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January 25, 2008

HAND DELIVERED

Hon. Elizabeth A. O'Donnell
Executive Director
Public Service Commission
211 Sower Boulevard, P.O. Box 615
Frankfort, Kentucky 40602-0615

RE: *Application of Big Rivers Electric Corporation, E.ON U.S., LLC, Western Kentucky Energy Corp., and LG&E Energy Marketing Inc., P.S.C.*
Case No. 2007-00455

Dear Ms. O'Donnell:

Enclosed for filing are an original and ten copies of the Direct Testimony of Century Aluminum Company and Alcan Primary Products Corporation ("Smelters") in the above docket.

I certify that a copy of this letter and the foregoing Direct Testimony has been served on the Kentucky Attorney General, Rate Intervention Division, and the persons identified on the attached service list.

Yours very truly,

David C. Brown

DCB:klg
Enclosures

SERVICE LIST
BIG RIVERS ELECTRIC CORPORATION
PSC CASE NOS. 2007-00455 AND 2007-00460

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PSC CASE NOS. 2007-00455 AND 2007-00460

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COMMONWEALTH OF KENTUCKY
BEFORE THE
PUBLIC SERVICE COMMISSION OF KENTUCKY

Case No. 2007-00455

SMELTER DIRECT TESTIMONY

COMMONWEALTH OF KENTUCKY
BEFORE THE
PUBLIC SERVICE COMMISSION OF KENTUCKY

Case No. 2007-00455

DIRECT TESTIMONY OF
HENRY W. FAYNE

ON BEHALF OF
CENTURY ALUMINUM COMPANY
AND
RIO TINTO ALCAN

JANUARY 25, 2008

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY
CASE NO. 2007-00455

DIRECT TESTIMONY OF HENRY W. FAYNE ON BEHALF OF RIO TINTO ALCAN AND CENTURY ALUMINUM OF KENTUCKY GENERAL PARTNERSHIP

Q: Please state your name and business address.

A: My name is Henry W. Fayne. My business address is 1980 Hillside Drive, Columbus, Ohio 43221.

Q: Please briefly describe your business and educational background.

A: I have been a consultant in the electric energy sector since the beginning of 2005, following my retirement from American Electric Power (AEP). I was employed by AEP in various positions for thirty years from 1974 through 2004, including as Executive Vice President and Chief Financial Officer from 1998 until 2001, and as Executive Vice President Energy Delivery from 2001 until I retired in 2004. I have a bachelors degree in economics from Columbia College and an MBA in finance from Columbia Graduate School of Business.

Q: Have you testified previously?

A: Yes. During my tenure at AEP, I testified before the regulatory commissions in the states of Indiana, Kentucky, Michigan, Ohio, Oklahoma, Texas, Virginia and West Virginia on behalf of various operating companies of AEP. I have also testified before the Federal Energy Regulatory Commission.

Q: What is the purpose of your testimony in this proceeding?

A: I am testifying on behalf of Rio Tinto Alcan and Century Aluminum (the Smelters). My purpose is to explain why the Smelters believe that the

transactions proposed in this proceeding are in the public interest and why the agreements reached among Big Rivers, Kenergy, the other Members and the Smelters are critical to the on-going viability of the Sebree and Hawesville Smelters. In addition, I will discuss various contract provisions and open issues.

Q: Please describe Rio Tinto Alcan and Century Aluminum.

A: Rio Tinto is a leading international mining group, publicly traded on the London and Australian exchanges. Its major products include aluminum, copper, diamonds, coal, uranium, gold, iron ore and industrial minerals. Rio Tinto Alcan, with headquarters in Montreal, Canada, is one of Rio Tinto's product groups, of which the Sebree Smelter is a part. Rio Tinto Alcan operates 430 facilities in 61 countries, and has 73,000 employees.

Century Aluminum Company is publicly traded on NASDAQ and headquartered in Monterey, California. Through its various subsidiaries, Century owns and operates aluminum smelters in Kentucky, South Carolina, West Virginia and Iceland, as well as a bauxite mine in Jamaica and an alumina refinery in Louisiana. Century Aluminum of Kentucky General Partnership owns the Hawesville Smelter. Century Aluminum has revenues of $1.6 billion and has 1,850 employees.

Q: Please describe the operations in Kentucky.

A: Rio Tinto Alcan's Sebree Smelter has been in operation since 1973; it is their only U.S. aluminum smelter. It produces about 186,000 metric tons of primary aluminum from its 3 potlines, with about 600 employees. Its peak electrical

demand is approximately 368 MW, with an annual energy consumption of approximately 3.1 billion kilowatthours.

Century's Hawesville Smelter has been in operation since 1970. It produces about 244,000 metric tons of primary aluminum from its 5 potlines, with about 775 employees. More than half of the aluminum is delivered in molten form to Southwire Rod and Cable Mill adjacent to the Hawesville Smelter. Hawesville's peak electrical demand is approximately 482 MW, with an annual energy consumption of approximately 4.2 billion kilowatthours (excluding the Southwire Rod and Cable Mill load which prospectively will be served by Kenergy under a separate contract).

Together, the two Smelters consume about 7.3 billion kilowatthours of electricity and will account for about 70% of the Big Rivers system energy requirement and 56% of Big Rivers system peak demand when this Unwind Transaction is consummated. As described in detail in the testimony of Dr. Paul Coomes, with about 1400 employees, the two Smelters support over 5000 jobs in the region and are critical to the economic health of Western Kentucky.

Q: Would you briefly describe the business fundamentals of aluminum smelting?

A: Yes. Aluminum is a global commodity, much like copper, nickel, zinc and oil. It is sold at a price that is based on global supply and demand and established by trading activity on the London Metal Exchange, or LME. An individual smelter is, in effect, a price taker and cannot set the selling price of the base product;

therefore, the success or viability of a specific smelting operation is determined primarily by its cost of production. Because of transportation costs, the location of a smelter can make some contribution to the viability of any specific smelter; but the differences in the cost of transportation are not sufficient to offset high electricity prices.

The cost of production will vary among smelters based on the cost of goods and services as well as the configuration of the plant. However, in general, the cost of alumina, labor and electricity accounts for 75%-80% of the cost, with alumina and electricity each comprising about one-third of the cost of production. The cost of alumina tends to be tied to the LME price. As a result, it is the cost of electricity that most significantly determines the ongoing success or viability of an aluminum smelter.

That outcome is most dramatically shown by the shifts in production. In the U.S. in 1978, there were 34 smelters, producing more than 4 million metric tons, accounting for about 31% of the world supply. Today, there are only 14 smelters operating in the U.S., producing about 2.6 million metric tons, which accounts for only 6.7% of the world supply. In every instance, the smelters shut down because of high power costs (HWF Exhibit-1, Page 2, shows the U.S. smelters currently in operation).

Q: What power cost does the Sebree and Hawesville Smelters incur today?

A: Although the specifics of the power contracts for the two Smelters differ slightly, in general they each receive about 70% of their energy requirement from Western Kentucky Energy (WKE) at a fixed price of about $25/mWh and the balance of their requirement from open market purchases. With current market prices in the range of $50-$60/mWh, therefore, the blended cost of power is approximately $35/mWh under the current contract terms. The Hawesville contract expires at the end of 2010 and the Sebree contract expires at the end of 2011.

Q: How does the cost of $35/mWh compare to the cost of electricity at other smelters both in the U.S. and abroad?

A: As shown on HWF Exhibit- 1, at $35/mWh, the two Smelters are higher than the average US cost of $32.5/mWh. It is also higher than the weighted average world price of $30.86/mWh and significantly higher than the world price excluding China of $24.91/mWh. In terms of comparing costs for competitive purposes, it is appropriate to exclude the electricity cost in China because the capital cost associated with plant investment in China is substantially lower than elsewhere in the world and that lower capital cost essentially offsets the higher cost of electricity.

Q: You explained that the price of aluminum varies based on global supply and demand. To what extent has the price varied?

A: The current LME price is about $2400 per metric ton, which compares to the approximate $1550 per metric ton historical long term price of aluminum. As shown on HWF Exhibit – 2, LME prices were about $1340 per metric ton in 2002 and increased to $2640 per metric ton in 2007.

Q: What is the long term outlook for aluminum prices?

A: As I explained above, the price of aluminum is based on global supply and demand. Like many other commodities, the price can vary widely and is difficult to predict. The current long term outlook developed by industry analysts ranges between $1900 and $2300 per metric ton, with the average around $2100 per metric ton. As shown on HWF Exhibit 2, the near term forward curve projects LME price in the range of $2465 - $2639 per metric ton.

Q: Please describe the proposed terms of electric service to the Smelters.

A: In his testimony, Big Rivers' witness C. William Blackburn describes the terms and mechanics of the new arrangement in detail; the specific contracts are exhibits to the Joint Application. Therefore, I intend to provide a broad overview to highlight significant aspects of the arrangement.

Under the terms of the proposed contract, Big Rivers will sell to Kenergy for resale to the Smelters a base amount of up to 850 MW (368 MW for Alcan and 482 MW for Century) through 2023, unless one or both of the Smelters terminate earlier. In effect, Big Rivers, through Kenergy, is obligated to serve 100% of the Smelters' current load requirement. Such sales shall be made on a take-or-pay basis at a variable rate based on Big Rivers' cost as described in more detail below.

In return, the Smelters have agreed to pay a Base Energy Charge equivalent to $0.25/mWh above the large industrial rate (based on a 98% load factor), as well

as a Fuel Adjustment Charge (FAC), a purchased power charge for purchased power not recovered through the fuel adjustment (Non-FAC PPA) and an environmental surcharge. In addition, the Smelters have agreed to pay a TIER Adjustment Charge to ensure that Big Rivers achieves TIER coverage of 1.24 times, subject to some limitations and exceptions described in the contracts. Essentially, with few exceptions, the Smelters are assuring that Big Rivers will achieve its TIER coverage target. Finally, the Smelters have agreed to pay several additional surcharge amounts to offset fuel and environmental charges to the non-smelter members.

Q: Do the Smelters agree that the inclusion of a FAC, a Non-FAC PPA, and an Environmental Surcharge is necessary?

A: Absolutely. As witnesses for Big Rivers have explained, these adjustment clauses are necessary because these costs may vary significantly. But these adjustment clauses are particularly important to insure that the non-smelter members pay their fair share of these variable costs and appropriately balance the interests of the Smelters and the non-smelter members; without the adjustment clauses (or the ability to establish regulatory accounts for future recovery as in the case of the Non-FAC PPA), the Smelters would be penalized by having to pay through the TIER Adjustment for variable energy costs incurred to meet the non-smelter member load.

Q: You indicated that the TIER Adjustment is capped. What is the basis for the caps?

A: As described in Paragraph 4.7.1 of the Retail and Wholesale Electric Service Agreements, the TIER Adjustment charge is capped at fixed amounts above the Base Energy Rate; those amounts increase over the term of the contract. The specific caps are the outcome of long and intense negotiations among the parties.

The Smelters desired the caps to be as low as possible to provide an incentive for Big Rivers to control costs. With a low cap, rather than automatically charging increased costs to the Smelters through the TIER Adjustment, Big Rivers would have to initiate a rate case to recover such cost increases from both the Smelters and the non-smelter members and be subject to regulatory scrutiny as well as pressure from the non-smelter members. On the other hand, the non-smelter members were seeking a higher cap to minimize their risk of increased rates, particularly as compared to their existing rate structure.

The caps ultimately accepted by all parties reflect a compromise which the Smelters believe align all parties to control costs for the benefit of all parties and minimize the risk to the non-smelter members. In essence, the caps reflect part of the premium the Smelters have agreed to pay to obtain "cost-based" power. Specifically, if required to achieve the 1.24 times target, the Smelters are obligated to pay a TIER Adjustment Charge of up to $ 14 million a year at the beginning of the contract term; that premium can increase to more than $35 million a year by the end of the contract term.

It should be noted that the calculation of the TIER target of 1.24x includes both the interest income and the interest expense associated with the existing sale leaseback transactions. If the sale leaseback interest components were excluded, the equivalent TIER coverage would range from 1.32x in 2009 to 1.45x in 2023.

