
AN ANALYSIS OF THE ECONOMIC IMPACT OF ENERGY EFFICIENCY AND RENEWABLE ENERGY IN THE EAST KENTUCKY POWER COOPERATIVE REGION

William Tharp, Ph.D.

Lori Quillen

Ochs Center for Metropolitan Studies

July 2009

SUMMARY

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents, with a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost than the proposed coal plant.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.

Over a three year period of construction and implementation, energy efficiency and weatherization initiatives would create nearly \$1.2 billion in economic activity and more than 5,400 jobs. The development of small scale hydropower generation at 20 sites in the region would create more than \$500 million in economic activity and more than 3,300 jobs.

RENEWABLE ENERGY SOURCES, ENERGY EFFICIENCY AND WEATHERIZATION COULD MEET ANY NEED FOR ADDITIONAL ENERGY IN THE EKPC REGION

EKPC is currently in the permitting process for the proposed construction of a new 278 Megawatt (MW) coal-burning power plant in Clark County, Kentucky. With the production level

at an assumed 75% capacity factor, the proposed Smith #1 plant would be capable of providing an estimated 1.8 million Megawatt hours (MWh) annually to EKPC customers.

Prior analysis suggests that this additional generation of electricity may be unneeded. Since initially approving the plant, the Kentucky Public Service Commission has acknowledged a change in demand and EKPC has reported that energy load is below projections. As a result, experts have suggested that there may not be a need for new power generation at all.¹ EKPC, however, initially contended that without investment in new energy generation, it will be unable to meet growing demand for power in the region.²

If there is a need for additional energy, there are alternative solutions that may meet the current and future electricity needs of EKPC customers. Specifically, renewable energy sources and a strong focus on energy efficiency in the region could begin to provide as much or more energy as the proposed Smith plant.

Alternatives to continued dependence on coal have become both more technologically and economically feasible in recent years, especially given the increased risks associated with coal plants, including the skyrocketing costs of construction and coal prices, impending federal regulation of greenhouse gas emissions and the current economic climate.

Several utilities across the country have achieved significant energy savings through the development of progressive energy efficiency programs that offer incentives and education for both residential and commercial customers. The promotion and support of energy efficiency improvements have become the primary focus of utilities and state regulators in several states, including New York and Vermont.³

In Kentucky, and in the EKPC region specifically, the potential for increased residential and commercial energy efficiency is extremely high. There are relatively few state or utility-sponsored energy efficiency programs already in place and a 2006 study by the Midwest Energy Efficiency Alliance found that Kentucky's technical potential for energy efficiency is 30%⁴ - higher than any of the other Midwestern states in the study.⁵ According to the Energy Information Administration, Kentucky ranked 6th in the nation in per capita energy use in 2006.⁶

¹ TR Rose Associates, *The Right Decision for Changing Times*, April 2009.

² See, Stanley Consultants, *Alternatives Evaluation and Site Selection Study for the Proposed J.K. Smith Circulating Fluidized Bed Generating Units, Clark County, Kentucky*, September 2006.

³ See, Appendix A for description of these different initiatives.

⁴ Technical potential is the quantification of energy savings that could be realized if energy efficiency measures were applied in all technically feasible applications regardless of cost.

⁵ Midwest Energy Efficiency Alliance, *Midwest Residential Market Assessment and DSM Potential Study*, March 2006, Table 5-15, page 62.

⁶ According to the Energy Information Administration, Kentucky ranked 6th in the nation in per capita energy use in 2006 - http://www.eia.doe.gov/emeu/states/sep_sum/html/pdf/rank_use_per_cap.pdf

A 2007 study commissioned by the Governor’s Office of Energy Policy concluded that “[O]verall, the savings potential from energy efficiency in Kentucky is large, achievable and significant – it has the promise of ‘supplying’ the energy needs that will fuel Kentucky’s growth and prosperity over the next decade.”⁷

Similarly, new hydropower and wind power sources also have been identified as having the potential of providing additional electricity at less cost and lower environmental risk than coal burning power plants.⁸ Together, an aggressive, region-wide energy initiative focused on efficiency, weatherization, hydropower and wind could provide significant economic benefit throughout the EKPC region.

THE ELECTRICITY THAT SMITH PLANT WOULD PRODUCE COULD BE MATCHED BY AN ALTERNATIVE PORTFOLIO OF HYDROPOWER, ENERGY EFFICIENCY, WEATHERIZATION AND WIND AT A LOWER COST

A combination of efficiency initiatives, weatherization, hydropower and wind could potentially match more than seventy five percent of the planned generating capacity of the Smith Plant at a lower cost per MWh to EKPC consumers.

Zinga and McDonald outlined a portfolio of renewable energy and efficiency programs that could be realistically implemented by EKPC.⁹ Based on this portfolio, series of energy efficiency initiatives would reduce demand by approximately 714,000 MWh. A home weatherization program could provide an additional 230,000 MWh in energy savings: projected savings from weatherization are based on the Energy Information Administration’s estimate that weatherized homes use an average of 18% less energy, when compared to non-weatherized homes.

⁷ Kentucky Pollution Prevention Center at the University of Louisville, An Overview of Kentucky’s Energy Consumption and Energy Efficiency Potential, August 2007, p. 3.

⁸ Zinga, S. and A. McDonald. “A Portfolio of Energy Efficiency and Renewable Energy Options for East Kentucky Power Cooperative,” March 2009. p.24.

⁹ Zinga and McDonald, p. 12.

TABLE 1. ENERGY EFFICIENCY AND WEATHERIZATION PORTFOLIO

Program Name	Description	Target Customer Class	Participants	Annual Savings (MWh)
Air Source Heat Pump Retrofit	Offers incentives to customers who replace electric space heating equipment with high-efficiency air source heat pumps.	Residential	30,000	174,300
Residential Lighting	Acts as a multi-purpose program that increases the penetration rate of compact fluorescent lamps in households while raising money for nonprofits and schools by utilizing the efforts of volunteers to take orders for and deliver CFLs to their families, friends & neighbors.	Residential	200,000	60,000
Load Control Programmable Thermostat	Installs a programmable thermostat at a residential customer's location at no charge for the ability to remotely curtail the customer's air conditioner during periods of peak utility system demand.	Residential Customers with Central A/C	100,000	192,600
Air Conditioner Exchange	Distributes new ENERGY STAR® qualified room air conditioners in exchange for older, inefficient units at no cost to the customer.	Low-Income Residential	15,000	4,500
Water Heater Replacement	Replaces standard water heaters with high-efficiency water heaters	Residential	48,000	18,624
Installment Payment Refrigerators	Provides consumers with energy efficient refrigerators without an up-front payment and payments are made on monthly electric bills from bill savings.	Low-Income Residential	10,000	8,930
Geothermal Heat Pump Program	Provides incentives for customers who replace space heaters and electric heat pumps with geothermal heat pumps	Residential	500	3,077
Residential Solar Water Heater Rebate	Provides rebates for customers who purchase and install solar water heaters	Residential	23,500	57,646
Commercial Solar Water Heater Rebate	Provides rebates for businesses that install solar water heaters	Commercial	2,500	43,640
Air Conditioner Tune-Up	Offers commercial customers an analysis of their existing air conditioning systems and discounted services on corrective action needed for the system to operate at maximum efficiency	Commercial	15,000	37,410
Energy Efficiency Lighting	Offers rebates for upgrading existing lighting in commercial establishments for energy efficient lighting systems.	Commercial & Industrial	5,000	113,400
Weatherization	Provides weatherization of slightly less than 35% of the estimated 260,000 residential structures in the EKPC region built before 1980, with an anticipated average reduction in energy use of 18%. Weatherization includes the insulation of attics, floors, walls, and pipes, and the sealing of windows and doors.	Residential	91,245	229,017

