire would continue until modified.<sup>2</sup> That standard service offer could come in either of two types: an "electric security plan" or a "market rate option." A market rate option is defined to be a plan under which the utility's prices are determined periodically through a competitive bidding process. An electric security plan would be similar to a rate case as they were practiced prior to S.B. 3. PUCO is required to adopt rules that would govern the modification of standard service offers, whether the proposed modification is an electric security plan or a market rate option. And the bill would require PUCO to employ a Federal Energy Advocate to monitor the activities of the Federal Energy Regulatory Commission (FERC) and other federal agencies on behalf of Ohio retail electric service consumers. The Advocate would be required to submit a report to the Commission on whether continued participation by the state's electric utilities in regional transmission organizations is in the interest of Ohio's electricity consumers.

The bill would require electric utilities to provide 25% of the electricity supplied under their standard service offers using advanced energy by the end of 2025. At least 50% of the electricity produced using an advanced energy technology must be produced using a renewable energy source, and it must include solar power. The remainder may be met using any clean coal technology using carbon controls, advanced nuclear plants, fuel cells, or cogeneration projects. To count toward the 25% requirement, construction of the advanced energy facility must be initiated after the effective date of Section 4928.142 of the bill. Full compliance with the advanced energy portfolio requirement would be made contingent upon the blended price of electricity from all sources not exceeding the price of electricity from nonadvanced energy sources by more than 3%. The Commission would be required to issue an annual report to the General Assembly describing compliance by electric utilities with the advanced energy portfolio requirement, and progress toward achieving it. The Governor is required to

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<sup>1</sup> The statutory electric services policy is found in section 4928.02 of the Revised Code. PUCO authority over generation was limited by Am. Sub. S.B. 3 of the 123rd General Assembly (S.B. 3) often referred to as the electric restructuring (or electric deregulation) bill.

<sup>2</sup> The standard service offer rate that continues would include adjustments for (1) changes scheduled to the rate between February 1 and the end of that year, and (2) deferred costs that were approved by PUCO order.

form an advanced energy advisory committee to provide recommendations semiannually to PUCO on technology and costs associated with advanced energy. The bill does not specify the number of members on the committee, any conditions on who should be appointed, or whether members would be compensated in any way.

The bill would require PUCO to adopt rules establishing energy efficiency standards and greenhouse gas emission reporting requirements. Regarding the former, a utility must implement energy efficiency measures that will result in not less than (1) 25% of actual growth in its electric load and (2) 10% of its total peak demand being achieved by the use of such measures by 2025. The bill does not specify how to determine the amount of electric load that will serve as the base from which to determine the 25% actual growth. The rules may allow for decoupling.

S.B. 3 established a governmental aggregation program for electricity consumers. Under the existing terms of governmental aggregation, a municipality, county, or township may adopt an "opt-out" aggregation program, meaning that consumers residing in that jurisdiction are included in the aggregation unless they choose to opt out. After initial inclusion in the program, consumers are able to opt out every two years. The bill would change that to an ability to opt out every four years.

Under current law OAQDA assists Ohio businesses, government agencies, and not-for-profit agencies and individuals in complying with air quality regulations and environmental standards by financing the purchase, construction, or installation of air pollution control equipment. The bill would extend the role of the Authority into the realm of new energy initiatives, by establishing new bonding authority to fund specified types of advanced energy projects including advanced nuclear energy projects, fuel cells used in electricity generation, and cogeneration technology. The bill declares that such projects qualify as air and thermal pollution control facilities under the Ohio Constitution.

Additionally the bill would authorize OAQDA to implement programs to achieve best cost rates for state-owned buildings, facilities, and operations, state-supported colleges and universities, willing local governments, and willing school districts through pooled purchases of electricity and the financing of taxable or tax-exempt prepayment of commodities. Current commodity contracts<sup>3</sup> will allow Ohio-based companies to take advantage of federal tax laws that encourage the capture of waste heat for the production of electricity. Under federal statute and regulations the excess electricity can be sold solely for the benefit of municipally owned utilities. The proposed bill would increase the scope of such contracts, with or without federal tax exemption.