Q: Are there other provisions in the contract that should be highlighted?

A: Yes. The Smelters support this transaction based on the expectation that Big Rivers will effectively control its costs and operate efficiently and, as a result, the cost of electricity to the Smelters will permit the Smelters to continue operations through the term of this agreement and perhaps even beyond. Certainly, a cost-based contract based on coal-fired generation should be expected to result in one of the lowest-cost electricity supplies available. There are several provisions in the contract that are targeted toward this outcome.

In Section 3.10 of the Coordination Agreement, Big Rivers agrees that it shall not modify its depreciation rates without regulatory approval and that it will discuss any proposed change in depreciation rates with the Smelters prior to any filing. More importantly, Big Rivers has agreed not to initiate a request for a change in rates that essentially would produce depreciation expense higher than reflected in the financial model filed in this proceeding, subject to certain conditions. The Smelters acknowledge that it is necessary for Big Rivers to use reasonable rates to record depreciation. However, it is also clear that depreciation studies are as much an art as a science. It is critical for the survival of the Smelters that the cost of electricity be held to a minimum. It is for that reason that Smelters negotiated

this provision as a basis for agreeing to the contract terms. And in that context, the Smelters are proceeding on the assumption that the KPSC will accept reasonable depreciation rates consistent with this objective.

Q: Are there other provisions you wish to discuss?

A: The contract also contains terms that provide the Smelters with some limited opportunity to manage its costs by selling some of their energy in the wholesale market; these sales are not intended to be a profit center for the Smelters, but rather a mechanism to enhance the likelihood of survival.

Pursuant to Section 10.1 (Surplus Sales), at each Smelter's request, Big Rivers will sell energy surplus to the Smelter's need and credit the Smelter for the amount that otherwise would have been payable for such energy; to the extent that the net proceeds from such transaction are greater than the amount credited, such proceeds would flow through the TIER calculation to reduce the TIER Adjustment charge.

The Smelters require 100% reliable energy supply. This is critical. An outage lasting for more than a few hours would "freeze" the pots; it would take as long as nine months to restart the Smelter as well as significant capital and maintenance dollars. Therefore, pursuant to Section 10.2 (Undeliverable Energy Sales), if there is an event at a Smelter that limits all or a portion of the Smelter from engaging in aluminum reduction operation for an extended period, Big Rivers will sell energy surplus to the Smelter's need and credit the Smelter with 100% of the net

proceeds to cover the cost that would otherwise be payable by the Smelter for such energy as well as to partially offset the cost of restart.

The goal of the Smelters is to maintain profitable operations and thereby, maintain jobs in Western Kentucky. To provide some flexibility, therefore, the parties have agreed to allow a smelter to shutdown a single potline for up to four years if by doing so, the smelter would be able to maintain operation of its remaining potlines. Pursuant to Section 10.3 (Potline Reduction Sales), Big Rivers will sell the energy that would otherwise be used by the potline and credit the smelter with 100% of the net proceeds to cover the cost that would otherwise be payable by the smelter for such energy as well as to partially offset the cost of the remaining energy used by the Smelter.

Q: Are there other provisions that allow the Smelters to mitigate their cost of electricity?

A: In addition to the major provisions I just described, each Smelter has the ability to curtail its use so that Big Rivers can avoid high-cost purchased power (Section 4.13.2 Curtailment of Purchased Power). Each Smelter also has a limited opportunity to curtail its load, to have Big Rivers resell the power, and thereby, to receive the benefit from high market energy prices (Section 4.13.3, Economic Sales).

Q: Are there other ways the Smelters can manage the cost of electricity?

A: Clearly, the agreements among Big Rivers, Kenergy and the Smelters provide a mechanism whereby the costs incurred by Big Rivers automatically flow to the

Smelters, with certain limitations. Although the Smelters have no approval authority regarding the budget or operations at Big Rivers, Section 3.4 of the Coordination Agreement provides an opportunity for the Smelters to review the budgets, including changes to the budgets, and to discuss any questions or disagreements with Big Rivers' management and its Board of Directors. In addition, as described in Section 4 of the Coordination Agreement, the parties have agreed to establish a Coordinating Committee comprised of representatives from the Members, the Smelters and Big Rivers for the purpose of analyzing and discussing information relating to Big Rivers' operational and financial performance. Our expectation is that with regular meetings, open discussion and dialogue with the Board of Directors, all parties will be able to optimize operating and financial plans to result in low-cost reliable generation for the benefit of the non-smelter Members and the Smelters alike.

Q: Do the Smelters believe that this transaction is in the public interest?

A: Absolutely. The transaction provides significant benefits to all parties.

Q: Would you please explain?

A: For Big Rivers, the transaction produces a significant improvement in its financial health and the opportunity for Big Rivers to regain control of its generating units and to raise capital to make investments required to optimize the life of the units and its system. As Big Rivers' witness Blackburn testifies, the total financial benefit of the Unwind Transaction to Big Rivers is approximately $950 million, $327 million of which results from the cash compensation and increased power

cost payments from the Smelters. Most importantly, it creates the opportunity for the Kentucky generation to be used to support Kentucky businesses.

For the non-smelter members, the transaction also has benefit. By providing Big Rivers the opportunity to raise capital to make investment in its system, it assures that there will be adequate and reliable generation available after 2023 when the current arrangement otherwise would have terminated. Because of the Smelter Surcharge payments and the Economic Reserve, an increase in rates to the non-smelter members is substantially mitigated and rates for the long term are projected to remain low. And most importantly, the transaction preserves the economic health of Western Kentucky.

Although a lower rate structure would have been preferable, the transaction provides benefit to the Smelters as well. Specifically, although the Smelter rates are higher than a traditional cost-based tariff, the contract provides an energy supply based on cost, which will limit the Smelters' exposure to market prices and provide a reasonable opportunity for continued operation beyond the current contract terms of 2010 and 2011.

Q: Have the Smelters concluded that the proposed transaction provides a reasonable opportunity for their continued operation?

A: Yes. The Smelters are cautiously optimistic that the rates to the Smelters will be affordable for the long term. But that result ultimately will be a function of LME prices and the ability of Big Rivers to control its costs. As I indicated above, the

contract provides some opportunities for the Smelters to mitigate the cost as well as a process for the Smelters to participate with Big Rivers' management and the Members in the budgeting process.

But it is clear that if the industry analysts are correct that the long term LME price will be $2100 per metric ton, then long-term operation of the Smelters at the rates projected in the financial model will be a close call. Certainly, if costs increase significantly, the Smelters will be unable to survive.

Q: Please explain how the Smelters' concluded that the proposed transaction provides a reasonable opportunity for continued operation.

A: The Smelters decided to support the transaction because it appears to be the best alternative available. The Smelters require an affordable and predictable energy supply in order to make the large capital investments necessary to maintain and operate their production facilities efficiently. In exchange for the Smelters' agreement to terminate our existing purchase power contracts, WKE has agreed to pay a sum of money at closing to offset the higher cost projected by Big Rivers through 2010 and 2011. The proposed agreements provide a power supply that can reasonably be expected to be significantly lower-cost and less volatile than market-priced power. Moreover, since the price is broadly based on cost, the cost to the Smelters should be predictable since costs can be managed within some bounds. And by reaching agreement now, well in advance of the expiration of the current contracts, the Smelters will have achieved sufficient certainty which will allow each of them to make the financial commitments required to optimize their

operations and plan for an extended period of operation. Finally, as discussed above, the contract does provide some opportunity for the Smelters to mitigate their cost.

However, as noted in the Coordination Agreement (Section 3.17), the financial model was prepared solely by Big Rivers. We understand and accept that it represents their best estimate of the future operations of Big Rivers after the Unwind Transaction is consummated. Although the Smelters have had some opportunity to review the results and some of the underlying assumptions, the Smelters do not have sufficient information to agree or disagree with the forecast. We agree with Big Rivers' decision to adopt the WKE work plan initially to ensure a smooth transition and are optimistic that Big Rivers, with input from the Coordinating Committee, will be able to develop work plans and budgets prospectively that will produce the necessary system reliability and meet the changing environmental requirements at a cost lower than reflected in the financial model.

Q: What are your major concerns?

A: Without question, cost is the major concern. But as I explained above, the Smelters have concluded that it is reasonable to expect that costs will be within the range projected in the financial model, if not lower. However there are some unknowns that must be resolved in the near term, the outcome of which could affect whether or not this transaction can be consummated.

As Big Rivers' witness Spainhoward explains in his testimony, there is still an outstanding issue with the City of Henderson. If the resolution of that issue imposes additional cost to the Smelters, the transaction may no longer be viable.

As Big Rivers' witness Blackburn explains in his testimony, the new financing arrangements have not been completed. If the cost of the refinancing is higher than reflected in the financial model, the transaction may no longer be viable.

Q: Are there any open issues?

A: Yes. As Big Rivers' witness Blackburn has noted, there is a disagreement between Big Rivers and the Smelters as to whether Big Rivers has a non-contractual obligation to provide the Smelters with power after the termination of the contracts. Under the terms of the proposed agreements, the parties will endeavor to resolve this issue on a long-term basis so the matter is not part of this application. If the proposed transaction is not consummated, the issue would have to be resolved prior to the expiration of the current contracts in 2010 and 2011.

Q: Does this conclude your testimony at this time?

A: Yes, it does.

VERIFICATION

I certify, state and affirm that the foregoing testimony is true and correct to the best of my knowledge and belief.

Henry Fayne

State of Ohio
Franklin County

Subscribed and sworn to before me by Henry Fayne on this the 23 day of January, 2008.

Notary Public, State of Ohio
My Commission expires: 10-15-2011

GLOBAL ALUMINUM PRODUCTION AND ELECTRICITY PRICES
For the Year 2007

	PRODUCTION		AVERAGE ELECTRICITY PRICE
	Metric Tons (000s)	%	$/MWH
CIS	4,537	12.1%	14.37
Canada	3,083	8.2%	16.50
Middle East	2,018	5.4%	19.42
Oceania	2,322	6.2%	21.81
Africa	1,835	4.9%	22.06
Northern Europe	2,346	6.2%	24.84
Asia	1,473	3.9%	32.17
USA	2,570	6.8%	32.50
Latin America	2,586	6.9%	33.07
Southern Europe	1,196	3.2%	33.42
Eastern Europe	833	2.2%	37.25
China	11,979	31.9%	43.60
Central Europe	824	2.2%	56.02
TOTAL	37,602	100.0%	30.86
TOTAL excl. China	25,623		24.91