Approximately 636,000 MWh of new power could be generated through small scale hydropower generation at sites across and close to the EKPC region. Wind power – either purchased and/or generated in Kentucky – could produce another 250,000 MWh.

TABLE 2. HYDROPOWER PORTFOLIO¹⁰

Project	County	Average Generation MWh
Newburgh L&D	Henderson	139,512
Kentucky L&D 1	Carroll	38,133
Kentucky L&D 2	Owen	38,133
Rough River	Grayson	37,668
Kentucky L&D 11	Madison	37,203
Barren River	Barren	36,389
Kentucky L&D 8	Jessamine	32,553
Kentucky L&D 5	Woodford	27,902
Kentucky L&D 3	Owen	27,902
Kentucky L&D 12	Estill	25,577
Kentucky L&D 9	Madison	23,717
Kentucky L&D 10	Clark	23,717
Kentucky L&D 4	Franklin	23,252
Green L&D 6	Edmondson	23,252
Kentucky L&D 13	Lee	18,602
Kentucky L&D 14	Lee	18,602
Barren L&D 1	Warren	18,602
Kentucky L&D 6	Mercer	11,626
Yatesville	Lawrence	9,998
Prestonburg	Floyd	9,301
Fishtrap	Pike	5,022
Paintsville Dam	Johnson	4,650
Grayson	Carter	4,650
Total		635,964

The projected cost per MWh of the alternative portfolio is \$62.10 per MWh – significantly less than the most recent estimate for the Smith plant of \$74.73 per MWh.¹¹ Costs per MWh reflect total costs, including construction, financing and ongoing operations and maintenance. New federal Cap and Trade regulation of carbon could actually drive the plant’s cost per MWh to

¹⁰ Location, cost, and energy generation potential of hydro projects were identified through the Idaho National Laboratory Hydropower Economics Resource Database, published April 29, 2003. Project costs were adjusted to reflect 2009 dollars. The database was accessed at hydropower.inel.gov/resourceassessment.

¹¹ See, TR Rose at pp. 39-41.

between \$90 and \$130.¹² The basis for the cost estimate for the alternative portfolio is detailed in Appendix B.

PROJECTING ECONOMIC IMPACT OF THE RENEWABLE ENERGY, EFFICIENCY AND WEATHERIZATION PORTFOLIO

Based on the projected cost of the renewable energy, energy efficiency and weatherization initiatives outlined above, it is possible to calculate the estimated economic impact for the EKPC region. Investment in renewable energy, efficiency initiatives and weatherization will result in economic activity generated by new investment – including direct, indirect and induced economic activity and jobs.

The total projected investment of \$634.2 million in energy efficiency and weatherization initiatives was allocated for each cooperative on the basis of the number of residential and commercial customers in the cooperative. For example, a cooperative that accounted for one percent of total EKPC residential customers was assumed to benefit from one percent of the investment in residential energy efficiency and weatherization.

The projected investment of \$396.7 million in new small scale hydropower generation was allocated on the basis of the project site: twenty of the proposed hydropower sites, accounting for \$311.8 million of the investment, are in the EKPC region. For the purposes of calculating economic benefits, none of the investment in wind power was included: some or all of the wind power can be purchased from developers in Kentucky and the EKPC region. If it is, the projected economic benefits would increase.

Using cooperative investment levels, the Ochs Center then calculated economic activity resulting from these investments using IMPLAN, an impact modeling software program created by the Minnesota IMPLAN Group, Inc. The IMPLAN model adapts national input-output matrices to the county level so that impact estimates can be generated at the county level of analysis. This model allows for the assessment of employment, output¹³ and income¹⁴ impacts at three different levels:

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

¹² id.

¹³ Output is the total value of activity over a given time period.

¹⁴ Income includes proprietary (small business) income and employee salaries and benefits for a given industry over a given time period. It is the total money earned resulting from the economic activity.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

For the purposes of estimating economic impact, construction of hydropower facilities and the weatherization and energy efficiency initiatives are both anticipated to occur over a three year time frame – the same period as the projected construction timetable for the Smith plant. Operation and maintenance spending of approximately \$5 million annually will also result in ongoing job creation and economic activity in those EKPC counties with hydropower sites.

In developing the economic impact model, it was assumed that most jobs directly created by these investments would be within the following different sectors:

- NAICS238221¹⁵ -- Construction: Residential Heating/Plumbing/AC
- NAICS 238211 -- Construction: Residential Electrical
- NAICS 238311 -- Construction: Residential Drywall/Insulation
- NAICS 238222 -- Construction: Non-residential Heating/Plumbing/AC
- NAICS 238212 -- Construction: Non-residential Electrical
- NAICS 237990 -- Construction: Other Heavy and Civil Engineering
- NAICS 221111 -- Hydroelectric Power Generation

However, the nature of regional economic activity is such that construction activity produces indirect and induced economic activity and jobs across all sectors. In other words, weatherization, retrofitting certain appliances and other components of the alternative strategy will create jobs in the service, manufacturing, distribution, and retail sectors as well.

ECONOMIC IMPACT OF INVESTING IN RENEWABLE ENERGY, EFFICIENCY AND WEATHERIZATION

During the three year implementation and construction period, the proposed strategy of renewable energy, efficiency and weatherization will directly create 4,694 jobs in the EKPC region and more than \$1.2 billion in economic activity. When indirect and induced economic activity is included, the strategy would yield a total of 8,759 jobs over three years and more than \$1.7 billion in economic activity.¹⁶

¹⁵ U.S. Census Bureau, North American Industrial Classification System, www.census.gov/eos/www/naics.

