KENTUCKY DEPARTMENT for ENERGY DEVELOPMENT & INDEPENDENCE

2010 Annual Summary

Kentucky Energy & Environment Cabinet

Foreword

In November 2008 Governor Steve Beshear unveiled his comprehensive energy plan for Kentucky, "Intelligent Energy Choices for Kentucky's Future." The plan is designed to improve the quality of life for all Kentuckians by simultaneously creating efficient, sustainable energy solutions and strategies; by protecting the environment; and by creating a base for strong economic growth.

The Governor's plan incorporates recommendations to improve energy efficiency for Kentucky's homes, businesses and transportation fleet, and calls for an increase in our use of renewable energy. The plan discusses the potential for biofuels as well as coal-to-liquids and coal-to-gas technologies and recommends the initiation of an aggressive carbon capture/storage program for coal-generated electricity. Finally, the plan begins the discussion of whether or not nuclear power will provide a significant portion of electricity in the future.

By refining and adopting this energy plan, Kentucky can establish leadership in the United States for innovating and creating efficient, sound and environmentally compatible energy solutions and strategies. The energy plan serves as a roadmap toward energy independence that is designed to accomplish six important goals:

- Conserve and use energy more efficiently
- Achieve energy independence for transportation fuels
- Use coal more cleanly and efficiently
- Diversify electricity generation to optimize use of renewable and alternative fuels in addition to coal, Kentucky's leading fossil fuel, and nuclear power
- Mitigate carbon dioxide emissions, thereby reducing our carbon footprint
- Establish Kentucky state government as a leader in green practices

During the course of the past twelve months the Energy and Environment Cabinet and the Department for Energy Development and Independence (DEDI) have worked diligently to implement the Governor's energy plan on a broad array of fronts. This annual summary provides a brief overview of those activities that are driving results.

More information about the Governor's energy plan and DEDI's activities to implement the plan can be found at ***http://energy.ky.gov.***

Letter from Dr. Len Peters

Fellow Kentuckians -

I'm proud to report that we have made significant strides toward implementing Governor Beshear's energy plan. Much of this progress results from the American Recovery and Reinvestment Act of 2009. The department is managing nearly $68 million in Recovery Act funds from the US Department of Energy to implement energy efficiency and renewable energy strategies. Many new programs and projects are well underway and will have a significant beneficial impact on Kentucky's homes, businesses, industries, farms, schools and state facilities. Few states have taken such an all-encompassing approach. Under Governor Beshear's leadership we have invested these funds wisely for a better Kentucky.

I encourage you to review the summary of Kentucky's Recovery Act energy programs and projects to understand their scale and impact. Kentucky is investing more than $14 million into our public schools to provide energy managers and programs statewide. School superintendents, principals, teachers and students are engaged and are now making energy-wise decisions.

In addition to work spurred by the Recovery Act, we have co-hosted eight symposiums to highlight and develop Kentucky's bioenergy potential. Additionally, we are working with the Kentucky Climate Action Plan Council to have a candid discussion about Kentucky's energy profile in a carbon constrained environment. The department is actively engaged with our universities and industries to find new solutions that will enable Kentucky and the nation to use its domestic coal and natural gas resources while addressing the challenges of a low-carbon emissions standard.

While 2010 was a successful year, there is much left to do. I seek your continued support to help us shape Kentucky's energy future. I hope you find this summary useful in understanding Kentucky's opportunities and challenges for meeting our energy demands.

Respectfully,

Len Peters, Secretary, Kentucky Energy and Environment Cabinet

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Governor Steve Beshear's Energy Plan: Intelligent Energy Choices *for* Kentucky's Future

Our Challenges

Kentucky's challenge for the 21st century is to develop clean, reliable, affordable energy sources that help us improve our energy security, reduce our carbon dioxide emissions, and provide economic prosperity. Kentucky can be – and in fact must be – a leader in this energy revolution.