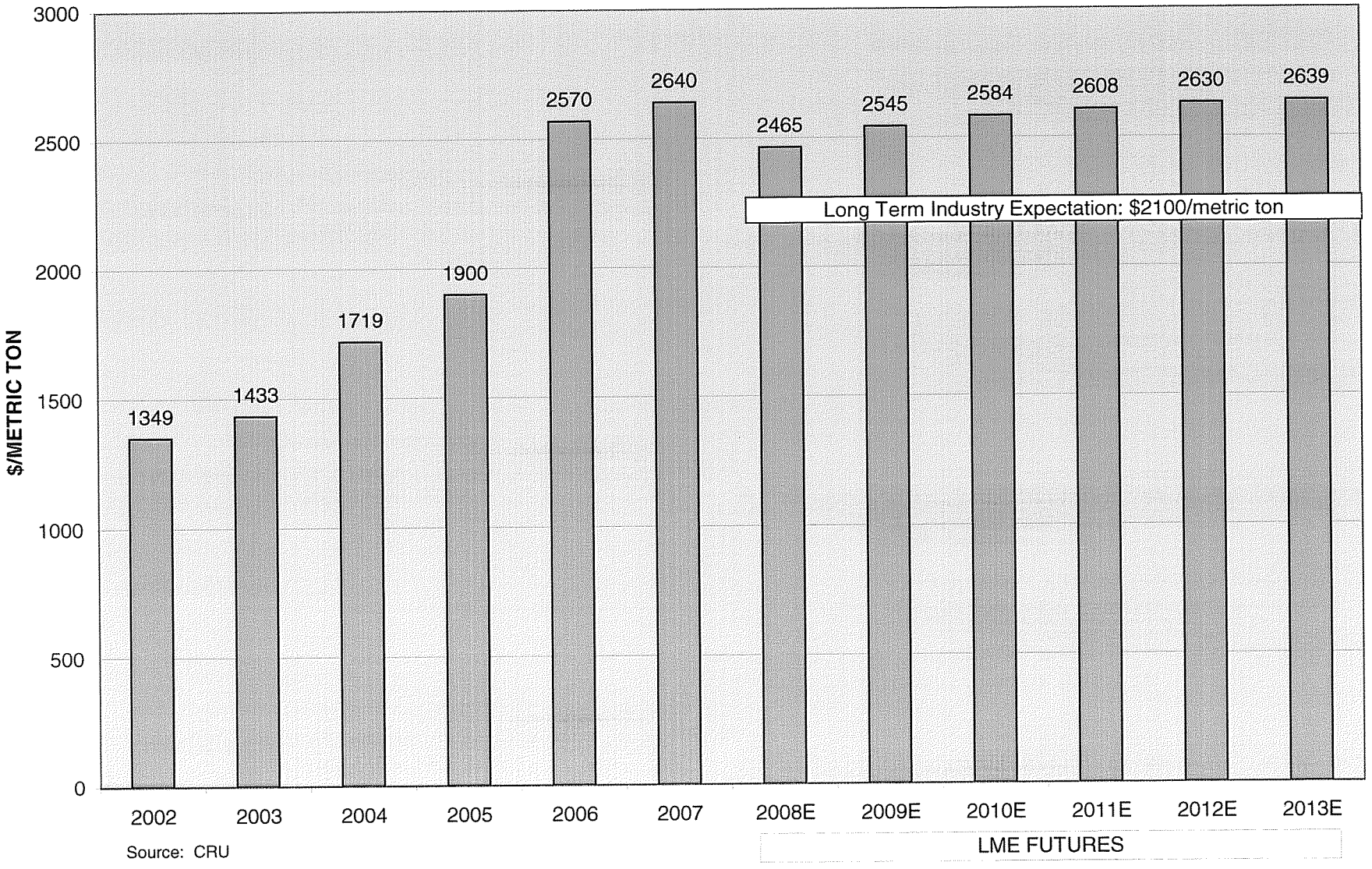
Source: CRU

U. S. ALUMINUM PRODUCTION AND ELECTRICITY PRICES
For the Year 2007

		PRODUCTION		AVERAGE ELECTRICITY PRICE
		Metric Tons (000s)	%	$/MWH
Wenatchee	Washington	92	3.6%	11.58
Massena East	New York	125	4.9%	20.12
Massena West	New York	130	5.1%	21.71
Alcoa Tennessee	Tennessee	196	7.6%	25.86
Rockdale	Texas	247	9.6%	27.70
Sebree	Kentucky	197	7.7%	27.76
Ravenswood	W. Virginia	173	6.7%	28.27
Warrick	Indiana	270	10.5%	30.65
Hawesville	Kentucky	246	9.6%	30.73
New Madrid	Missouri	253	9.8%	37.55
Ferndale	Washington	164	6.4%	40.98
Mount Holly	S. Carolina	229	8.9%	43.84
Hannibal	Ohio	190	7.4%	50.60
Columbia Falls	Montana	59	2.3%	58.00
TOTAL		2,571	100.0%	

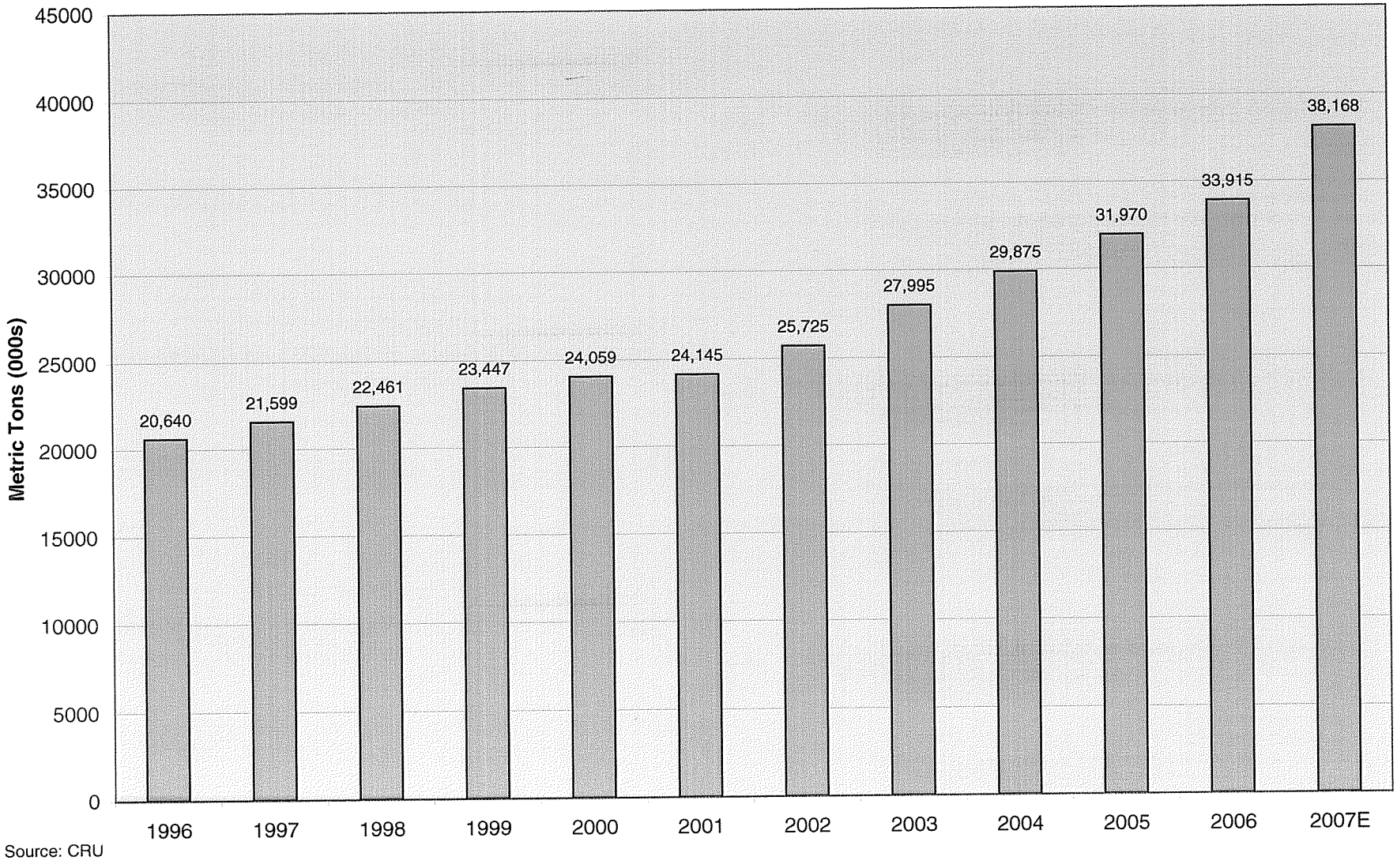
Source: CRU

LME ALUMINUM PRICES



Source: CRU

GLOBAL ALUMINUM PRODUCTION



Source: CRU

COMMONWEALTH OF KENTUCKY
BEFORE THE
PUBLIC SERVICE COMMISSION OF KENTUCKY

Case No. 2007-00455

DIRECT TESTIMONY OF
WAYNE R. HALE

ON BEHALF OF
CENTURY ALUMINUM COMPANY

JANUARY 25, 2008

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY
CASE NO. 2007-00455

DIRECT TESTIMONY OF WAYNE R. HALE ON BEHALF OF CENTURY ALUMINUM COMPANY AND CENTURY ALUMINUM OF KENTUCKY GENERAL PARTNERSHIP

Q: Please state your name, job description and business address.

A: My name is Wayne R. Hale. I am Executive Vice President and Chief Operating Officer of Century Aluminum Company. My business address is 2511 Garden Road, Building A, Suite 200, Monterey, California 93940.

Q: What is the purpose of your testimony in this proceeding?

A: My purpose is to express Century's support for the transactions being considered by this Commission and to explain why the new power contract provides a reasonable opportunity for the long term survival of the Hawesville plant.

Q: Please describe Century Aluminum Company and Century Aluminum of Kentucky General Partnership.

A: Century Aluminum Company is publicly traded on NASDAQ and headquartered in Monterey, California. Through its various subsidiaries, Century owns and operates aluminum smelters in Kentucky, South Carolina, West Virginia and Iceland, as well as a bauxite mine in Jamaica and an alumina refinery in Louisiana. Century Aluminum of Kentucky General Partnership owns the Hawesville Smelter. Century Aluminum has revenues of $1.6 billion and has 1,850 employees.

Q: Please describe the operations in Kentucky.

A: Century's Hawesville Smelter has been in operation since 1970. It produces about 244,000 metric tons of primary aluminum from its 5 potlines, with about 775 employees. More than half of the aluminum is delivered in molten form to Southwire's Rod and Cable Mill adjacent to the Hawesville Smelter. Hawesville's peak electrical demand is approximately 482 MW, with an annual energy consumption of approximately 4.2 billion kilowatthours (excluding the Southwire Rod and Cable Mill Load which prospectively will be served by Kenergy under a separate contract).

Q: Does Century support these transactions?

A: Yes. This is a complicated deal, but ultimately the issues we are most concerned with - - the price of electricity, reliability and operational flexibility - - were resolved to our satisfaction. If the transactions fail to occur, then our power supply would be uncertain. Because electricity is so critical to our success, an uncertain power supply is not desirable. As a result, our Board of Directors has authorized management to proceed with the proposed retail electric services contract.

When Century acquired the Hawesville smelter from Southwire in April 2001 for $468 million, it was Century's intention to operate this smelter far beyond the expiration of the now existing contract. The rapid escalation in market energy prices that has occurred in the intervening period has made it unlikely that this smelter would remain economically viable if its entire electric supply were

purchased at market prices. Our investigation of electric supply alternatives leads us to conclude that the proposed contractual arrangements with Kenergy and Big Rivers offer the best chance for extending the economic life of the Hawesville smelter.

Q: Has Century concluded that the proposed transaction provides a reasonable opportunity for continued operation of Hawesville plant?

A: Obviously, the actual outcome will depend on the LME prices and the ability of Big Rivers to keep its costs in control. We believe that our interests are aligned with the non-smelter members as well as with Big Rivers to ensure that the utility operates efficiently at the lowest reasonable cost. We have built some flexibility in the contract and have limited our exposure to market-priced energy. As a result, we are cautiously optimistic that the rates to Century will be affordable in the long term.

Q: Does this conclude your testimony at this time?

A: Yes, it does.

VERIFICATION

I certify, state and affirm that the foregoing testimony is true and correct to the best of my knowledge and belief.

Wayne R. Hale

Commonwealth of Kentucky

Subscribed and sworn to before me by Wayne R. Hale on this the 23rd day of January, 2008.

Notary Public, Commonwealth of Kentucky
My Commission expires: 12-01-10

COMMONWEALTH OF KENTUCKY
BEFORE THE
PUBLIC SERVICE COMMISSION OF KENTUCKY

Case No. 2007-00455

DIRECT TESTIMONY OF
GUY AUTHIER

ON BEHALF OF
RIO TINTO ALCAN

JANUARY 25, 2008

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY
CASE NO. 2007-00455

DIRECT TESTIMONY OF GUY AUTHIER ON BEHALF OF RIO TINTO ALCAN ALCAN PRIMARY PRODUCTS CORPORATION AND ALCAN CORPORATION

Q: Please state your name, job description, and business address.

A: My name is Guy Authier. I am Vice-president, Alcan Primary Metal, Quebec-South & United States and Quebec joint ventures. I have held numerous position with Alcan since I jointed the company in 1979. I am a graduate of Laval University, Quebec, Canada with a B.A. degree in Metallurgy. Part of my direct responsibilities involves the operations of the Sebree smelter. My business address is1188 Sherbrooke Street West, Montreal, Quebec, Canada, H3A 3G2.