¹⁶ The exact phasing of the efficiency, weatherization and hydropower projects is unknown. Job and economic activity estimates reflect a total over a three year period.

Overall economic impact in the State of Kentucky would be even greater. The three hydropower projects that would take place outside of the EKPC region - in Henderson, Pike and Warren counties - would generate an additional 938 jobs and \$159.8 million in economic activity over the three year construction period. If some of the wind power is developed within the state, those projects would yield further economic benefits. Additional benefits could also result from energy cost savings to consumers that are then reinvested into the local economy.

Residents in every one of the sixteen distribution cooperatives would see job creation and economic activity as a result of this strategy.¹⁷

TABLE 3. JOBS AND ECONOMIC ACTIVITY OVER THREE YEAR CONSTRUCTION AND IMPLEMENTATION

	Employment	Output	Income
EKPC Distribution Cooperative			
Owen Electric Cooperative	1,530	\$201,579,210	\$66,450,289
Blue Grass Energy Cooperative	1,328	\$236,234,784	\$57,558,130
Farmers RECC	1,094	\$132,022,676	\$40,806,186
Jackson Energy Cooperative	990	\$152,580,704	\$40,113,976
South Kentucky Rural Electric	734	\$118,794,323	\$31,802,459
Clark Energy Cooperative	543	\$78,145,359	\$23,990,692
Salt River Electric Cooperative	455	\$75,345,428	\$22,150,713
Nolin RECC	330	\$54,979,923	\$15,893,969
Grayson RECC	312	\$49,473,551	\$13,053,222
Inter-County Energy	298	\$47,398,168	\$13,652,205
Fleming-Mason Energy	257	\$40,664,659	\$11,969,493
Cumberland Valley Electric	229	\$41,625,241	\$10,536,106
Taylor County RECC	216	\$41,474,479	\$8,966,225
Big Sandy RECC	185	\$35,230,613	\$7,530,297
Shelby Energy Cooperative	130	\$25,356,445	\$6,945,905
Licking Valley RECC	128	\$29,193,156	\$6,466,634
Total	8,759	\$1,360,098,720	\$377,886,501

By comparison, EKPC projects that the construction of the Smith #1 plant would create up to 700 construction jobs during the estimated three year construction phase. There would be 60 positions at the Smith #1 plant once it is operational.¹⁸ Construction jobs and plant operation positions would likely be concentrated in the area immediately surrounding the plant site in Clark County. Additionally, the Smith #1 plant would only begin to generate construction jobs once the full permitting process is completed.

¹⁷ Appendix C contains a list of the counties in each cooperative and a cooperative by cooperative fact sheet on estimated job creation and economic activity.

¹⁸ See, Stanley Consultants at p. 7-9.

APPENDIX A

CASE STUDIES OF STATE ENERGY EFFICIENCY INITIATIVES NEW YORK

New York Energy Smart is a statewide program run by the New York State Energy Research and Development Authority (NYSERDA). The overall goals of the Energy Smart program are to “[I]mprove New York’s energy system reliability and security by reducing energy demand and increasing energy efficiency,” and to “reduce the energy cost burden of New Yorkers by offering energy users, particularly the State’s lowest income households, services that moderate the effects of energy price increases and volatility and provide access to cost-effective energy efficiency options.”¹⁹

According to the latest annual report, the Energy Smart Program has assisted in the installation of efficiency measures that permanently reduce peak demand by 650 MW and implemented measures that save 3,057 GWh per year across the state. In addition, Energy Smart programs have saved participating customers nearly \$570 million in annual energy costs.

New York Energy Smart supports a wide range of energy efficiency programs, which target residential, commercial and industrial energy customers.

NYSERDA’s commercial and industrial sector programs cover new and existing schools, hospitals, office buildings, government buildings, commercial establishments, not-for-profit facilities, and industrial plants. Programs promote competitive markets for energy efficiency services and facilitate the widespread adoption of high-efficiency technologies. Programs targeting commercial and industrial customers include:

Peak Load Management Program: The Peak Load Management Program encourages measures for demand management by offering financial incentives to allow participation in dynamic retail pricing, commodity purchase and managing financial risk. The program provides incentives for equipment and technical solutions that enable significant demand reduction resources.

Enhanced Commercial/Industrial Performance Program: Information and incentives are provided to improve existing building loads, non-building loads and process equipment.

Energy Smart Business Partners: The program focuses on market development. Energy Smart Business partners are allies that agree to work with NYSERDA to promote energy-efficient products and services. In exchange, business partners gain access to special training, tools, guidelines, and performance incentives. NYSERDA works with its business partners to help them differentiate their business, while assuring appropriate quality control mechanisms. The

¹⁹ New York Energy Smart Program Evaluation and Status Report for the Year Ending December 31, 2008. March 2009. Table ES-3, p. ES-5. Accessed at:

<http://www.nyserd.org/publications/SBC%20March%202009%20Annual%20Report.pdf> on June 26, 2009.

program focuses on the marketing of small commercial lighting, premium efficiency motors, and commercial HVAC units.

Loan Fund and Financing Program: Loan Fund and Financing Program expands the availability of low-interest capital to help implement energy-efficiency projects and process improvements. Lenders enroll in the program by signing participation agreements and agreeing to reduce the interest rates on energy –related loans in exchange for a lump sum subsidy paid by NYSERDA.

Energy Smart Focus Program: Energy Smart Focus provides services to facilitate and encourage sector-specific energy efficiency improvements and practices.

High Performance New Buildings Program: Established to encourage energy-efficient design and building practices among architects and engineers and to urge them to inform building owners about the long-term advantages of building to higher energy efficiency standards.

FlexTech Technical Assistance Program: The program provides customers with objective and customized information to facilitate wiser energy efficiency, energy procurement and financing decisions. The program is available to all commercial and industrial customers.

NYSERDA also operates several programs aimed at residential, and specifically low-income customers. The residential energy efficiency programs are designed to influence decisions regarding electricity use and to reduce households' energy bills. The low-income programs are designed to reduce the energy burden of low-income households by improving energy efficiency.

Programs include:

Single Family Home Performance Program. This program, which addresses one- to four-unit homes, includes the Home Performance with Energy Star Initiative for existing homes and the New York Energy Star Labeled Homes Initiative for newly constructed homes. These initiatives support market development through recruitment, training and incentives for builders and contractors, in order to encourage them to offer energy efficient options. They also market the benefits of energy efficiency to residential consumers in order to increase demand for efficient products and services. Both components provide additional incentives for low-income households.

Market Support Program. This program provides support services to the building performance and low-income programs by increasing the availability of energy-efficient products and by increasing consumer demand.

Communities and Education Program. Provides information and education on energy efficiency measures for students, community organizations and energy customers.