Energy independence is a top challenge to the state and the nation in the 21st century, a challenge that has been made at once more urgent and more complex by the equally pressing issue of global climate change. For a major coal-producing state that also relies on coal to generate more than 90 percent of its electricity, addressing these two issues – energy security and climate change – is especially problematic. As a state, it is imperative that we have policies and programs in place that allow us to shape our own energy future by making sure we utilize our energy resources in an environmentally sound manner. The Governor's strategic action plan, Intelligent Energy Choices for Kentucky's Future: a 7-point strategy, is intended to place Kentucky on such a path. Review the Governor's energy plan at http://energy.ky.gov

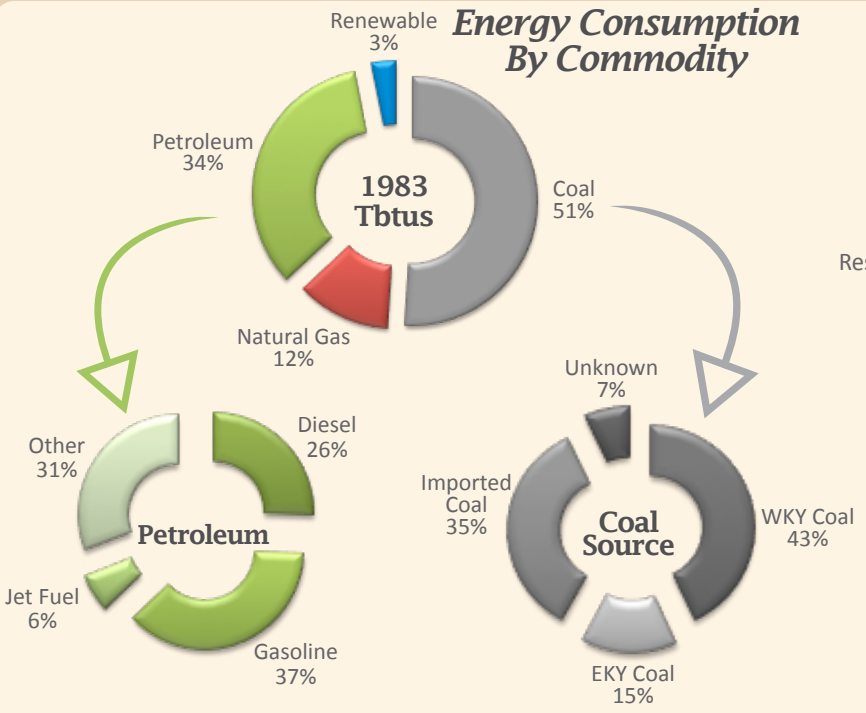
Strategy	Goal
(1) Improve the energy efficiency of Kentucky's homes, buildings, industries and transportation fleet.	Energy efficiency will offset at least 18 percent of Kentucky's projected 2025 energy demand.
(2) Increase Kentucky's use of renewable energy.	By 2025, Kentucky's renewable energy generation will triple to provide the equivalent of 1,000 megawatts of clean energy while continuing to produce safe, abundant and affordable food, feed and fiber.
(3) Sustainably grow Kentucky's production of biofuels.	By 2025, Kentucky will derive from biofuels 12 percent of its motor fuels demand, while continuing to produce safe, abundant and affordable food, feed and fiber.
(4) Develop a coal-to-liquids industry in Kentucky to replace petroleum-based liquids.	Kentucky will develop a coal-to-liquids industry that will use 50 million tons of coal per year to produce four billion gallons of liquid fuel per year by 2025.
(5) Implement a major and comprehensive effort to increase gas supplies, including coal-to-gas in Kentucky.	Kentucky will produce the equivalent of 100 percent of our annual natural gas requirement by 2025 by augmenting in-state natural gas production with synthetic natural gas from coal-to-gas processing.
(6) Initiate aggressive carbon capture/sequestration projects for coal-generated electricity in Kentucky.	By 2025, Kentucky will have evaluated and deployed technologies for carbon management, with use in 50 percent of our coal-based energy applications.
(7) Examine the use of nuclear power for electricity generation in Kentucky.	Nuclear power will be an important and growing component of the nation's energy mix and Kentucky must decide whether nuclear power will become a significant part of meeting the state's energy needs by 2025.

Kentucky Energy Snapshot 2008

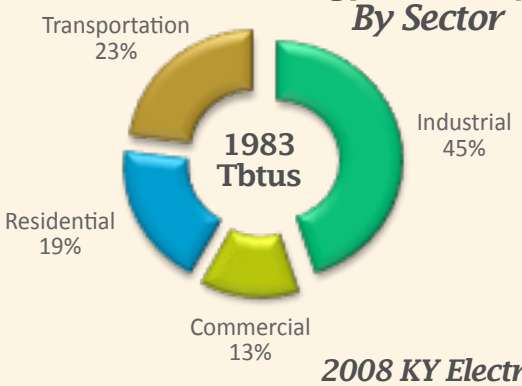
In 2008 Kentucky's energy consumption decreased by nearly 2 percent as a result of the recession as compared to 2007. Total consumption was 1,983 trillion Btus. More than 51 percent of Kentucky's energy consumption is derived from coal, supplied by Western KY (43 percent), Eastern KY (15 percent) and imported coal (35 percent). The majority of Kentucky's coal consumption is for the production of electricity (94 percent). Kentucky is a manufacturing state and 45 percent of our energy use supported the industrial sector. The transportation sector consumed 23 percent, residential 19 percent and commercial 13 percent.