Q: What is the purpose of your testimony in this proceeding?

A: My purpose is to explain why Rio Tinto Alcan management believes that the new power contract with Big Rivers is in the interest of the sustainability of the Sebree smelter.

Q: Please describe Rio Tinto Alcan.

A: Rio Tinto is a leading international mining group, publicly traded on the London and Australian exchanges. Its major products include aluminum, copper, diamonds, coal, uranium, gold, iron ore and industrial minerals. Rio Tinto Alcan, with headquarters in Montreal, Canada, is one of Rio Tinto's product groups, of which the Sebree Smelter is a part. Rio Tinto Alcan operates 430 facilities in 61 countries, and has 73,000 employees.

Q: Please describe the operations in Kentucky.

A: Rio Tinto Alcan's Sebree Smelter has been in operation since 1973. It is our only U.S. aluminum smelter. It produces about 186,000 metric tons of primary aluminum from its 3 potlines, with about 600 employees. Its peak electrical demand is approximately 368 MW with annual energy consumption of about 3,100,000 MWh.

Q: Does Rio Tinto support this transaction?

A: Management is in the process of obtaining Rio Tinto's support for the new power contract.

Q: Why would the proposed power contract serve the interests of Rio Tinto?

A: A reasonably priced and reliable electric supply is critical to the economic viability of any aluminum smelter. Across the world we have many different supply arrangements depending on local conditions. These different arrangements include owning our own generation, long term fixed price arrangements, and others. Here in Kentucky we believe that cost based rates from coal fired generation that are close to the fuel supply and to the smelter, which have relatively low capital costs and which comply with existing environmental regulations, provide a better option for us than market priced electricity. Specifically, although the proposed Smelter rates are higher than a traditional cost-based tariff, the contract provides an energy supply which will limit the Smelters' exposure to market price fluctuations and provide a reasonable opportunity for continued operation beyond the expiration of our current contract at the end of 2011.

Q: What is the Rio Tinto Alcan process for approving the new power contract and where in the process are you?

A: An energy contract must typically be approved by Rio Tinto Alcan's CEO and, depending on the risk profile and the amounts involved, it must be approved by Rio Tinto's Investment Committee. The Investment Committee usually meets once a month in London.

Q: Does this conclude your testimony at this time?

A: Yes, it does.

VERIFICATION

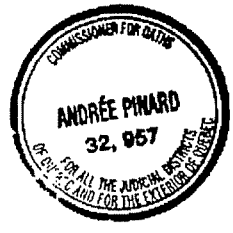
The undersigned, Guy Authier, states under oath that he is Vice-President, Alcan Primary Metal, Quebec-South & United States and Quebec joint ventures, that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

Guy Authier

The foregoing testimony of Guy Authier was Declared before me, this 23 day of January, 2008 in Montreal, Province of Quebec, Canada

Commissioner of Oaths

23 January 2008
Date



VERIFICATION

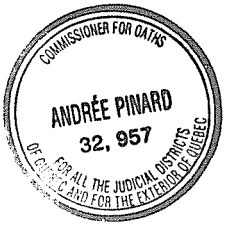
The undersigned, Guy Authier, states under oath that he is Vice-President, Alcan Primary Metal, Quebec-South & United States and Quebec joint ventures, that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

Guy Authier

The foregoing testimony of Guy Authier was Declared before me, this 23 day of January, 2008 in Montreal, Province of Quebec, Canada

Commissioner of Oaths

23 January 2008
Date



COMMONWEALTH OF KENTUCKY
BEFORE THE
PUBLIC SERVICE COMMISSION OF KENTUCKY

Case No. 2007-00455

DIRECT TESTIMONY OF
PAUL A. COOMES, Ph.D.

ON BEHALF OF
CENTURY ALUMINUM COMPANY
AND
RIO TINTO ALCAN

JANUARY 25, 2008

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY
CASE NO. 2007-00455

DIRECT TESTIMONY OF PAUL A. COOMES, Ph.D.
ON BEHALF OF CENTURY ALUMINUM COMPANY
AND
RIO TINTO ALCAN

Q. Please state your name, address, and profession.

A. My name is Paul A. Coomes. My address is 3604 Trail Ridge Road, Louisville KY 40241. I am a consulting economist. I have a Ph.D. in economics from the University of Texas. I have been a faculty member of the University of Louisville since 1985. A brief biography is attached as Exhibit PAC-1.

Q. Have you testified before the Kentucky Public Service Commission before?

A. Yes, twice I believe over the past decade, once on behalf of Bell South and once on behalf of E.ON, both involving rate cases.

Q. Beyond what is shown in your biography do you have any special knowledge or experience that gives you insight into the current question?

A. I have performed well over a hundred studies of regional economic developments during my career, primarily as a university contract researcher. For the current issue, you may be interested to know that I grew up in Owensboro-Daviess County and once owned a farm in Hancock County. I have performed many studies over the years for the Owensboro business and political leadership. Their leadership understands well the importance of the high paying aluminum jobs in the regional economy. In particular, the largest source of workers to the aluminum-related companies in adjacent Hancock County is Daviess County. As

of the last Census, there were over 1,500 Daviess County residents commuting to work in lightly populated Hancock County. Daviess County residents commute to the next county because the manufacturing jobs pay so well. The loss of the aluminum-related plants would be a major blow to the regional economy, and a major long-term effort would be required to replace the jobs and tax base.

Q. Why are you here today?

A. I have been retained by the companies that own the two aluminum smelters in Kentucky: Century Aluminum and RioTinto. They have asked me to analyze the likely economic and fiscal impacts in western Kentucky if the smelters were to close. I have prepared a report and will give a summary of my findings today, as well as answer any questions you have. The report is attached as Exhibit PAC-2.

Q. What are your main findings?

A. Let me focus on two main findings – the relative importance of these industries to the region, and my estimates of the job, payroll, and tax revenue impacts were the two plants to close.

Q. How important is the aluminum industry to that region?

A. These aluminum smelters are major employers in the greater Owensboro-Henderson-Evansville regional economy. The two Kentucky smelters together employ around 1,400 persons, who collectively earn over $115 million annually in wages, salaries, and benefits. In Hancock County three out of four of the top employers are aluminum-related. The Century smelter is the second largest manufacturing employer in the County. Similarly, in Henderson County two of the top four manufacturing employers are aluminum-related. I estimate that

primary aluminum and aluminum-processing operations account for about 4,000 of the region's 71,000 manufacturing jobs, and are among the highest paying. Clearly, aluminum production and processing are critical to the health of the regional economy.

Jobs at the aluminum smelters pay much more than the average in the region, and the fringe benefits are large. This is particularly easy to see in the aggregate economic data for Hancock County, where the Century Aluminum smelter is a large employer in a rural county. The annual compensation over all jobs in Hancock County is about $57,000, enough to boost the county to third place among the 23 counties in the larger Economic Area, and much higher than urbanized Vanderburgh and Daviess counties.

Moreover, the smelter operations are crucial components of the tax and economic base in Hancock and Henderson counties. The two firms are the largest single taxpayers in each county. The Century operation in Hawesville accounts for over twenty percent of all wages and salaries earned in Hancock County, contributing a similar share of the county's occupational tax receipts. The Hawesville plant also accounts for about fifteen percent of all property taxes collected to support the Hancock County Public School system and county government operations. The Alcan operation accounts for almost five percent of wages and salaries in (much more populated) Henderson County, and about three percent of all property taxes collected for public schools and county government.

Q. What is your projection of the full economic impact on the region if the smelters were to close?

A. I estimate the total job loss in the region would be over 5,000 jobs, and the payroll loss would be $193 million annually. I estimate that Kentucky state government would lose at least $15.3 million in income and sales taxes if the plants shut-down, and that county governments and local public school districts would lose at least $1.4 million annually.

Q. Briefly, what methods did you use to analyze the importance of the aluminum smelters to the regional economy?

A. Because the aluminum and related manufacturing operations serve primarily national and international markets, they bring new dollars into the regional economy. I use standard regional economic impact methods to evaluate the total economic and fiscal impacts of the loss of the two plants. Region-specific economic multipliers were obtained from the federal government for the primary aluminum production industry. This industry is defined according to the North American Industrial Classification System (NAICS), using code 331312. The multiplier set provides estimates of induced and indirect effects on sales, jobs, and payrolls for export-based expansions or contractions of any of 500 local industries. For example, the labor earnings multiplier for the primary aluminum production industry in the Evansville-Henderson-Owensboro economic area is 2.524, meaning that for every dollar of new export-based payroll created at a local aluminum smelter another $1.524 in payrolls are created in other sectors around the region. The job multiplier for the primary aluminum sector in the area is 3.549, meaning that for every new export-based job created at a smelter, another 2.549 jobs are created elsewhere in the region.

To estimate the fiscal impacts of a shut-down, I have compiled several years of tax receipts data from Kentucky and Indiana state governments, as well as tax information from city and county governments in the region. By comparing the growth in tax receipts to the growth in payrolls historically, I calculate 'effective' tax rates and use those to estimate the loss of income, sales, and occupational taxes due to the simulated loss of aluminum industry payrolls.

Q. Does that conclude your testimony today?

A. Yes, thank you.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, Paul A. Coomes, Ph.D., being duly sworn, states that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

Paul A. Coomes, Ph.D.

Subscribed and sworn to before me, a Notary Public in and before the County and State, this 24th day of January, 2008.

Notary Public

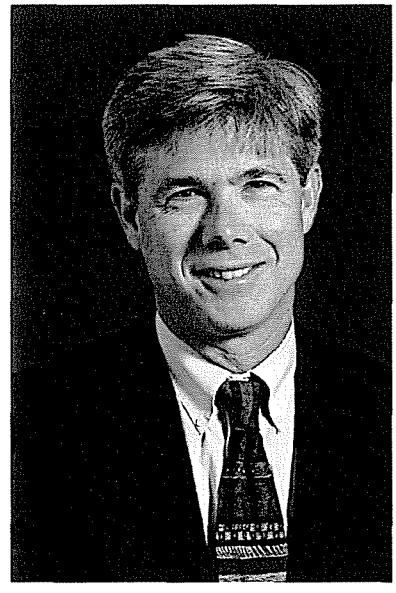
My Commission Expires:

9-15-2010

Biographical Information

Paul A. Coomes, Ph.D.
Professor of Economics, College of Business
University of Louisville, Louisville KY 40292
(O) 502-852-4841 (F) 502-852-7672 (H) 502-394-9017
paul.coomes@louisville.edu

Paul A. Coomes is Professor of Economics in the College of Business, University of Louisville. He is a graduate of Brescia College (BA), Indiana University (MS), and the University of Texas (Ph.D.). Professor Coomes came to the University of Louisville from Texas in 1985. He teaches courses in urban economics, forecasting, microeconomics and macroeconomics. He conducts research for both academic and commercial outlets. Most of his research concerns regional and urban economics, economic development, and measurement problems.



His scholarly research has appeared in many journals, including *Journal of Urban Economics, Journal of Regional Science, Environment and Planning A, Urban Studies, Economic Development Quarterly*, and the *Journal of Economic and Social Measurement.*

He has had university-based contract research arrangements with most of the large organizations in the region, including UPS, General Electric, Amazon, Churchill Downs, E.ON, Louisville Water Company, Brown-Forman, Kentucky Fair Board, Kentucky Hospital Association, Jewish Hospital, and several state government cabinets. Coomes is past president of the Kentucky Economic Association, and past chair of the Economics department at Louisville.

Professor Coomes has completed several major projects that impact local economic development policy, including the macro performance measuring system that became the analytical basis behind the Boyle Report and the organization of Greater Louisville, Inc, Louisville's Chamber of Commerce.

Thanks to a series of grants from National City, he and his associate Barry Kornstein have developed a wide range of research tools and reports in support of economic development in the region. They have also created a web page containing presentations, research reports, and maps. The url is: http://monitor.louisville.edu

Paul lives with his wife in eastern Jefferson County. He is descended from William and Jane Coomes, who arrived in 1774 at Fort Harrod, Kentucky - where Jane became the first school teacher in the state. His hobbies include hiking, camping, cycling, and carpentry. His favorite quote is by Nobel Laureate Ronald Coase: "If you torture the data long enough, Nature confesses".