EmPower New York. This program provides energy efficiency services to utility customers earning less than 60% of the State median income and households enrolled in utility low-income payment assistance programs, targeting both owners and tenants of one-to four-family homes and multifamily buildings with fewer than 100 units. The program coordinates with the delivery of federal weatherization services through New York State Division of Housing and Community Renewal.

VERMONT

Efficiency Vermont is a nonprofit organization that offers statewide energy efficiency services through a contract with the Vermont Public Service Board.²⁰ Efficiency Vermont provides technical assistance and financial incentives to households and businesses to help them reduce their energy costs with energy-efficient equipment and lighting and with energy-efficient approaches to construction and renovation.

Efficiency Vermont works directly with business operators, homeowners and renters to reduce their energy costs. The state's energy-efficiency utility also works with Vermont businesses that provide energy-efficient products and services, such as retailers, architects, builders, and electricians.

According to the annual report, Efficiency Vermont has helped reduce annual energy costs for businesses and homes by a total of more than \$31 million since 2000. In 2006, Efficiency Vermont helped more than 10 percent of the state's electric ratepayers complete efficiency investments that resulted in 56,000 MWh of annual electric savings.

Efficiency Vermont provides several rebate and incentive programs that target the purchase of energy efficient lighting and appliances and the use of efficient building practices for new business and home construction. For existing business, Energy Vermont provides services, including:

Account Management. Provides customized solutions geared to the specific business needs for mid-sized and large businesses. The solutions include providing energy efficiency information, technical assistance, and financial incentives, and partnering with specialized service providers, from design assistance to financing packages.

Prescriptive Measures. Standardized efficiency measures with standard financial incentives. Prescriptive measures include lighting, motors, unitary HVAC equipment, economizers, vending machine controls, LED traffic signals, small refrigeration systems, and transformers.

²⁰ Efficiency Vermont Year 2007 Annual Report. October 2008. Accessed at http://www.encyvermont.com/stella/filelib/AR2007_Revised_MW.pdf on June 26, 2009.

High-performance Partners. Work with upstream partners in the supply chain to ensure that efficiency equipment and energy efficiency services are readily available to end-use customers. These efforts include incentives, outreach, education, and training in the promotion of new energy efficient technologies.

Efficiency Vermont also provides several services for residential customers, including:

Home Performance with Energy Star. Works to build the infrastructure of certified contractors providing comprehensive diagnostic and retrofit services to improve the energy efficiency and quality of residential buildings. The program provides providing contractor training and certification, offers financial incentives for customers with cost-effective improvement opportunities.

Targeted services for customers with high electrical usage. This initiative is designed to secure significant electrical savings for customers with high electrical usage by providing technical assistance, assistance in securing financing, financial incentives, direct installation of energy-efficient lighting and water conservation products, and services to facilitate the installation of efficiency measures.

Low-income single-family residential customers. Efficiency Vermont works with five community-based weatherization agencies to provide maximum cost-effective electric measures, at no cost to participants, including direct installation of energy-efficient lighting and water conservation products, replacement of inefficient refrigerators and freezers with ENERGY STAR models, and converting electric water and space heating equipment to less-costly fossil fuel systems.

APPENDIX B

COST ASSUMPTIONS FOR ALTERNATIVE ENERGY PORTFOLIO

The cost of the alternative portfolio of hydropower, energy efficiency, weatherization and wind power is based on the following assumptions:

- Costs for the energy efficiency initiatives are derived from the Zinga and McDonald report, with subsequent adjustments made for the increasing cost of commercial and residential solar water heaters. The cost of implementation of the energy efficiency initiatives is based on financing at six percent over a twenty year period.
- Weatherization costs are assumed at \$3,500 per household. The cost of physical weatherization per household is largely dependent on the age and size of the house. In a recent study on weatherization of housing in Maine, the average cost of weatherization per home was estimated to be \$4,200.²¹ Currently, the average value of weatherization services provided by the Weatherization Assistance Program (WAP) is \$2,500.²² The cost of implementation of the weatherization initiative is also based on financing at six percent over a twenty year period.
- The cost of hydropower is based on data from the Idaho National Laboratory's analysis of hydropower resources in the United States.²³ INEL provides estimates of capital costs and operations and maintenance costs for each of the proposed hydropower locations in 2002 dollars. Capital costs were adjusted upward for inflation based on the Producer Price Index for new construction and operations and maintenance costs were adjusted upward based on the Consumer Price Index. The result is a projected capital cost of \$396.7 million and annual operating costs of \$5.0 million. The cost of construction was financed at six percent over a twenty year period.
- The cost of wind power was estimated at a purchase price of \$80 per MWh. A 2008 U.S. Department of Energy report noted that wind power accounted for 35% of all new electric generating capacity in 2007: a higher percentage of new generating capacity than coal burning power.²⁴ The same report concluded that the sales price for wind projects built in 2007 was approximately \$45 per MWh, with a range of \$30 to \$65 per MWh.²⁵ The estimated cost, therefore, reflects the most conservative estimate of alternative cost.

²¹ State of Maine Housing and Energy Subcommittee. The Governor's Pre-Emergency Energy Task Force Housing and Subcommittee Report: Weatherize All Single and Multifamily Dwellings In Maine. February 2009, p.2.

²² Department of Energy Weatherization Assistance Program: apps1.eere.energy.gov/weatherization/apply.cfm

²³ See, Idaho National Laboratory, Hydropower Economics Resource Database, April 29, 2003 at hydropower.inel.gov/resourceassessment.

²⁴ Ryan Wisser and Mark Bollinger, *Annual Report on U.S. Wind Power Installation, Cost and Performance Trends: 2007* (U.S. Department of Energy, 2008), p. 4.

²⁵ *Id.* at p. 17.

APPENDIX C

COUNTIES IN EKPC DISTRIBUTION COOPERATIVES

This appendix includes one page summaries of the potential economic impact of energy efficiency and renewable energy programs for each energy co-op in the EKPC Region.