Kentucky consumed 2.2 billion gallons of gasoline in 2008 of which 185 million gallons or about 8 percent was ethanol. Annually Kentucky produces approximately 37 million gallons of ethanol.

Energy Consumption By Commodity



Energy Consumption By Sector

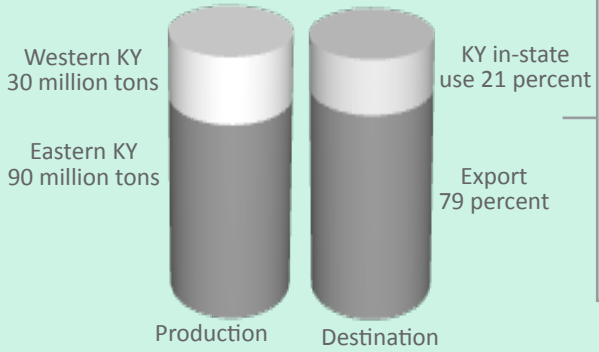


2008 KY Electricity Rates by Sector (cents per kWh)

Sector	Low	Average	High
Commercial	4.7	7.3	12.5
Industrial	3.4	4.8	9.0
Residential	5.9	7.9	10.6

Production and Destination of Kentucky Coal

2008 - 120 million tons total



Kentucky mined 120 million tons of coal in 2008 with 90 million tons coming from Eastern KY and 30 million tons from Western KY.

Approximately 79 percent of this production was exported while 21 percent was used in-state. A majority of Kentucky's exported coal supports electricity generation in Southeastern states.

2008 Average Retail Price Per kWh by State

Rank	State	Cents/kWh
1	WV	5.61
2	WY	5.67
3	ID	5.69
4	KY	6.26
5	UT	6.49
6	WA	6.55
7	NE	6.58
8	ND	6.69
9	MO	6.84
10	IA	6.89

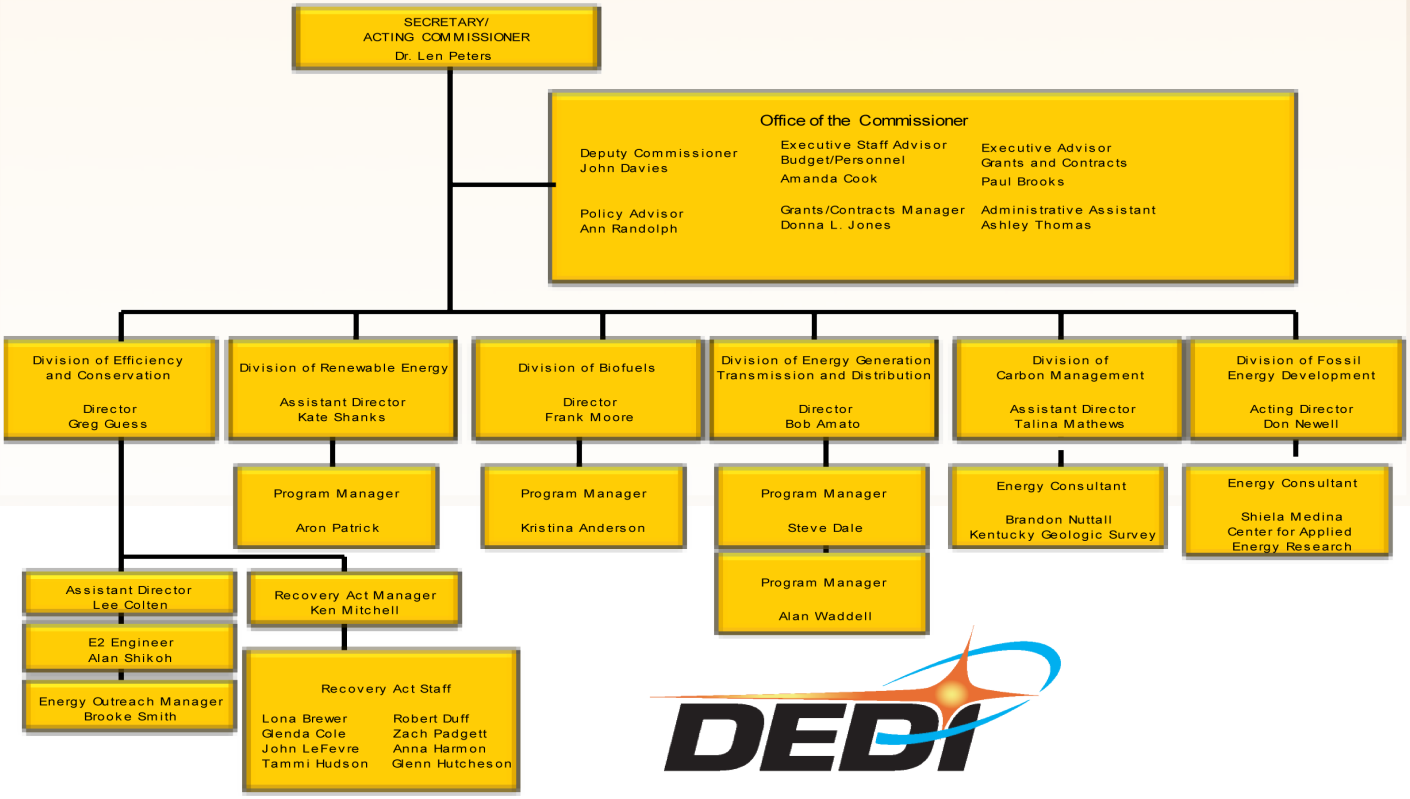
Kentucky's average retail price per kWh is the fourth lowest in the nation. While low overall, prices are not uniform across the state. Prices can vary from 4 cents to 12 cents depending on sector and energy provider.