The Estimated Economic and Fiscal Impacts of a Shut-down of Kentucky's Two Aluminum Smelters

by
Paul A. Coomes, Ph.D.
Consulting Economist

a research report for
Century Aluminum and Rio Tinto

January 22, 2008

Executive Summary

Kentucky has two aluminum smelters, one near Hawesville and the other about fifty miles west at Sebree. These smelters are major employers and taxpayers in the greater Owensboro-Henderson-Evansville regional economy. Should electricity prices rise sufficiently these two plants could be closed, as have several this decade in Oregon, Washington and Ohio. The effects of smelter shut-downs on small communities in the Northwest and Ohio are clear, with rising unemployment, a falling tax base, and newspaper reports of spillovers to housing and retail markets, as well as increased social problems.

The two Kentucky smelters together employ around 1,400 persons, who collectively earn over $115 million annually in wages, salaries, and benefits. I have used regional data and industry-specific multipliers to estimate the negative economic and fiscal impacts of such a possible shut-down. I estimate that the total net annual loss in the region would be 5,000 jobs and $193 million in wages and salaries. State and local governments in Kentucky would lose nearly $17 million annually. These estimates are for the economic and fiscal categories most easily quantified. There would be many other negative impacts, though they are harder to measure with any precision. Local real estate and retail markets would likely be depressed, unemployment and crime rates would rise, retraining and social services costs would increase, and many ancillary tax revenues would fall as economic activity in the region diminished.

Background and Methodology

There are two aluminum smelters in Kentucky, one operated by Century near Hawesville and the other by Rio Tinto (formerly Alcan) at Sebree. Smelters can demand as much electricity load as a mid-sized city. With low cost power available to many new international aluminum smelters, the economic viability of these two Kentucky smelters depends critically on the cost of electricity. Shutting down the smeltering operations would jeopardize the viability of related business activities, both upstream and downstream. Among the supporting industries that would be affected are river barges (that bring in alumina), electricity producers, engineering firms, maintenance contractors,

trucking firms, and the other vendors to the smelting plants. Downstream, the smelters supply raw aluminum to rolling and extruding mills in the region, which are clustered to support wire plants, auto parts plants, can factories, and other heavy aluminum users in the region. The Southwire Rod and Cable Mill, adjacent to the Hawesville smelter, could be immediately shut-down if the smelter were to close, since its current business model depends upon the low costs associated with immediate access to molten aluminum that meets its stringent purity specifications.

The smelters and related aluminum processing operations are among the largest employers in the Owensboro-Henderson-Evansville economic area. The two companies are interested in learning about and documenting the regional economic importance of the operations, so they can better communicate the ramifications of rising electricity costs should prices reach a threshold such that the smelting operations were financially threatened. The purpose of this report is to document and communicate the regional economic and fiscal importance of these aluminum plants.

Importance to Hancock and Henderson counties, entire region

It is not hard to see in publicly available data how important aluminum is to the regional economy. In the next two tables, I have organized information on the largest industrial employers in Hancock and Henderson counties, as currently displayed on the web site of the Kentucky Cabinet for Economic Development. I have highlighted in red the firms that produce or process aluminum. Note that in Hancock County three out of four of the top employers are aluminum-related. The Century smelter is the second largest manufacturing employer in the county. Similarly, in Henderson County two of the top four manufacturing employers are aluminum-related. The Rio Tinto (listed under its former name, Alcan) smelter is the fourth largest employer in Henderson County.

Largest Industrial Employers, Hancock County

Firm	Products	Employment	Date established
Aleris Rolled Products	Coils, aluminum tubing & flexible conduits	848	1966
Century Aluminum of Kentucky LLC	Aluminum castings, sows & smelting	771	1967
Domtar Corporation	Fine paper and mills bleach pulp	470	1967
Southwire Company Kentucky Plant	Aluminum wire strand & aluminum redraw rod &	280	1969
Dal-Tile Corp	Quarry tile	110	1959
Roll Coater Inc	Steel & coil painting & coating service	100	1989
McIlroy Metal Inc	Steel fabricating	25	1964
Precision Roll Grinders Inc	Roller repair & precision cylindrical grinding	25	1998
Yager Materials LLC	Ready-mixed concrete	16	1964
Maxwell Brothers Lumber Co	Sawing rough lumber, cross ties, pallet cants	16	1984
Hancock County Ready-Mix	Sand & gravel, ready-mix concrete	15	1964
Crescent Paper Tube Co Inc	Paper tubes	10	1990
Southern Shores Terminal	River terminal	8	1999
Wroe Pallet & Skids Corp	Wooden pallets & skids	7	1985
Bluegrass Industrial Minerals LLC	Processes raw sand into high quality silica	5	2005

Source: Kentucky Economic Development Cabinet, December 2007 (www.thinkkentucky.com/edis/cmnty/cmntyindex.htm)

There are about 368,000 private sector jobs in the region, of which 71,000 are in the manufacturing sector. Due to confidentiality laws, the federal statistical agencies do not disclose enough data to accurately measure the total aluminum-related employment and payroll in the region. But using some published and unpublished estimates, it seems likely that primary aluminum and aluminum-processing operations account for about 4,000 of the region's manufacturing jobs. Clearly, aluminum production and processing are critical to the health of the regional economy.

Largest Industrial Employers, Henderson County

Firm	Products	Employment	Date established
Tyson Foods Inc	Chicken slaughtering, processing & packaging	1,350	1995
Gibbs Die Casting Corp	Aluminum & magnesium die castings, headquarters	1,000	1966
Dana Corporation	Truck axles & brake components	700	1970
Alcan Primary Metal Group	Aluminum extrusion billets & ingots	629	1972
Vincent Industrial Plastics Inc	Custom plastic injection molding, decorating and assembly, injection mold	300	1981
Sunspring America Inc	Nonferrous & zinc die castings and PVD coating	285	1956
Accuride Corp	Truck wheels & rims	234	1973
Brenntag Mid-South Inc	Chemical blending, industrial chemical distribution	175	1947
Sights Denim Systems Inc	Denim finishing	171	1995
Audubon Metals LLC	Heavy-media separator and secondary specification aluminum alloy producer	160	1996
Atlantis Plastics Inc	Thermoplastics & plastic injection molding, finishing, fabricating & subcontract	147	1951
Sitex Corporation	Headquarters and uniform supply service	130	1961
Columbia Sportswear Company	Distribution facility	130	2004
Cresline Plastic Pipe Co Inc	Plastic pipe & fittings	120	1966
Service Tool & Plastics	Injection molded plastics	120	1977
Sonoco	Aluminum & steel can ends	120	1967
Hugh E Sandefur Industries Inc	Vocational rehabilitation, manufacturing plant producing corrugated products;	100	1967
Royster's Machine Shop LLC	Machine shop: general & CNC machining, drilling, boring, cutting, honing,	95	1975
J-Ron Inc	Machine shop: mill & lathe work, plastic injection molding, CNC & EDM	80	1980
Weyerhaeuser Co	Recycled linerboard	74	1994

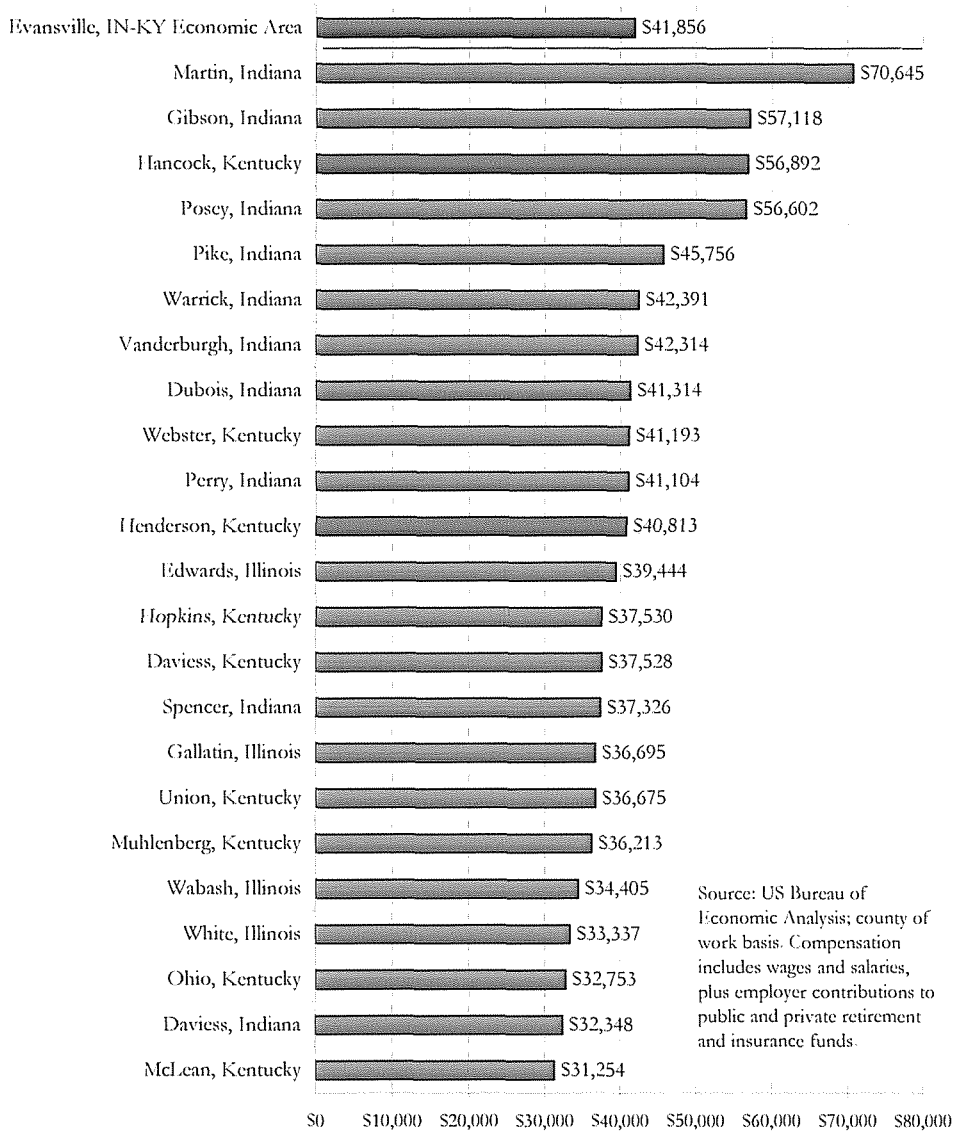
Source: Kentucky Economic Development Cabinet, December 2007 (www.thinkkentucky.com/edis/cmnty/cmntyindex.htm)

Moreover, the two smelter operations are crucial components of the tax and economic base in Hancock and Henderson counties. The Century operation in Hawesville accounts for over twenty percent of all wages and salaries earned in Hancock County, contributing a similar share of the county's occupational tax receipts. The Hawesville plant also accounts for about fifteen percent of all property taxes collected to support the Hancock County Public School system and county government operations. The Alcan operation accounts for almost five percent of wages and salaries in (much more populated) Henderson County, and about three percent of all property taxes collected for public schools and county government. Rio Tinto is the largest single taxpayer in Henderson County.

The importance of the aluminum-related jobs in the region stems from (a) their large number, (b) their linkages to other jobs in upstream and downstream industries, and (c) their high average pay and benefits. Average pay at the Rio Tinto and Century facilities is $54,000 per job. Company-provided benefits for health insurance, unemployment insurance, worker's compensation insurance, vacations, retirement, payroll taxes and the like boost this to over $80,000 per job.

The concentration of many such aluminum-related jobs in Hancock and Henderson counties puts those two in the top half in the region in terms of earnings per job. The relationship is particularly easy to see in Hancock County, as the county is lightly populated and aluminum is the most important industry. At $56,892, Hancock is third highest among counties in the region in terms of total compensation per job. Henderson County ranks near the middle in terms of compensation per job. Warrick County, home to the large Alcoa smelter and electricity plant, ranks sixth highest.