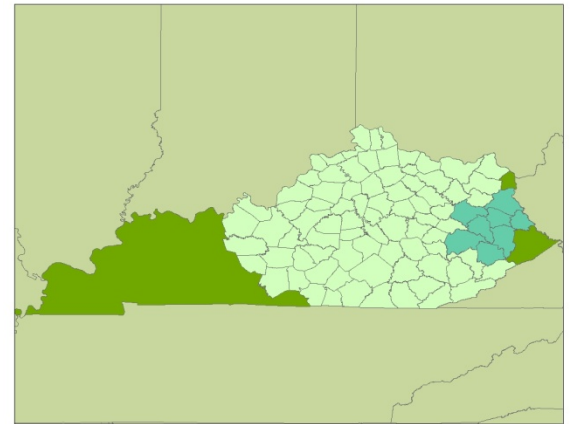
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Big Sandy RECC

Includes part or all of Johnson, Lawrence, Martin, Floyd, Knott, Breathitt, Magoffin, and Morgan Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for Big Sandy RECC Region*

	Direct	Indirect	Induced	Total
Income	\$5,270,083	\$1,415,878	\$844,336	\$7,530,297
Output	\$28,634,847	\$3,911,895	\$2,683,871	\$35,230,612
Jobs	112	44	29	185

The total projected economic impact of energy efficiency programs and hydroelectricity in the Big Sandy RECC region is \$42,760,909. Investment in energy efficiency and hydroelectricity is projected to produce \$5,270,083 in direct income and 112 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

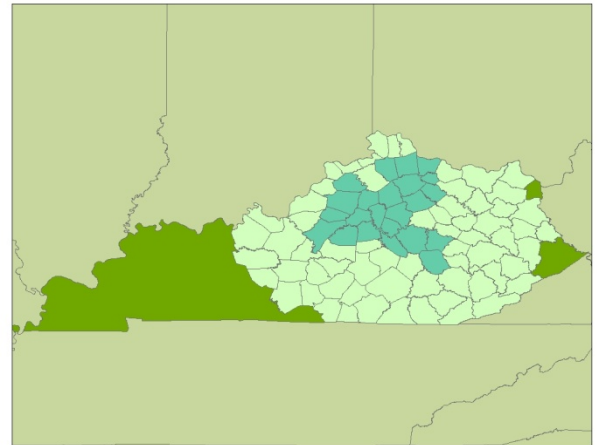
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Blue Grass Energy Cooperative |

Includes part or all of Anderson, Jackson, Estill, Henry, Shelby, Spencer, Washington, Nelson, Mercer, Jessamine, Madison, Fayette, Franklin, Harrison, Grant, Pendleton, Bracken, Robertson, Nicholas, Bourbon, and Garrard Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for Blue Grass Energy Cooperative Region

	Direct	Indirect	Induced	Total
Income	\$35,238,989	\$13,811,758	\$8,507,383	\$57,558,130
Output	\$171,132,726	\$38,081,044	\$27,021,014	\$236,234,783
Jobs	717	342	269	1,328

The total projected economic impact of energy efficiency programs in the Blue Grass Energy Cooperative region is \$293,792,913. Investment in energy efficiency and hydro electricity is projected to produce \$35,238,989 in direct income and 717 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

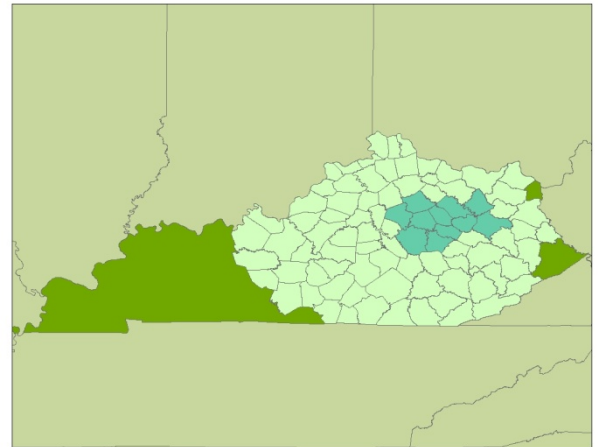
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Clark Energy Cooperative |

Includes part or all of Clark, Bourbon, Montgomery, Powell, Menifee, Estill, Madison, Fayette, Bath, Rowan and Morgan Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for the Clark Energy Cooperative Region

	Direct	Indirect	Induced	Total
Income	\$14,291,310	\$6,156,885	\$3,542,497	\$23,990,692
Output	\$49,192,953	\$17,801,156	\$11,151,250	\$78,145,359
Jobs	272	157	113	542

The total projected economic impact of energy efficiency programs in the Clark Energy Cooperative region is \$102,136,051. Investment in energy efficiency and hydro electricity is projected to produce \$14,291,310 in direct income and 271 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

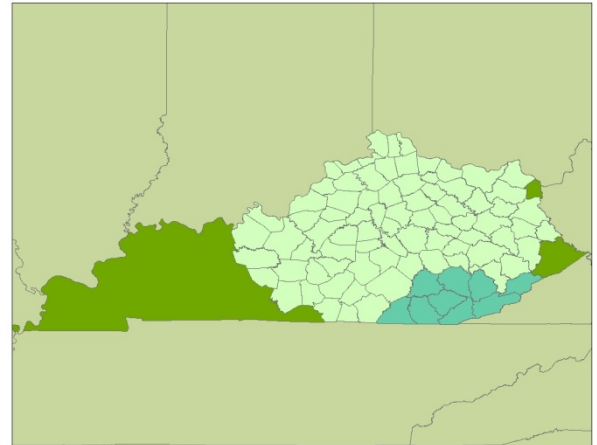
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Cumberland Valley Electric |

Includes part or all of McCreary, Whitley, Knox, Bell, Harlan, Leslie, Laurel, Clay, and Letcher Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for the Cumberland Valley Electric Region

	Direct	Indirect	Induced	Total
Income	\$6,669,884	\$2,447,573	\$1,418,649	\$10,536,106.0
Output	\$29,524,290	\$7,629,684	\$4,471,267	\$41,625,241.2
Jobs	95	82	52	229

The total projected economic impact of energy efficiency programs in Cumberland Valley Electric region is \$52,161,347.2. Investment in energy efficiency is projected to produce \$6,669,884 in direct income and 94 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

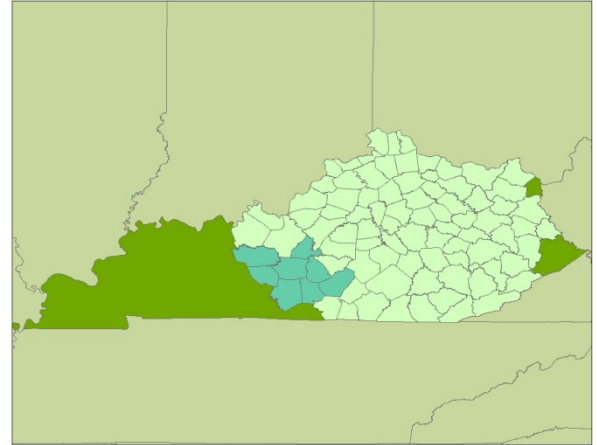
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Farmers RECC |

Includes part or all of Hart, Barren, Metcalfe, Green, Adair, Edmonson, Larue, and Grayson Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for Farmers RECC Region