Source: USDOE EIA 2010

Department *for* Energy Development *and* Independence *Organization*

During the 2010 regular session of the Kentucky General Assembly, House Bill 393 was introduced and signed into law. The legislation established the Department for Energy Development and Independence (DEDI) within the Energy and Environment Cabinet. The department was created with six divisions that support implementation of Governor Steve Beshear's energy plan. The divisions included the Division of Efficiency and Conservation; the Division of Renewable Energy; the Division of Biofuels; the Division of Energy Generation, Transmission and Distribution; the Division of Carbon Management and the Division of Fossil Energy Development. Additionally, the department collaborates with both the University of Kentucky Center for Applied Energy Research and the Kentucky Geological Survey that provide technical expertise and advice. Total recommended staffing for the department is 34 fulltime employees. However, due to economic conditions and a restricted state budget staffing was capped at 18 fulltime employees. Using federal funds the department was able to add an additional 12 federally-funded time-limited employees to help manage the $68 million American Recovery and Reinvestment Act funds allocated to Kentucky by the US Department of Energy.

DEDI's mission is to improve the quality and security of life for all Kentuckians by creating efficient, sustainable energy solutions and strategies and promoting clean, reliable, affordable energy sources that help Kentucky improve energy security, reduce carbon dioxide emissions, and provide economic prosperity. Additionally, the department supports and encourages energy-related research and development that will benefit Kentuckians. A short summary that highlights each of DEDI's divisions, accomplishments for this year and future direction follows.



DEDI Organization

Division *of* Efficiency and Conservation

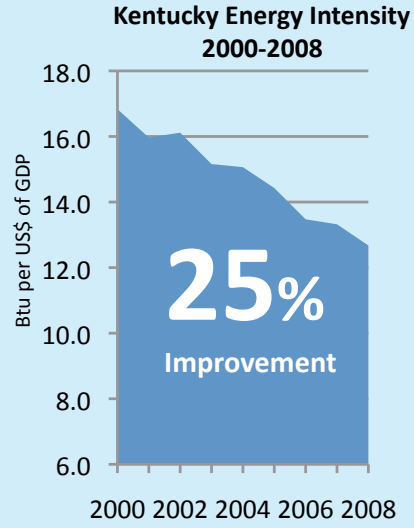
-Greg Guess, Director

The Division of Efficiency and Conservation provides leadership to maximize the benefits of energy efficiency and conservation through awareness, technology development and partnerships. It is charged with implementing Strategy 1 of the governor's 7-point energy strategy to offset at least 18 percent of Kentucky's projected 2025 energy demand through energy efficiency. Additionally, the division is responsible for managing more than $68 million in American Recovery and Reinvestment Act (ARRA) funds that are programmed for energy efficiency and renewable energy. The division has added 12 federally-funded, time-limited positions to support the ARRA mission.