Average Compensation per Job, 2005
Evansville-Owensboro-Henderson Economic Area



Case study: smelter shut-downs in the Northwest and Ohio

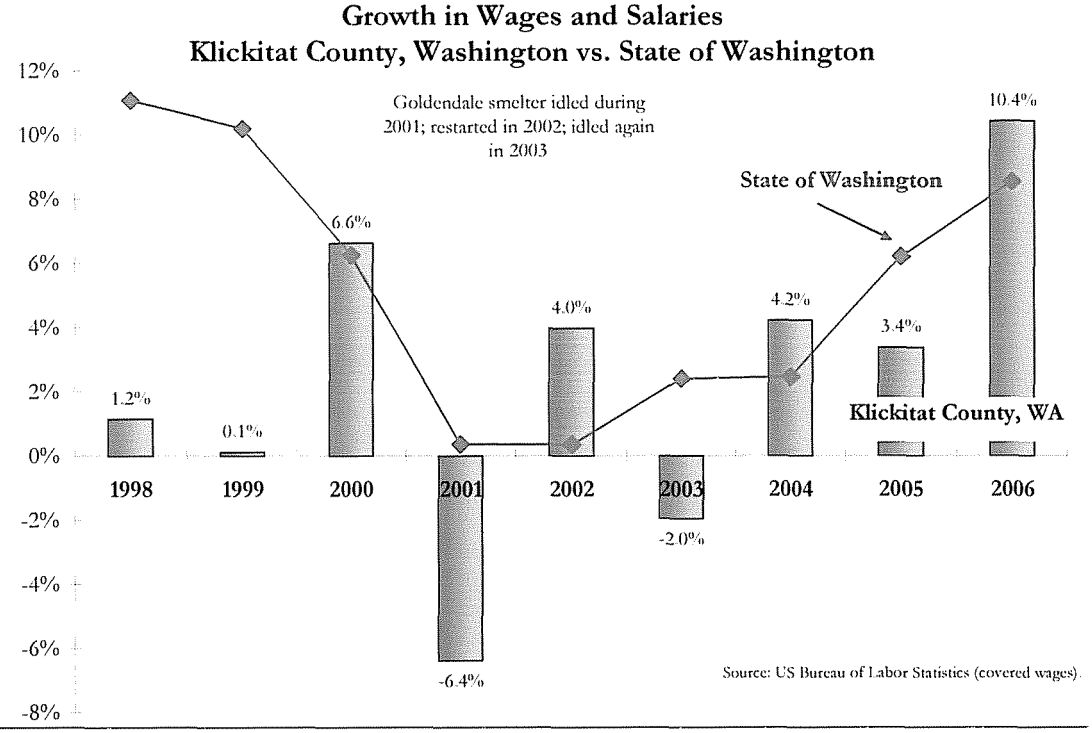
One indication of the regional economic importance of an aluminum smelter is the effect that plant closures have had on small and mid-sized communities in Washington, Oregon, Montana, and Ohio. Some of the plants idled this decade are in heavily populated areas, with many other major employers, and hence the effect of a shut-down would be harder to detect in county-level economic data. But several are in lightly populated counties, and a plant shut-down should ripple hard through the local community.

Northwest Smelters Idled or Closed Permanently This Decade

Company (location)	County	County Population	idled or shut-down quarter	restart quarter
Alcoa Intalco (Ferndale, Washington)	Whatcom	174,066	2001 I	2002 II
Alcoa (Wenatchee, Washington)	Douglas	33,261	2001 I	2004 IV
Glencore (Vancouver, Washington)	Clark	379,985	2000 II	
Golden Northwest (Goldendale, Washington)	Klickitat	19,393	2000 IV	
Kaiser (Mead, Washington)	Spokane	427,287	2001 I	
Reynolds (Longview, Washington)	Cowlitz	94,544	2001 I	
Kaiser (Tacoma, Washington)	Pierce	740,472	2000 II	
Golden Northwest (Dalles, Oregon)	Wasco	23,579	2000 IV	
Reynolds (Troutdale, Oregon)	Multnomah	675,438	2000 II	
Glencore (Columbia Falls, Montana)	Flathead	79,476	2001 I	2002 II

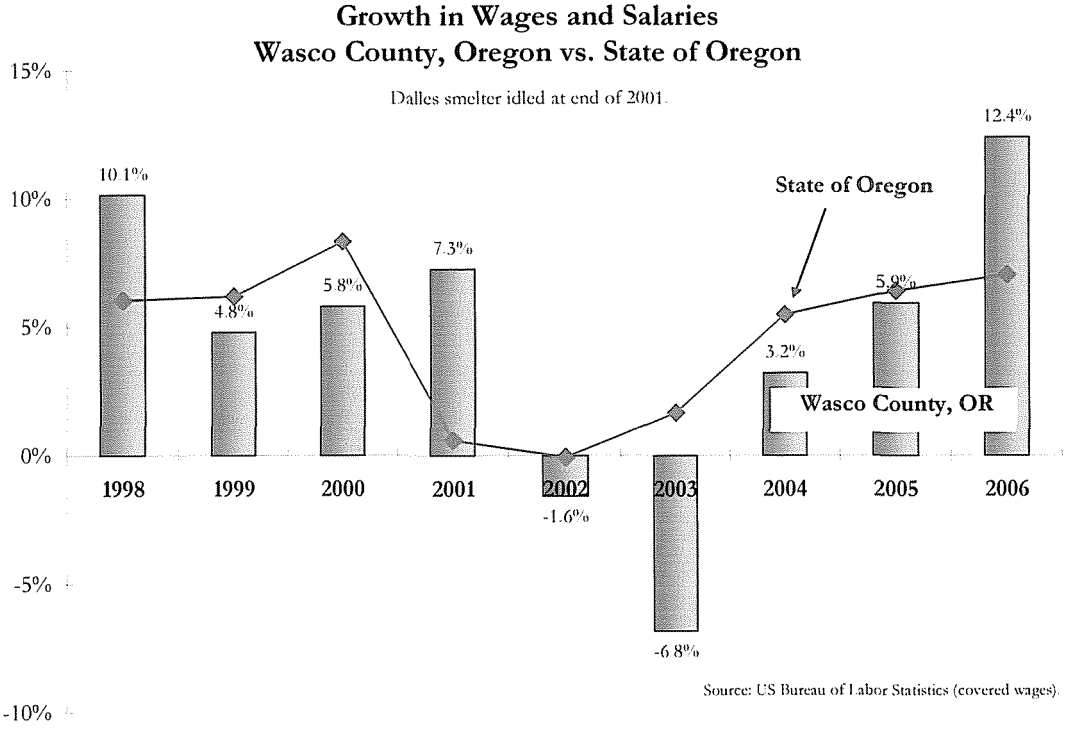
The table provides summary data for ten smelters in the Northwest that were idled this decade. The dates were provided by Century Aluminum. County population estimates are for July 2003, and are from the US Bureau of Economic Analysis.

For example, Klickitat County in southern Washington has less than 20,000 residents. Payrolls fell dramatically in the county when the Goldendale smelter was idled in 2001,

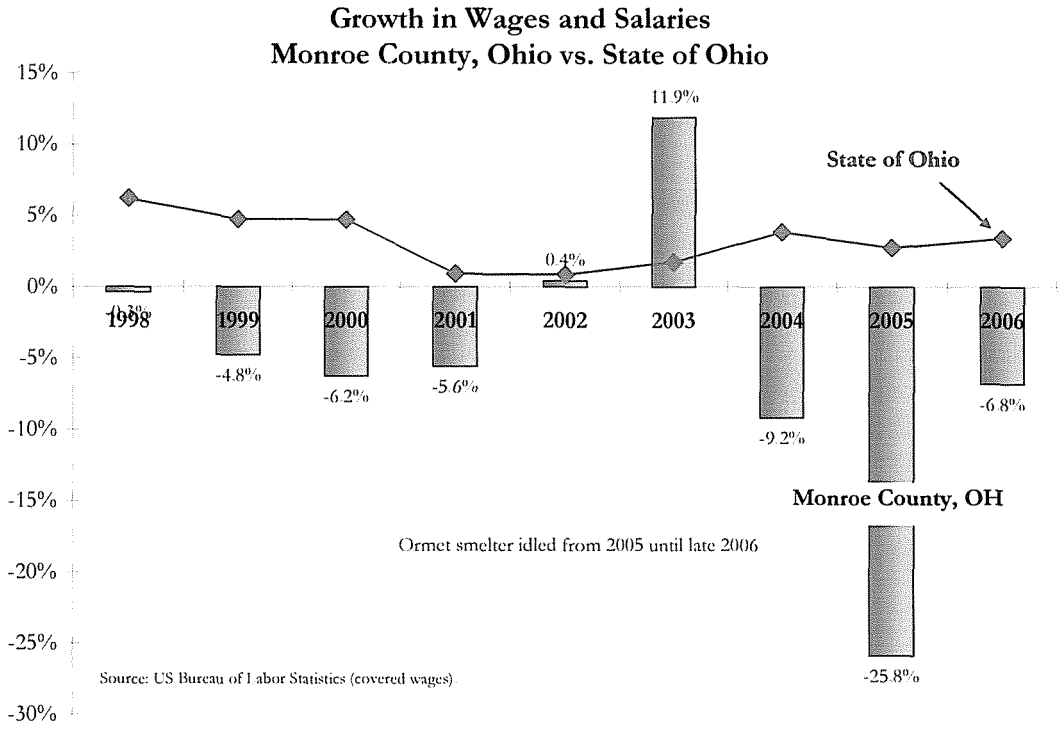


rose in 2002 when it was briefly restarted, and then fell in 2003 when it was idled again. Overall, wages and salaries in the county were $11 million lower in 2001 than in 2000. While this was a recessionary period nationally, note that payrolls in the State of Washington never failed to grow from year to year.

Similarly, the idling of the Dalles smelter in northern Oregon had a pronounced negative effect on payroll growth in Wasco County. While the State of Oregon posted payroll growth in 2003, Wasco County payrolls fell by 6.8 percent. Overall, wages and salaries in the county fell from $268 million to $245 million between 2001 and 2003. Some of the negative ripple effects in a county are offset by unemployment insurance payments to laid off workers. UI payments to unemployed workers living in Wasco County averaged about $3.7 million annually during the 1990s, but jumped to over $10 million in 2002 and 2003. This softened, but did not eliminate, the blow to the local economy.



We can also now see the effects of the closure of the large Ormet facility in Hannibal Ohio. The company emerged from bankruptcy in April 2005, but the Hannibal smelter lines had been operating well below capacity for two years prior. The facility was essentially idle from 2005 until late 2006, when it was restarted to take advantage of rising aluminum prices. Monroe County only has a population of about 15,000, so the local economy is very sensitive to the production and employment decisions of the major industry. BLS data show that wage and salary payments by all employers in Monroe County, Ohio were off about 9 percent in 2004, 26 percent in 2005, and 7 percent in 2006.