	Direct	Indirect	Induced	Total
Income	\$26,861,178	\$8,180,504	\$5,764,504	\$40,806,186
Output	\$90,183,774	\$23,698,214	\$18,140,688	\$132,022,675
Jobs	657	235	201	1,093

The total projected economic impact of energy efficiency programs in the Farmers RECC region is \$172,828,861. Investment in energy efficiency and hydro electricity is projected to produce \$26,861,178 in direct income and 657 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

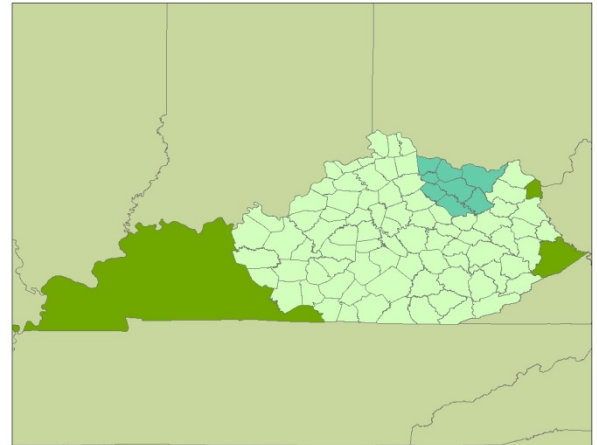
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Fleming-Mason Energy

Includes part or all of Bracken, Robertson, Fleming, Nicholas, Bath, Rowan, Lewis, and Mason Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for Fleming-Mason Energy Region

	Direct	Indirect	Induced	Total
Income	\$8,732,997	\$2,074,636	\$1,161,860	\$11,969,493
Output	\$29,909,905	\$6,878,522	\$3,876,232	\$40,664,659
Jobs	132	78	47	257

The total projected economic impact of energy efficiency programs in the Fleming-Mason Energy region is \$52,634,152. Investment in energy efficiency is projected to produce \$8,732,997 in direct income and 131 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

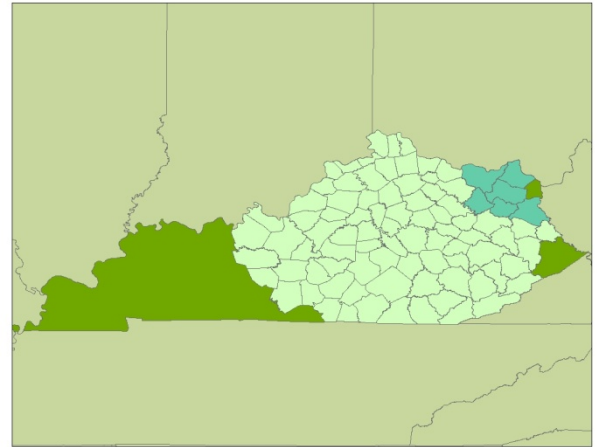
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Grayson RECC

Includes part or all of Greenup, Carter, Rowan, Elliott, Lawrence, and Lewis Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for Grayson RECC Region

	Direct	Indirect	Induced	Total
Income	\$9,404,556	\$2,131,481	\$1,517,185	\$13,053,222
Output	\$38,269,378	\$6,466,475	\$4,737,698	\$49,473,551
Jobs	190	69	54	313

The total projected economic impact of energy efficiency programs in the Grayson RECC region is \$62,526,773. Investment in energy efficiency and hydro electricity is projected to produce \$9,404,556 in direct income and 190 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

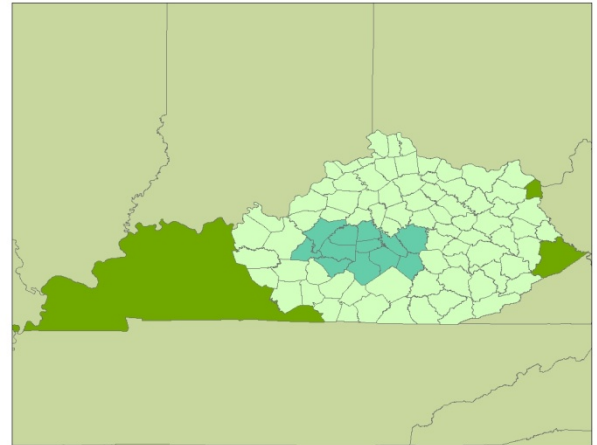
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Inter-County Energy

| Includes part or all of Nelson, Larue, Martin, Washington, Mercer, Madison, Boyle, Casey, Lincoln, Garrard, Taylor, and Rockcastle Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for Inter-County Energy Region

	Direct	Indirect	Induced	Total
Income	\$9,131,246	\$3,218,195	\$1,302,764	\$13,652,205
Output	\$30,903,501	\$10,775,638	\$5,719,029	\$47,398,168
Jobs	129	105	64	298

The total projected economic impact of energy efficiency programs in the Inter-County Energy region is \$61,050,373. Investment in energy efficiency is projected to produce \$9,131,246 in direct income and 129 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

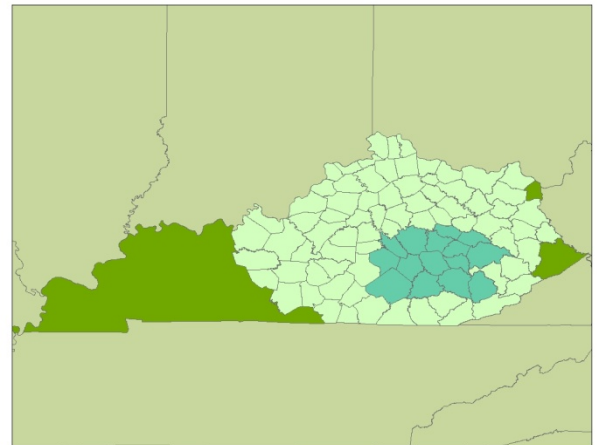
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Jackson Energy Cooperative |

Includes part or all of Estill, Rockcastle, Jackson, Laurel, Lee, Owsley, Clay, Leslie, Breathitt, Powell, Garrard, Lincoln, Pulaski, Madison, and Wolfe Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for the Jackson Energy Cooperative Region

	Direct	Indirect	Induced	Total
Income	\$27,303,841	\$7,826,716	\$4,983,419	\$40,113,976
Output	\$109,645,910	\$26,735,634	\$16,199,160	\$152,580,704
Jobs	543	264	184	991

The total projected economic impact of energy efficiency programs in the Jackson Energy Cooperative region is \$192,694,680. Investment in energy efficiency and hydro electricity is projected to produce \$27,303,841 in direct income and 543 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