The division focuses on market transformation to accomplish its mission. The increase in funding under ARRA in the Spring of 2009 has resulted in a rapid and dynamic expansion of the division's programs. The division has reached out to other state agencies, state universities, non-profit organizations and for-profit businesses to craft programs that benefit Kentuckians. Programs address all sectors of the Kentucky economy including residential and commercial buildings; industry; agriculture; state government; K-12 public schools (both school buildings and the educational curriculum); utilities; local governments (both cities and counties) and universities.

Key indicators of ARRA's success include the number of jobs created or retained, reduction in greenhouse gas emissions, increases in use of renewable energy and reduction in energy consumed. To the extent possible, programs have been designed to be sustainable so that they can continue beyond the time when the ARRA funding will expire. ARRA funding has given Kentucky a strong boost toward the ambitious goal of meeting 18 percent of our energy needs through efficiency by 2025. It is vital that Kentuckians continue to work toward this goal since efficiency is typically the cleanest, cheapest and quickest form of meeting energy demand.

Since 2000, the energy used to produce one dollar of state gross domestic product (GDP) has dropped by 25 percent. Using less energy per dollar of GDP helps improve KY's competiveness.



Source: USDOE Energy Information Administration

Division *of* Renewable Energy

-Kate Shanks, Assistant Director

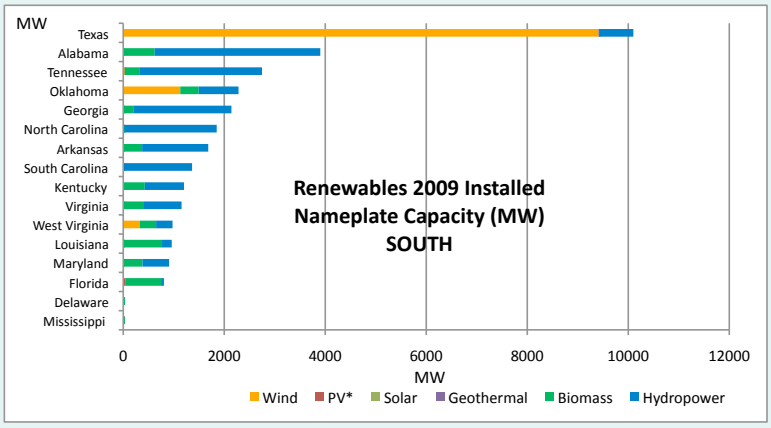
The Division of Renewable Energy is tasked with implementing Strategy 2, which calls on Kentucky to triple its renewable energy generation by 2025 to provide the equivalent of 1,000 megawatts of clean energy while continuing to produce safe, abundant, and affordable food, feed and fiber. In meeting its objective, the division primarily focuses on policy development, policy analysis, education and outreach and provides technical assistance to those pursuing renewable energy.

The division assisted with the development of clean energy legislation that if passed would have increased the generation and consumption of renewable electricity in the Commonwealth. The division is currently working to analyze the impact of clean energy policies in Kentucky and whenever possible is working with partners in this effort. In the coming year, the division will work with the Public Service Commission and the National Renewable Energy Lab (NREL) to study distributed solar electricity generation. NREL will establish a framework for analyzing Kentucky's grid for distributed generation and will provide a review of benefits and costs associated with distributed generation.

DEDI Organization

Division *of* Renewable Energy*...continued*

The division also assisted those pursuing renewable energy by providing information about generation potential, permitting requirements, and federal and state incentives. Specifically the division continues to assist companies pursuing large scale solar projects in the range of 1-2 megawatts in capacity. A grant in lieu of tax credit provided by the federal government as part of the ARRA is driving the development of solar and wind projects in the United States. The division expects a limited number of these large solar facilities to be constructed in 2011 in Kentucky. Additionally, the division represented the department as a member of the Kentucky Tennessee Wind Working Group which is tasked with developing resources for those pursuing wind energy projects in the region.