### **Background**

Since S.B. 3 of the 123rd General Assembly, PUCO authority over electric generation has been limited. Electric generators are required to provide a "standard service offer" to certain customers,

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<sup>3</sup> OAQDA is authorized to enter into commodity contracts with or make loans for the purchase of entering into commodity contracts to any person, government agency, or entity located within or without the state in connection with the acquisition or construction of air quality facilities. "Commodity contract" means a contract or series of contracts entered into in connection with the acquisition or construction of air quality facilities for the purchase or sale of a commodity that is eligible for prepayment with the proceeds of federally tax-exempt bonds.

and must file it with PUCO. Currently, electric generation rates in Ohio are subject to "rate stabilization plans" (RSPs), most of which are scheduled to expire at the end of 2008. The RSPs were developed under current (*i.e.*, post-S.B. 3) law,<sup>4</sup> but many observers express concern that generation rates will increase significantly when the RSPs expire.

Illinois and Maryland also enacted legislation to restructure their electric industries in the late 1990s. As part of Illinois' restructuring, they reduced rates charged by Commonwealth Edison by 20%, and froze rates across the state for nine years. In Maryland, the legislation reduced rates a required 6.5% (from 1993 levels) and froze them for six years. The Illinois Commerce Commission oversaw a reverse auction to supply power in the territories of two major utilities starting January 1, 2007, and received bids that were 22% higher than the frozen rate in the territory of Commonwealth Edison and between 40% and 55% higher in the territory of Ameren. The Maryland Public Service Commission oversaw a reverse auction to supply power in the territories of its utilities starting July 1, 2006. The auction yielded a bid to supply power in the territory of Baltimore Gas and Electric that was 72% higher than the frozen rate. Bids in other utility territories of the state were 35% and 39% higher than the frozen rates. By way of comparison, S.B. 3 required a reduction of 5% in electric rates for residential customers as part of Ohio's restructuring. Also, rates in Ohio have already risen somewhat from the frozen rates as part of the RSPs.

Reputable studies find that renewable portfolio standard (RPS) requirements would increase the price of electricity to consumers (including governments). For example, the U.S. Energy Information Administration (EIA) published a study in August 2007 titled *Energy and Economic Impacts of Implementing Both a 25-Percent Renewable Portfolio Standard and a 25-Percent Renewable Fuel Standard by 2025*.<sup>5</sup> As implied by the title, the specific policy proposal that that study examined differed from the current bill: it required a 25% renewable portfolio standard rather than a 25% advanced energy portfolio standard, it allowed for a system of tradable energy credits (which the bill does not), and it required a 25% renewable fuel standard in addition to the RPS requirement. The study projected that average retail electricity prices would increase by about 3.3% due to the proposal by 2025, and by 6.2% by 2030. It also projected that about one-half of the renewable generation required by the proposal would be met by biomass electricity generation, and that wind generation would account for slightly over one-third. For purposes of comparison, another EIA study, released in June,<sup>6</sup> analyzed the affect of a 15% RPS proposal, finding that that proposal would increase electricity prices by about 2.0% by 2030.

The more recent study included many caveats, which are appropriate given the long-term nature of the projections. It was based on federal laws and regulations as they were on September 1, 2006; in particular any tax incentives that were scheduled to expire under the law on that date were assumed to expire. It made projections about the cost, performance, and commercial feasibility of types of generation, such as advanced biomass generation, for which no commercial generation currently exists.

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<sup>4</sup> A fuller explanation of the historical and legal background of RSPs can be found in the LSC Bill Analysis, which can be found at [www.lsc.state.oh.us](http://www.lsc.state.oh.us). Click on "bill documents," then on "bill analyses" to find it.

<sup>5</sup> The study can be found at the EIA web site, [www.eia.doe.gov/fuelrenewable.html](http://www.eia.doe.gov/fuelrenewable.html). Click on "more renewable reports" to find it.

<sup>6</sup> This study is titled *Impacts of a 15-Percent Renewable Portfolio Standard*.