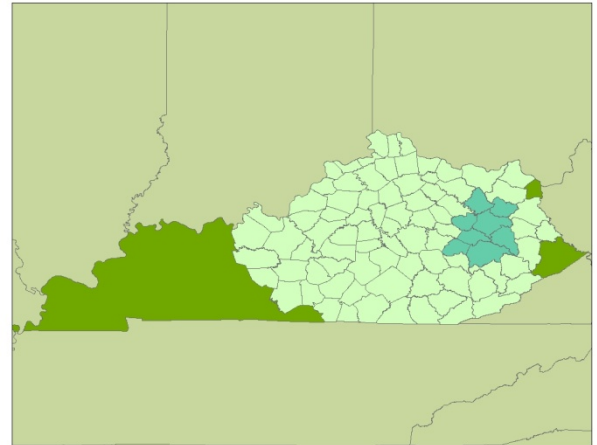
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Licking Valley RECC

Includes part or all of Wolfe, Morgan, Breathitt, Magoffin, Lee, Elliott, Rowan, and Menifee Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for the Licking Valley RECC Region

	Direct	Indirect	Induced	Total
Income	\$4,666,586	\$1,146,858	\$653,190	\$6,466,634
Output	\$22,049,032	\$3,851,825	\$3,292,299	\$29,193,155
Jobs	65	39	24	128

The total projected economic impact of energy efficiency programs in the Licking Valley RECC region is \$35,659,789. Investment in energy efficiency is projected to produce \$4,666,586 in direct income and 64 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

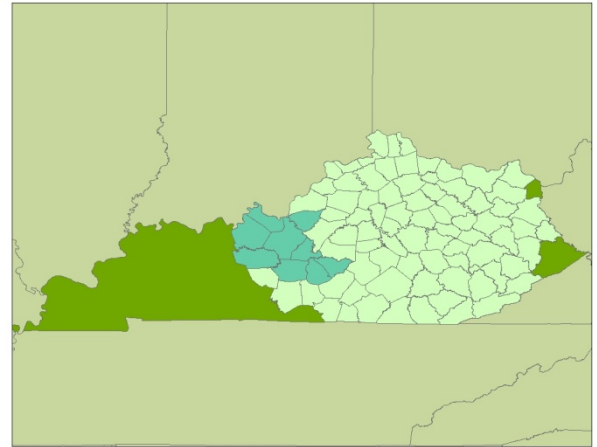
Output: The total value of production by an industry over a given time period

The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Nolin RECC

Includes part or all of Hardin, Larue, Grayson, Breckenridge, Hart, Bullitt, Meade, Green and Taylor Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.



Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.

Projected Economic Impact for the Nolin RECC Region

	Direct	Indirect	Induced	Total
Income	\$10,593,123	\$3,427,881	\$1,872,965	\$15,893,969
Output	\$39,457,417	\$9,807,104	\$5,715,402	\$54,979,923
Jobs	156	108	67	331

The total projected economic impact of energy efficiency programs in the Nolin RECC region is \$70,873,892. Investment in energy efficiency is projected to produce \$10,593,123 in direct income and 155 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

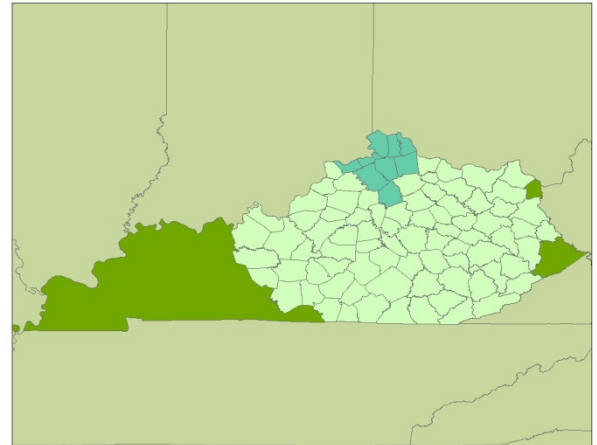
Output: The total value of production by an industry over a given time period

The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Owen Electric Cooperative

Includes part or all of Carroll, Gallatin, Owen, Grant, Boone, Kenton, Campbell, Pendleton, and Scott Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.



Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.

Projected Economic Impact for the Owen Electric Cooperative Region

	Direct	Indirect	Induced	Total
Income	\$42,885,850	\$13,909,520	\$9,654,919	\$66,450,289
Output	\$134,355,202	\$37,109,968	\$30,114,040	\$201,579,210
Jobs	893	342	295	1,530

The total projected economic impact of energy efficiency programs in Owen Electric Cooperative region is \$268,029,499. Investment in energy efficiency and hydro electricity is projected to produce \$42,885,850 in direct income and 893 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

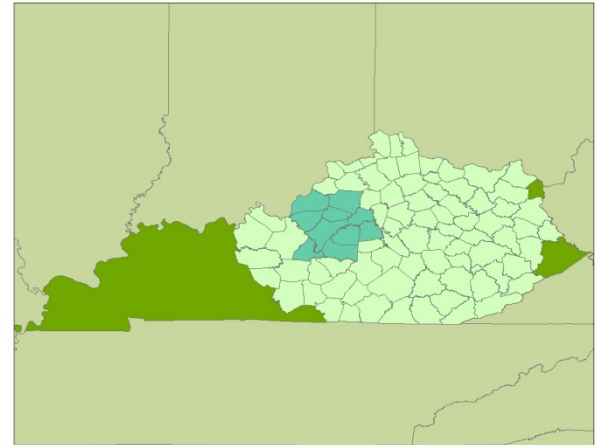
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Salt River Electric Cooperative |

Includes part or all of Bullitt, Spencer, Marion, Nelson, Washington, Anderson, Mercer, Jefferson, Shelby, and Larue Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for the Salt River Electric Cooperative Region

	Direct	Indirect	Induced	Total
Income	\$16,229,261	\$4,030,611	\$1,890,841	\$22,150,713
Output	\$56,185,704	\$12,382,391	\$6,777,333	\$75,345,428
Jobs	249	131	75	455

The total projected economic impact of energy efficiency programs in Salt River Electric Cooperative region is \$97,496,141. Investment in energy efficiency is projected to produce \$16,229,261 in direct income and 248 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

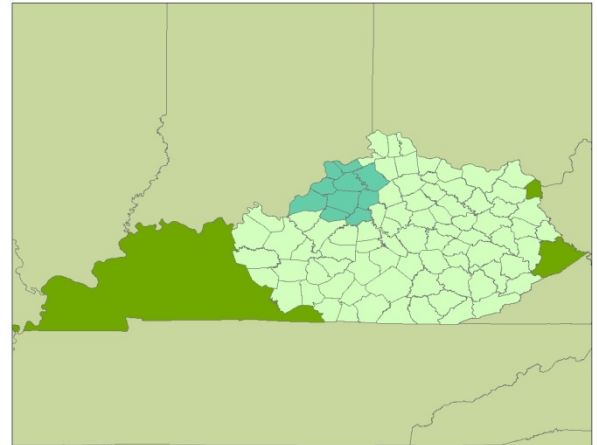
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Shelby Energy Cooperative