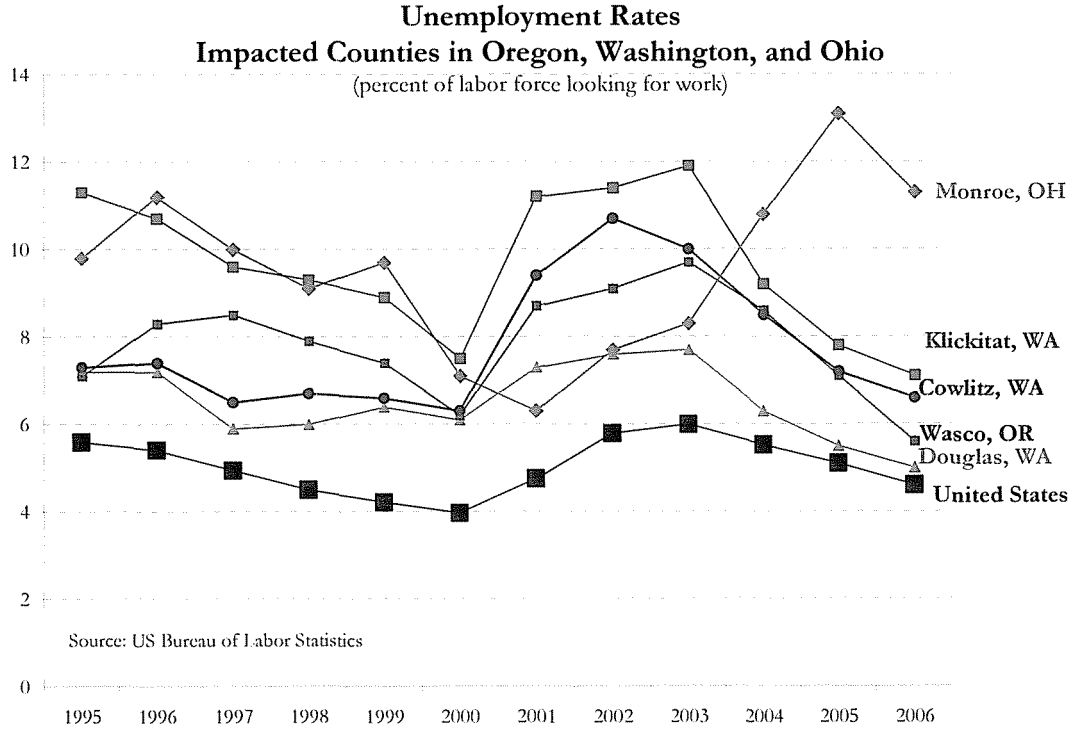


The effect of losing a large employer, particularly in a lightly populated county, goes far beyond the loss of payrolls. Often the company is the primary force in the local housing market, the largest contributor of property taxes to the local school system, the largest contributor of health care benefits and therefore the largest indirect customer of the local hospital, and the largest contributor of dollars and time to local charities. Moreover, when a large plant closes, not only do public revenues fall but public costs go up. Other statewide employers and employees must contribute to pay for the unemployment benefits to laid off workers, increased Medicaid costs as families lose income and health insurance coverage, and overall increased social services costs. Crime rates tend to rise with unemployment, as do alcohol and drug addiction. Local community and technical colleges see enrollments surge as laid off workers try to retrain. And major community investments must be made in economic development efforts to replace the lost engines.

The linkage between smelter closures and local unemployment is clear from the public data on the Northwestern and Ohio counties most impacted. In the next chart I provide the official estimates of unemployment rates in some of the counties in Oregon, Washington, and Ohio where an aluminum smelter shut-down during the first part of the decade. The national unemployment rate is also shown as a reference. One can see the effects of the 2001-02 recession, though the national unemployment rate only rose from four to six percent, before falling in 2004.

The unemployment rates in the five smaller impacted counties rose much higher. While all started with a higher pre-recession unemployment rate than did the US as a whole, note that the increase in the county unemployment rates was dramatic during 2001-03.

Klickitat County saw its unemployment rate rise by over three percentage points, from 8.9 to 11.9 percent. Wasco and Cowlitz counties saw a rise of about four percentage points. Monroe County, Ohio saw its unemployment rate double, from 6.3 percent in 2001 to a peak of over 13 percent in 2005. All rates remain above the national average.



The shut-downs in these counties are attributed to rising electricity prices and global competition. The current sensitivity of US aluminum smelting operations to world production capacity, electricity prices, and labor costs is evident in the declining number of viable operations. There are only around a dozen smelters now in operation in the US, including the two in Kentucky. This is down from over thirty smelters just twenty-five years ago. Moreover, aluminum prices are currently at near record highs. Given that there are so few US smelters operating during a time of such high aluminum prices suggests that production costs in the US have become uncompetitive relative to other countries.

Methodology

Because the aluminum and related manufacturing operations serve primarily national and international markets, they bring new dollars into the regional economy. In this sense, a shut-down of the two smelters would have large and predictable negative economic and fiscal impacts in western Kentucky, southern Indiana and throughout the two states. The activity supports thousands of jobs and millions of dollars in payrolls, and ultimately large tax revenues for Kentucky and Indiana state and local governments.

I use standard regional economic impact methods to evaluate the economic and fiscal impacts of the loss of the two plants. Region-specific economic multipliers were obtained from the federal government for the primary aluminum production industry. This industry

is defined according to the North American Industrial Classification System (NAICS) code 331312. The official definition is as follows:

> This U.S. industry comprises establishments primarily engaged in (1) making aluminum from alumina and/or (2) making aluminum from alumina and rolling, drawing, extruding, or casting the aluminum they make into primary forms (e.g., bar, billet, ingot, plate, rod, sheet, strip). Establishments in this industry may make primary aluminum or aluminum-based alloys from alumina.
>
> *www.census.gov/epcd/naics02/def/ND331312.HTM#N331312*

The multiplier set provides estimates of induced and indirect effects on sales, jobs, and payrolls for export-based expansions or contractions of any of 500 local industries. For example, the labor earnings multiplier for the primary aluminum production industry in the Evansville-Henderson-Owensboro economic area is 2.524, meaning that for every dollar of new export-based payroll created at a local aluminum smelter another $1.524 in payrolls are created in other sectors around the region. The job multiplier for the primary aluminum sector in the area is 3.549, meaning that for every new export-based job created at a smelter, another 2.549 jobs are created elsewhere in the region. (Similarly, for an aluminum rod mill, classified under NAICS 331319, the labor earnings multiplier is 3.058, and the job multiplier is 3.599.)

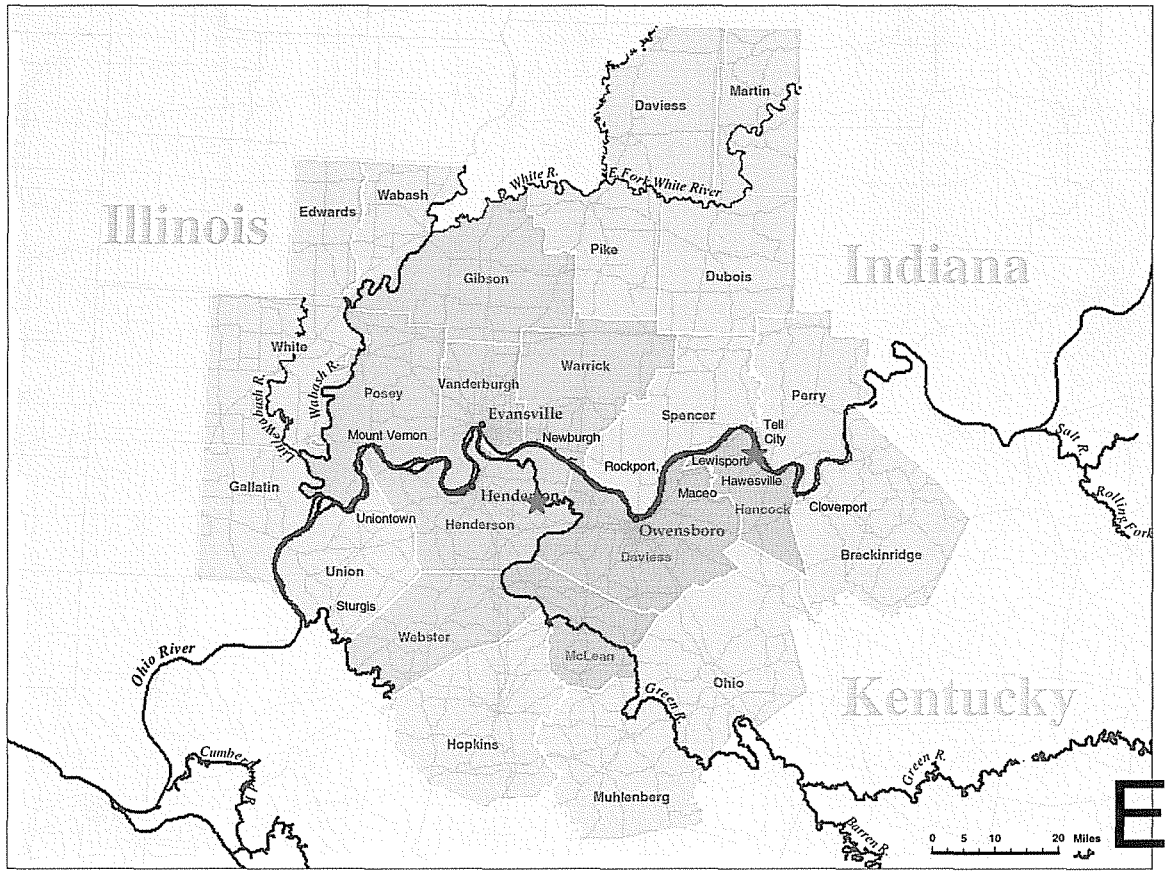
Regional economists often make the distinction between the indirect and induced components of a multiplier, and in some cases make separate estimates for each. The indirect effects refer to the linkages between the exporting industry (aluminum) and their industrial vendors (electricity, barges, tools, computers, insurance). When the directly impacted industry expands it raises its purchases from its vendors, thus lifting their employment and payrolls. The induced effects refer to the impact of the new export-based sales on the local economy through the rounds of re-spending of the additional consumer income caused by the expansion. Regional sales of cars, groceries, building supplies, banking services, and so on are all sensitive to growth in disposable income. In this study, I use only a total multiplier for the regional aluminum industry, one that summarizes both the indirect and induced effects on the economy.

There are no good national sources of data on which to make estimates of the fiscal impacts of a regional expansion or contraction. However, there are plentiful data available from state and local governments. I have compiled several years of tax receipts data from Kentucky and Indiana state governments, as well as tax information from city and county governments in the region. By comparing the growth in tax receipts to the growth in payrolls historically, I calculate 'effective' tax rates and use those to estimate the loss of income, sales, and occupational taxes due to the simulated loss of aluminum industry payrolls. The tax calculations are discussed in more detail in the section following our analysis of geographic issues.

Geographic Issues

While Hancock and Henderson counties are the sites for the plants, the economic and fiscal impacts will permeate a much larger region. In this section, I discuss various geographic measures and explain how the choice of study impact region was made.

Both counties are part of the greater Evansville-Owensboro-Henderson Economic Area, a 23-county region in Kentucky, Indiana, and Illinois, as defined by the US Bureau of Economic Analysis. The latest definitions for economic areas were released in 2004, and are based primarily on commuting patterns data from the 2000 Census. Hancock County



is also part of the Owensboro MSA, a three county designation. Henderson County is part of the Evansville-Henderson MSA, a six county designation.

The map shows the component counties, major cities, road and water features in the economic area. The red stars denote the approximate position of the Century and Alcan smelter plants All the counties shaded in gray or green are part of the economic area, while those with the darker green shading are also part of the Evansville-Henderson or Owensboro Metropolitan Statistical Areas. The economic area classification was developed by the US Bureau of Economic Analysis, and assigns all US counties to some regional economy. This broader definition is very useful in analyzing the markets for

labor, industrial supplies, major retail purchases, television and print media, air transportation, higher education, and major medical and professional services.

The latest population estimates are provided in the accompanying table. Note that the complete economic area has a population of about 756,000, with the Evansville-Henderson MSA accounting for 46 percent of the total, and the Owensboro MSA accounting for 15 percent of the total. Henderson County, right across the Ohio River from Evansville, has the fifth largest population of any county in the economic area. Hancock County has the third lowest population of any county.

Population of Evansville IN-KY Economic Area, 2006

Geocodes	County	Residents
18051	Gibson, IN	33,396
18129	Posey, IN	26,765
18163	Vanderburgh, IN	173,356
18173	Warrick, IN	57,090
21010	Henderson, KY	45,666
21233	Webster, KY	14,083
21780	Evansville, IN-KY Metropolitan Statistical Area	350,356
21059	Daviess, KY	93,613
21091	Hancock, KY	8,636
21149	McLean, KY	9,844
36980	Owensboro, KY Metropolitan Statistical Area	112,093
17047	Edwards, IL	6,617
17059	Gallatin, IL	6,159
17185	Wabash, IL	12,457
17193	White, IL	15,078
18027	Daviess, IN	30,220
18037	Dubois, IN	41,212
18101	Martin, IN	12,093
18123	Perry, IN	18,843
18125	Pike, IN	12,855
18147	Spencer, IN	20,596
21107	Hopkins, KY	46,830
21177	Muhlenberg, KY	31,561
21183	Ohio, KY	23,844
21225	Union, KY	15,371
57054	Evansville, IN-KY Economic Area	756,185

Source: US Census Bureau

The Evansville area also has a number of important aluminum operations, though it is beyond the scope of this study to analyze them. Warrick County, for example, is home to the giant Alcoa plant upstream from Evansville on the Ohio River. The plant has 2,100 employees, pays over $7 million in local property taxes annually, and purchases over $100 million in goods and services from vendors in the region. (www.alcoa.com/locations/usa_warrick/en/pdf/2007ReportToTheCommunity.pdf). The region as a whole is one of the biggest concentrations of aluminum production and downstream processing in the US. The plants are linked indirectly through the transportation, energy, auto parts sectors that are prevalent regionally.