Any of those assumptions may prove to be overly optimistic (in which case the price increases could be greater than projected) or overly pessimistic (in which case they could be smaller than projected). And, of course, it projected the prices of commodities like oil, coal, natural gas, and uranium that are very hard to predict. Given the differences between the proposal analyzed in this study and the advanced energy requirement of S.B. 221, as well as the uncertainties highlighted in the study itself, the projected effects on electricity prices would differ from the effects that S.B. 221 is likely to have. Nevertheless the advanced energy requirement of S.B. 221 is likely to affect electricity prices. This point is elaborated below.

Both the state and local governments are consumers of electricity. OBM reports that state agencies spent slightly over \$52.1 million on electricity in FY 2007. The agencies that spent the largest amounts were the Department of Rehabilitation and Correction (DRC, \$14.2 million), the Department of Transportation (DOT, \$11.4 million), the Adjutant General (ADJ, \$3.6 million), the Department of Mental Health (DMH, \$3.5 million), the Department of Administrative Services (DAS, \$3.4 million), and the Department of Natural Resources (DNR, \$3.3 million). No other agency spent more than \$3 million that year, though one spent over \$2 million and four spent over \$1 million. In addition to direct spending on electricity, some agencies pay for electricity indirectly, as part of the amount they pay for leased office space. The U.S. Census Bureau estimates that local governments in Ohio collectively spent approximately \$682.7 million on electricity during the fiscal year that ended between July 1, 2004 and June 30, 2005. The definition of local governments appears to include counties, municipalities, townships, special districts, and school districts.

The authority given PUCO by the bill to adopt rules that provide for decoupling in connection with energy efficiency standards is probably a reference to revenue decoupling. The National Regulatory Research Institute (NRRI), the research arm of the National Association of Regulatory Utility Commissioners (NARUC), published a briefing paper on this subject in April 2006. Titled *Revenue Decoupling for Natural Gas Utilities*, the paper is available on the NRRI web site.<sup>7</sup> Although the title may seem to suggest that revenue decoupling is an issue specific to natural gas utilities, in fact the briefing paper states that the concept applies to other types of utilities as well. And as reported there, the NARUC passed a resolution in 2005 advising state commissions to consider the implementation of revenue decoupling.

Although the bill would leave the definition of decoupling up to PUCO, the NRRI briefing paper explains the basic structure of a revenue decoupling plan (on page 9). Under such a plan rates adjust automatically when natural gas (or in this case, electricity) usage deviates from the level that was expected at the time of the utility's most recent rate case. The paper presents a simplified example of usage falling by 5% relative to the expected amount, and a revenue decoupling plan increasing rates automatically by 5.3% to ensure that the utility receives the level of revenue that had been expected. Conversely, if usage exceeded the expected amount, then that would automatically trigger a rate decrease.

According to the briefing paper, revenue decoupling proposals result from the effects of the time lags between traditional rate setting cases. In such a case, a portion of the electricity rate per unit sold that is set is intended to allow the utility to recover its fixed costs. Since fixed costs by definition are

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<sup>7</sup> The paper can be found at the web address [www.nrri.ohio-state.edu/NaturalGas](http://www.nrri.ohio-state.edu/NaturalGas).

independent of the amount of electricity sold, some volume of electricity sold must be assumed during the rate case to arrive at a per unit rate. If the number of actual units sold exceeds expectations, then the utility will earn profits that are higher than expected; conversely, if the number of actual units sold is less than expected, then the utility will earn lower profits. High natural gas prices since the year 2000 have led many analysts to suggest that U.S. regulators need to focus on policies that promote conservation of natural gas. Traditional rate-making approaches discourage natural gas utilities themselves from promoting conservation, since that involves promoting lower profits for themselves. Revenue decoupling mechanisms are intended to break the link between lower natural gas (or electricity) usage and lower profits (or losses) for utilities. As summarized in the briefing paper, "while RD [revenue decoupling] does not provide the utility with an explicit incentive to promote energy efficiency, it eliminates the disincentive."