Includes part or all of Shelby, Henry, Anderson, Oldham, Trimble, Carroll, Owen, Franklin, Spencer, and Jefferson Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for the Shelby Energy Cooperative Region

	Direct	Indirect	Induced	Total
Income	\$4,702,225	\$1,622,788	\$620,892	\$6,945,905
Output	\$18,450,766	\$4,722,960	\$2,182,719	\$25,356,445
Jobs	60	47	24	131

The total projected economic impact of energy efficiency programs in the Shelby Energy Cooperative region is \$32,302,350. Investment in energy efficiency is projected to produce \$4,702,225 in direct income and 59 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

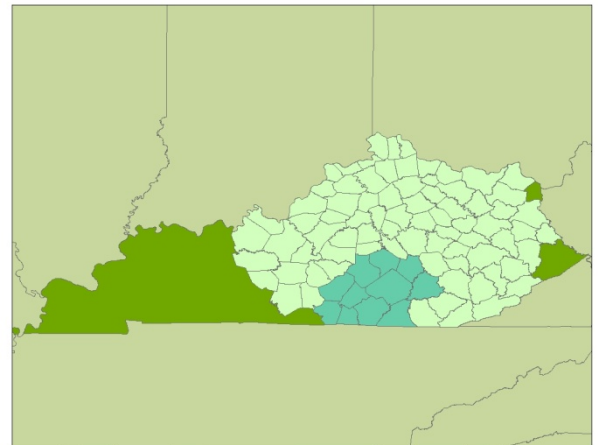
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

South Kentucky Rural Electric |

Includes part or all of Clinton, Wayne, Russell, Casey, McCreary, Rockcastle, Pulaski, Lincoln, Adair, Cumberland and Laurel Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for the South Kentucky Rural Electric Region

	Direct	Indirect	Induced	Total
Income	\$19,997,208	\$7,743,429	\$4,061,822	\$31,802,459
Output	\$77,793,498	\$27,931,194	\$13,069,631	\$118,794,323
Jobs	316	265	153	734

The total projected economic impact of energy efficiency programs in the South Kentucky Rural Electric region is \$150,596,782. Investment in energy efficiency is projected to produce \$19,997,208 in direct income and 315 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

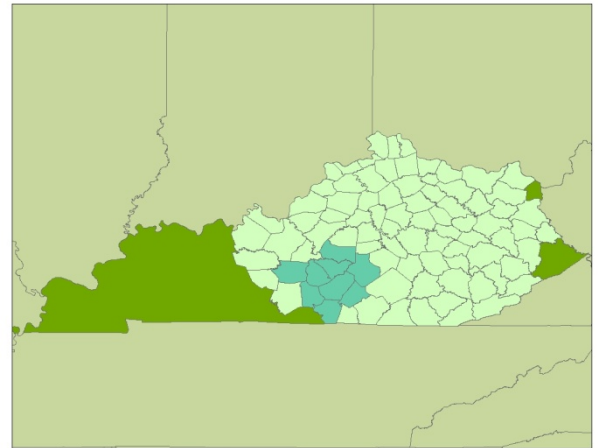
The Economic Impact of Energy Efficiency and Renewable Energy Programs in the EKPC Region

Taylor County RECC

Includes part or all of Green, Taylor, Adair, Casey, Marion, Metcalfe, Cumberland, Russell, and Hart Counties

As an alternative to building the proposed Smith #1 plant, an investment in a combination of energy efficiency, weatherization, hydropower and wind power initiatives in the East Kentucky Power Cooperative (EKPC) region would generate more than 8,750 new jobs for Kentucky residents and have a total impact of more than \$1.7 billion on the region's economy over the next three years. This alternative approach would meet the energy needs of EKPC customers at a lower cost.

Unlike projected economic activity that would result from construction of a new coal-burning power plant, investing in renewable energy, efficiency and weatherization would result in jobs and benefits across the region rather than in a smaller geographic area around the site of the proposed coal burning power plant.



Projected Economic Impact for the Taylor County RECC Region

	Direct	Indirect	Induced	Total
Income	\$6,243,277	\$1,814,985	\$907,963	\$8,966,225
Output	\$32,132,636	\$6,240,316	\$3,101,527	\$41,474,478
Jobs	108	70	38	216

The total projected economic impact of energy efficiency programs in the Taylor County RECC region is \$50,440,703. Investment in energy efficiency is projected to produce \$6,243,277 in direct income and 108 jobs.

*Economic Impact Definitions

Direct Impacts: Impacts directly attributable to the revenues generated by spending. For example, it would include salaries of individuals weatherizing homes and purchases of supplies.

Indirect Impacts: Impacts attributable to industry-to-industry transactions only, reflecting the linkages between suppliers. These impacts would include new jobs and income for local suppliers.

Induced Impacts: Impacts attributable to expenditures in the local economy by employees and owners of directly and indirectly affected firms. These impacts would be seen throughout the local economy as newly employed individuals spend part of their income.

Income: Includes proprietary (small business) income and employee salaries and benefits for a given industry or time period.

Output: The total value of production by an industry over a given time period

About the Ochs Center and the Authors

The Ochs Center for Metropolitan Studies (formerly known as the Community Research Council) is a not for profit corporation based in Chattanooga, Tennessee that conducts data analysis and policy research. In addition to its work in the Chattanooga area, the Ochs Center also works on select projects at the regional and national level.

Dr. William Tharp is a Senior Policy Analyst at the Ochs Center. His recent work includes an analysis of the economic impact of a proposed coal burning power plant in Early County, Georgia, a review of the economic benefits of the May Town Center development in Nashville, a year long study of the economic impact of the Chattanooga Metropolitan Airport and a detailed analysis of workforce trends and needs for the Chattanooga Area Chamber of Commerce. Prior to joining the Ochs Center, Dr. Tharp was a Finance Officer with the Metro Nashville Office of Management and Budget. He holds his Ph. D. in Urban Affairs from the University of Louisville, has taught as an adjunct at Vanderbilt and currently holds the rank of Associate Professor of Public Administration at the University of Tennessee at Chattanooga.

Lori Quillen is a Policy Analyst at the Ochs Center. Her recent work includes an analysis of the economic impact of food production in the Chattanooga foodshed and the economic and health implications of food deserts in the Chattanooga region. Ms. Quillen holds a graduate degree in Public Administration from the University of Oregon and an undergraduate degree from the University of Tennessee at Knoxville.