Taxes and fiscal impacts

The plants generate an array of taxes for state and local governments. The value of real estate and tangible property is quite large, and thus the plants generate substantial property taxes for the state of Kentucky and Hancock and Henderson county governments, including the two county public school systems. The workers associated with the plant spend much of their income in the regional economy, generating state

income, state sales, and local occupational taxes. I provide estimates of all these tax flows below.

Additional tax impacts are also likely, though much harder to quantify. For example, proprietors and corporations around the region will be liable for state individual and corporate income taxes, and for some 'net profits' taxes in cities and counties where these are levied, e.g., the City of Owensboro, Kentucky. Gasoline taxes, coal severance taxes, unemployment insurance taxes, insurance premiums taxes, building permit fees, motor vehicle sales taxes, and many other business tax categories would see some decline due to plant shut-downs. Employees would pay less in the way of gasoline taxes, motor vehicle sales taxes, and there would be dampening effect on the regional real estate market. These categories are much harder to measure than the income and general sales taxes, but fortunately are not as important dollar-wise as the main taxes I do measure in this report.

Estimates of new Kentucky and Indiana state individual income and sales tax revenues are calculated by multiplying effective tax rates times the new regional payrolls. The ratios of state individual income taxes or sales taxes collected to wages and salaries are very stable historically. Using these ratios, or effective tax rates, is superior to using published nominal tax rates, as the amount of income or sales subject to taxation is always less than total income received and retail spending that occurs.

For example, groceries and prescription drugs are exempt from state sales tax in Kentucky, and hence one cannot simply multiply the statutory sales tax rate of six percent times expected retail sales. Similarly, individual income tax rates apply to 'adjusted gross income' or 'taxable income', rather than total income. In Kentucky, residents can deduct such things as medical expenses, mortgage interest payments, charitable contributions, and many other items from their gross income before calculating their tax liability. Looking at historical tax collections as a percentage of payrolls is a more reliable way to estimate the amount of taxes likely to be generated from future payroll growth. An appendix provides a summary of the effective tax rate calculations used in the impact assessment.

Impacts

In this section, I display and explain my estimates of the economic and fiscal impacts of the two aluminum smelters. I am essentially simulating what would happen if the two operations were removed from the region. In the first table, I organize data and estimates of the direct impacts of the two plants. That is, I am considering only the jobs, payrolls and taxes paid by the operations, and am not yet considering any spinoff effects in the regional economy.

Direct Annual Economic and Fiscal Impacts of Shut-down Two Aluminum Smelter Plants in Western Kentucky

	Direct Impacts	
1	Total jobs	1,413
2	Average pay per job	$54,013
3	Total wages and salaries	$76,320,358
4	Occupational taxes to Hancock and Henderson counties	$475,375
5	Kentucky state income taxes paid by employees	$3,707,423
6	Property and other taxes to Hancock and Henderson county governments	$274,540
7	Property and other taxes to Hancock and Henderson county public schools	$678,471
8	Property taxes to State of Kentucky	$677,424
9	Corporate income and license taxes, State of Kentucky	$3,758,000
10	Other taxes (fuel, sales, energy), State of Kentucky	$3,464,124
11	Subtotal: local governments in Kentucky	$1,428,386
12	Subtotal: Kentucky state government	$11,606,971
13	Total Kentucky state and local governments	$13,035,357

Source: RioTinto/Alcan and Century, except for Kentucky income tax, which is estimated by author.

The plants employ over 1,400 persons and have a combined annual payroll of over $76 million, excluding benefits. The companies and their employees pay over $11 million in taxes to Kentucky state government, and $1.4 million to county governments and local public school districts. All the entries except that on line 5 were provided by the two companies that own and operate the smelters. The companies do not know the amount of Kentucky state income taxes actually paid by their employees, since employees file income tax returns from their place of residence. Companies do withhold state income taxes from workers paychecks, but have no way of knowing how much additional tax employees end up paying, or how big of a tax refund they receive each year. To estimate the Kentucky state income taxes paid, I applied an effective income tax rate, one that was calculated by dividing Kentucky state income taxes paid by Kentucky wages and salaries earned. The rate is 4.86 percent of payrolls.

In the second table, I provide estimates of the total effects – direct plus spinoff. Here I use the economic multipliers to estimate the loss in jobs and payrolls regionally. Then I

use effective tax rates to estimate the additional loss in income and sales taxes to Kentucky state government.

Total Annual Economic and Fiscal Impacts of Shut-down Two Aluminum Smelter Plants in Western Kentucky

		Total Impacts
1	Lost jobs in region	5,015
2	Lost annual payroll in region	$192,663,112
3	Lost property taxes - county governments	$274,540
4	Lost property taxes - schools	$678,471
5	Lost property taxes - Kentucky state government	$677,424
6	Lost occupational taxes - local governments	$475,375
7	Lost Kentucky state income tax receipts	$5,461,885
8	Lost Kentucky state sales tax receipts	$2,018,434
9	Lost other Kentucky state taxes	$7,222,124
10	Subtotal: local governments in Kentucky	$1,428,386
11	Subtotal: Kentucky state government	$15,379,867
12	Total Kentucky state and local governments	$16,808,253

I estimate the total job loss in the region to be over 5,000 jobs, and the payroll loss to be $193 million annually. The total loss to Kentucky state government is much more than when considering only the direct impacts. I estimate that Kentucky would lose a total of $15.3 million in income and sales taxes due if the plants shut-down.

The Southwire rod mill employs around 250 persons, with a payroll of about $12 million annually. Should it also close, the additional negative economic impact in the region would be 890 jobs and $36 million in payroll. Kentucky state and local governments would lose at least an additional $1.5 million tax revenues annually.

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US Bureau of Economic Analysis, *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)*, 3rd edition, March 1997. http://www.bea.gov/bea/ARTICLES/REGIONAL/PERSINC/Meth/rims2.pdf

Kentucky Cabinet for Economic Development, "Profile of the Aluminum Industry in Kentucky", by Rene True, May 2005. www.thinkkentucky.com/kyedc/pdfs/Aluminum_Report.pdf

APPENDIX
State Individual Income and Sales Tax Revenues

I have calculated effective tax rates for both Kentucky and Indiana income and sales taxes, summarized in the table on the next page. I show these in two ways, one as a percentage of total regional wages and salaries, and second as a percentage of just the wages and salaries earned in each state. The effective state tax rate is obviously much smaller when the entire regional payroll is considered, since each state makes up only a fraction of the region. In the fiscal impact estimates provided, I use these state effective tax rates calculated as a percentage of the total regional payroll. Since the economic multiplier effects are analyzed over the entire 23-county economic area, we see the effect of the aluminum operations on wages and salaries throughout the region. Hence, the regional effective tax rates are more applicable.

Note that the Kentucky effective income tax rate is 1.51 percent. This means that Kentucky state government can expect to receive (lose) in income taxes that percentage of wages and salaries *in the region* when payrolls grow (shrink). Similarly, the Kentucky effective sales tax rate is 1.05 percent of wages and salaries in the region. The effective tax rates for Indiana state government are higher than for Kentucky state government, reflecting the higher proportion of payrolls, income taxes, and sales taxes on the Indiana side of the regional economy. The Kentucky effective income tax rate is higher than the effective sales tax rate, while in Indiana the effective sales tax rate is higher than the effective income tax rate. This reflects both Kentucky's higher income tax rate (topping at 6% compared to Indiana's which tops out at 3.4%), and the concentration of retail activity in Evansville.

Payrolls, State Income and Sales Tax Collections

County	Total Wages and Salaries, by County of Work (000) 2002	2003	2004	2005	State Income Tax, by County of Residence, 2003-05	State Sales Tax, by County of Sales, 2002-04
Edwards, Illinois	$87,446	$90,907	$95,688	$89,124		
Gallatin, Illinois	$38,589	$37,782	$40,907	$39,947		
Wabash, Illinois	$114,401	$113,448	$116,327	$111,630		
White, Illinois	$126,645	$129,351	$139,362	$145,731		
Daviess, Indiana	$256,773	$271,752	$291,220	$307,252	$34,167,461	$33,558,524
Dubois, Indiana	$853,414	$876,122	$926,429	$952,941	$70,249,934	$90,253,049
Gibson, Indiana	$513,141	$607,323	$685,589	$721,926	$44,031,362	$19,349,124
Martin, Indiana	$291,398	$320,210	$337,627	$355,263	$12,031,421	$7,870,134
Perry, Indiana	$176,820	$190,700	$205,553	$210,494	$22,080,591	$22,294,476
Pike, Indiana	$110,852	$115,985	$118,012	$114,574	$15,804,985	$3,631,982
Posey, Indiana	$381,375	$363,654	$388,818	$405,063	$41,435,217	$18,591,018
Spencer, Indiana	$231,135	$233,684	$232,911	$234,556	$27,376,425	$14,073,354
Vanderburgh, Indiana	$3,681,110	$3,754,300	$3,835,301	$3,976,329	$257,546,613	$409,747,139
Warrick, Indiana	$482,644	$483,899	$505,666	$512,861	$98,595,176	$18,758,270
Daviess, Kentucky	$1,234,149	$1,262,503	$1,305,724	$1,355,484	$191,506,805	$144,707,159
Hancock, Kentucky	$199,188	$195,236	$191,198	$190,662	$16,351,011	$8,615,342
Henderson, Kentucky	$671,676	$707,680	$712,218	$720,713	$87,386,408	$71,172,956
Hopkins, Kentucky	$506,715	$520,808	$541,003	$580,141	$82,007,794	$56,377,605
McLean, Kentucky	$41,511	$43,327	$45,756	$47,640	$16,228,715	$7,749,184
Muhlenberg, Kentucky	$281,595	$282,920	$285,291	$284,742	$43,133,053	$22,341,670
Ohio, Kentucky	$149,296	$160,420	$174,913	$189,066	$30,354,070	$14,073,550
Union, Kentucky	$169,559	$165,660	$166,579	$174,574	$26,773,725	$16,663,691
Webster, Kentucky	$123,383	$113,869	$116,020	$129,220	$24,254,023	$6,353,833
Evansville, IN-KY Economic Area	$10,722,815	$11,041,540	$11,458,112	$11,849,933	$1,141,314,790	$986,182,061
Kentucky subtotal - 9 counties	$3,377,072	$3,452,423	$3,538,702	$3,672,242	$517,995,604	$348,054,991
Indiana subtotal - 10 counties	$6,978,662	$7,217,629	$7,527,126	$7,791,259	$623,319,186	$638,127,070
Kentucky effective tax rate, collections as percent of Economic Area payroll					***1.51%***	***1.05%***
Kentucky effective tax rate, collections as percent of KY payroll					***4.86%***	***2.49%***
Indiana effective tax rate, collections as percent of Economic Area payroll					***1.81%***	***1.92%***
Indiana effective tax rate, collections as percent of IN payroll					***2.77%***	***2.94%***

Sources: Wages and salaries from the US Bureau of Economic Analysis (www.bea.gov). State income and sales tax data are from the Indiana and Kentucky Departments of Revenue. Kentucky sales tax collection data only available for 2003; I assume it is representative of 2002 through 2004, and multiply by three. Also, county sales tax collections data adjusted up to account for out-of-state collections (primarily due to multi-county establishments, e.g., Walmarts).