### **Fiscal effect**

#### **Public Utilities Commission of Ohio**

The bill contains a number of new duties for PUCO. The Commission is required to employ a Federal Energy Advocate, to issue an annual report to the General Assembly regarding the compliance of electric utilities with the advanced energy requirements of the bill, to adopt rules regarding greenhouse gas emission requirements, to conduct rate cases if a utility files for an Electric Security Plan, and to conduct analysis of the price to compare if a utility goes to market. Moreover, PUCO officials anticipate that they will be expected to provide staff time and resources to support the advanced energy advisory committee that the Governor is required to establish.

A PUCO official reports that the Commission will need to hire six new staff members to carry out these duties. Specifically, they expect to require one new Administrator 2, two new Utility Specialist 2s, two new Environmental Specialist 2s, and one new Legal Examiner. The annual salary for the administrative position would be \$61,651.20, while the salary for each of the other five positions would be \$52,811.20. With fringe benefits of approximately 31% of salary, the six new positions would add an estimated \$426,676 to payroll costs each year. The requirement to employ a Federal Energy Advocate is expected to be met by assigning that duty to an existing staff person. The official expects additional expenses for maintenance of \$51,201 per year and a one-time equipment expense of \$10,000 in connection with the new positions. The official also indicates that PUCO will incur a \$50,000 per year increase in expenses to contract with a Washington attorney for assistance in preparing filings with the Federal Energy Regulatory Commission.

In total, PUCO expects a one-time increase in expenditures of \$10,000, plus an annual increase in expenditures of just under \$528,000. These expenditures would be paid from the Public Utilities Fund (Fund 5F6). Fund 5F6 receives funding primarily from assessments on utilities regulated by PUCO. The amount of the assessment is based on appropriations to line item 870-622, Utility & Railroad Regulation, in the PUCO budget. Since there are no appropriations in the bill, the increase in expenditures would have to be absorbed in the Commission's existing budget, at least through FY 2009.

#### **Ohio Air Quality Development Authority**



OAQDA officials report that staffing and appropriations for the current biennium are sufficient to perform the additional functions prescribed by the bill. They are noncommittal about the sufficiency of staffing and appropriations for future performance of these duties, indicating that at some future point they may need to reassess the need for additional funds and staff. LSC staff could not come up with cost projections as it is still too early to forecast the number and scope of suitable projects in advanced energy facilities that may be considered by OAQDA. Additionally, there could be some revenue flow from these projects in later years, which again cannot be quantified at this stage.

### **Department of Development**

The bill expands the authority of the Development Financing Advisory Council (DFAC), allowing it to recommend development loans and grants under sections 122.39 to 122.62 and Chapter 166. of the Revised Code to advanced energy facilities as defined in the bill. The DFAC recommends funding for projects under a variety of bond-supported loan and grant programs within the Facilities Establishment Fund Group that must then be approved by the Controlling Board. These include the 166 Direct Loan Program, the Innovation Ohio program, and the Research and Development Loan Program, among others. It is likely that these three programs would be the most relevant programs to advanced energy projects. An increase in expenditures from these funds is possible if DFAC approves funding for advanced energy projects under the bill. It is also possible that other project funding may be scaled back if advanced energy funding takes a priority under the bill.

The bill also expands the jurisdiction of the Mortgage Insurance Fund in the Department of Development to pay for mortgage insurance on advanced energy projects. The Mortgage Insurance Fund is supported by bond proceeds and may be used to insure up to 90% of any mortgage payments on various economic development projects, air quality facilities, waste water facilities, or solid waste facilities. Adding advanced energy projects to the list of qualified projects could increase payments made from this fund if the Director of Development chooses to use these funds for that purpose. Any moneys expended from this fund require approval by the Controlling Board.

### **Regulatory oversight of carbon sequestration projects**

To clear up jurisdictional overlaps between the agencies, the bill requires DNR, EPA, and PUCO to jointly by rule develop an interim policy framework for pilot and demonstration carbon sequestration projects. As it is now, PUCO has jurisdiction over pipelines carrying carbon dioxide. EPA and DNR share jurisdiction over deep wells, depending on what type of well is involved. EPA has jurisdiction over the equipment that would be used to capture the carbon dioxide and prepare it for sequestration. Although joint development of rules by these three agencies might eliminate jurisdictional overlaps, it should be noted that, according to EPA, the interim framework called for in the bill would be established with the understanding that there will be a federal regulatory regime for this technology in the future, likely superseding state regulations.

DNR's role in this process would likely be led by the Division of Geological Survey, with possible involvement by the Divisions of Mineral Resources, Forestry, and Soil and Water. Any costs for its role in developing the policy framework would be administrative in nature and be supported by regular GRF administrative funds.

EPA's role in this process would likely be led by the Division of Air Pollution Control, with possible involvement by the divisions of Hazardous Waste Management, Surface Water, and Drinking and Ground Waters. EPA costs would be supported by rotary funds that support these divisions.

### **Effect on electricity bills paid by state and local government**

Two categories of provisions in the bill have the potential to affect electricity prices, and thus the amount that state and local governments spend for electricity. The first category of provisions is all those related to PUCO authority over electric generation rates. The second category is the advanced energy portfolio requirement. Please note that unless otherwise indicated all discussions below about electric generation rates "increasing" or "decreasing" due to the bill's provisions mean an increase or decrease relative to the level at which the rates would be under existing law. Specifically, a reference to a "decrease" in rates means such a relative decrease—not necessarily an absolute decrease in rates.

Regarding the first category, many observers believe that when the current RSPs expire there will not be effective competition over generation rates, and that existing PUCO authority will be insufficient to prevent companies from exercising their market power to raise electricity prices significantly. If this assessment is accurate, then this category of provisions in the bill would act to decrease electricity prices paid by state and local governments (and other consumers). However, given that the current RSPs were themselves the result of the existing legal framework, the widespread belief that rates would rise significantly without increased authority may not be correct. Certainly the bill would strengthen PUCO authority, meaning that this category of provisions would be unlikely to cause electric generation rates to increase. But whether those rates would decrease, and how much they would decrease, would depend on the effective leverage that PUCO gains, relative to existing authority, over rates.

LSC staff believe that the effect on electricity prices of the increase in PUCO authority may be to decrease electricity rates. But we are unaware of any research that would provide a reliable basis for predicting the magnitude of such a rate decrease. The experiences in Maryland, where bids were received that were up to 72% higher than their frozen rates, and in Illinois, where they were up to 55% higher, suggest that the increase in PUCO authority could result in a decrease in rates of as much as 50%, or more. There are significant differences between Ohio's situation and that of those states, however. S.B. 3 reduced rates by a smaller percentage (5%) than those states did, for example, and rates in Ohio have already risen somewhat from their initial fixed levels as part of the RSPs.<sup>8</sup> LSC staff think that these differences would significantly reduce the jump in rates that Ohio would be likely to experience under current law when the RSPs expire compared to Illinois' and Maryland's experience. LSC staff, therefore, think it likely that the decrease in rates attributable to the first category of provisions of the bill would be up to one-third or more. LSC staff cannot rule out the possibility that the increase in authority will have no effect on rates.

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<sup>8</sup> Data published by the U.S. Energy Information Administration indicate that Ohio's residential average retail price for electricity rose 16.1% between July 2005 and July 2007. This was higher than the increase in Illinois (15.4%) despite the expiration of their freeze, though lower than the increase in Maryland (45.0%).

The second category of bill provisions is the advanced energy requirement. Based on EIA studies of similar renewable portfolio standards being imposed nationwide, it seems likely that this requirement would increase electric generation rates. While EIA studies cited above projected increases in electricity prices of 2.0% to 6.2% by 2030 from somewhat similar provisions, there are a number of differences between the proposals that were analyzed in generating those projections and the requirement in S.B. 221. The principal differences are that S.B. 221:

- (1) would effectively impose a 12.5% RPS, with another 12.5% of generation subject to a requirement to employ some combination of renewable and advanced energy technologies;
- (2) would apply only to Ohio, as compared with nationwide application; and
- (3) is silent on the subject of a system of tradable renewable energy credits, while the proposals analyzed by EIA did permit such systems.

While LSC staff are unable to determine the magnitude of the impacts of these differences on EIA projections, economic theory does suggest the direction of the impacts. Both the second and third differences would make the S.B. 221 provision more expensive than the programs EIA analyzed, in the sense that electricity prices would be expected to increase more. In the case of the second difference, EIA has found in past studies that reduced prices for fossil fuels roughly offset the fact that renewable energy sources are generally costlier than fossil fuels, so that offsetting savings prevented the average cost of producing electricity from rising much. Since the markets for fossil fuels are generally national (if not international), meaning Ohio generators are a small part of the overall market, then the offsetting savings would be smaller—on average electricity prices would rise more. In the case of the third difference, economic theory has long maintained that such systems reduce the cost of attaining similar sorts of goals.<sup>9</sup> Most of the literature is based on tradable permits to emit pollutants, but the same line of reasoning applies in this setting.

The first difference is less straightforward. On one hand, a 25% portfolio standard that allows for advanced energy technologies as well as renewable technologies allows greater flexibility (in theory) than a simple 25% RPS, which implies that the increase in electricity prices in Ohio would be less than the magnitudes projected by EIA for the national projects. On the other hand, during a conversation with an EIA official involved in producing these studies he indicated that the examples of advanced energy technologies given in the bill are all currently more expensive than renewable energy technologies. Thus, it may be that in practice the bill's advanced energy requirement provides no greater flexibility than would an RPS requirement of the same percentage. That would suggest that the first difference above may have no effect on the increase in electricity prices as compared to those projected by EIA.

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<sup>9</sup> The argument, in short, is based on the assumption that different generators have different costs of adopting renewable or advanced energy technologies for generation. If that is true, then a system of tradable credits would allow companies for whom renewable/advanced energy generation is more expensive to purchase credits from companies for whom it is less expensive. This allows the overall threshold of renewable/advanced energy generation to be met at a lower cost. Note that the argument is critically dependent on there being such differences in costs across companies.

There are substantial uncertainties involved in long-range forecasting, especially when technological change may change some of the cost variables significantly at some point during the next 18 years. Many of those uncertainties are highlighted in the EIA study cited above, making their projections themselves subject to significant uncertainty. And given the differences between the advanced energy requirement of S.B. 221 and the national proposals examined by EIA, it would appear to be possible that EIA's projections that electricity prices could increase by 2.0% or even 6.2% by 2030 may overstate Ohio's experience under the requirement, due to the first difference between the proposals; of course the bill limits the increase to 3%. It seems more likely, though, that EIA's projections would understate Ohio's experience due to the second and third differences, suggesting a reasonable likelihood that electricity prices would increase by something close to the bill's 3% limit.

Looking at both categories of bill provisions together, then, LSC staff cannot predict the magnitude or even the direction of changes in electricity prices that the bill would cause. If the first category of bill provisions is dominant, then the bill could create savings for electricity consumers up to one-third or more. For the state, that would imply savings up to \$17.4 million per year, or more, starting after the RSPs expire. The timing implies that the state would receive a partial year's savings in FY 2009, a full year's saving in FY 2010 based on expiration of all the RSPs except Dayton Power and Light's (DP&L's), and full savings benefits after DP&L's RSP expires. For local governments that would imply savings across all local governments statewide, including counties, municipalities, townships, special districts, and school districts, of up to \$227.6 million or more per year after expiration of the RSPs. For most local governments the savings would begin in FY 2009.

The other possibility is that both categories taken together would lead to increased prices, if the advanced energy portfolio requirement outweighs the effect of the increased authority of PUCO. The portfolio requirement is not in effect until 2025, so any increase in prices would be delayed until that time. Under this scenario, electricity bills for the state could increase by up to \$1.6 million or more per year by FY 2030. For local governments, they could increase by up to \$20.5 million or more per year by FY 2030. The costs would increase gradually over the course of the intervening period for both state and local governments.

The state pays for electricity from a variety of different funds in the budget. The GRF is certainly the largest single source of funding, providing the source of funding for purchases by DRC (\$14.2 million in FY 2007), DAS (\$3.4 million), and at least a portion of the funding for two other large users (ADJ and DMH). The second largest user, DOT (\$11.4 million in FY 2007), pays for electricity out of the Highway Operating Fund (Fund 002).

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