Source: USDOE National Renewable Energy Laboratory

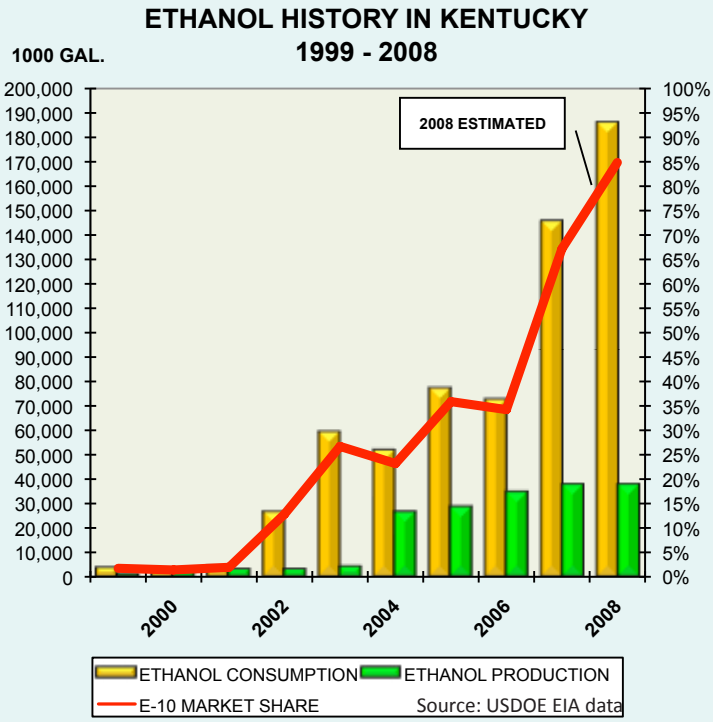
Division *of* Biofuels

-Frank Moore, Director

The Division of Biofuels' mission is to provide leadership to grow Kentucky's biofuels and biomass industries through research, development and commercialization while continuing to produce safe, abundant and affordable food, feed and fiber. The division has oversight in implementing Strategy 3 for biofuels production, and coordinates the biomass power generation features of Strategy 2 for production of renewable electricity.

Subsequent to the release of Governor Steve Beshear's strategic energy plan, it became apparent that despite the many efforts within the Commonwealth toward bioenergy development, both policy makers and citizens were unaware of the immense opportunities for economic development centered on a biomass industry. The division facilitated the appointment by the Governor of an Executive Task Force on Biomass as a means of creating this awareness and of developing a roadmap for deployment. The division continues implementing recommendations of the Task Force, and through symposia and collaboration with other agencies, has to date reached out directly to more than 50 percent of Kentucky's counties. The result has been the creation of more than 60 potential projects that are currently in the early stages of development.

Advanced biofuels technology is currently at pilot and demonstration stage, with a handful of commercial projects in the United States under construction in those states that have written the largest checks to secure these projects. The strategy of the division is to attract these projects without large commitments of state funds. The division works to identify and build upon Kentucky's impressive supply of biomass by recognizing supply chain criteria that will be needed to support a bio energy industry, and communicating supply opportunities to growers and developers. There are currently 18 supply chain projects representing almost three million tons of biomass annually at various stages of development in Kentucky.



DEDI Organization

Division *of* Fossil Energy Development

-Don Newell, Acting Director

The Division of Fossil Energy Development's mission is to maximize the benefits of Kentucky's fossil energy resources in a clean and sustainable manner while creating a base for strong economic growth and fostering national energy independence and security. The division has oversight in implementing Strategies 4 (coal-to-liquids) and 5 (coal-to-gas). As an area of special interest the division also expedites development of waste-to-energy (WTE) projects.

This has been another challenging year for coal development and commercialization as regulatory uncertainty stymied coal projects. Lack of certainty on regulations and emission standards for both criteria and toxic air pollutants, unknown requirements for greenhouse gas control, and the uncertainty surrounding future mining permits in Appalachia have created uncertainty in the market making financial predictions impossible and financing for coal-fueled projects virtually unobtainable.

Given the current federal climate, natural gas is considered by many to be the fuel of choice for the near-term (next forty to fifty years). Improved drilling technologies (like horizontal fracture drilling) have greatly expanded recoverable gas supplies, and currently prices are depressed by the lag time between new production coming on line and major projects being completed. Those projects in development or under consideration include combined cycle electricity generation, stranded-gas-to-electricity projects putting distributed electricity onto the grid, and conversion of large off-road and stationary diesel equipment to run on a mixture of diesel and up to 80 percent liquid natural gas (LNG).

The first off-road heavy diesel has been converted in Harlan County, and many more conversions are planned. There are promising WTE projects currently being developed in Kentucky. These projects will produce steam or electricity to support industry while eliminating substantial quantities of waste that must currently be landfilled.

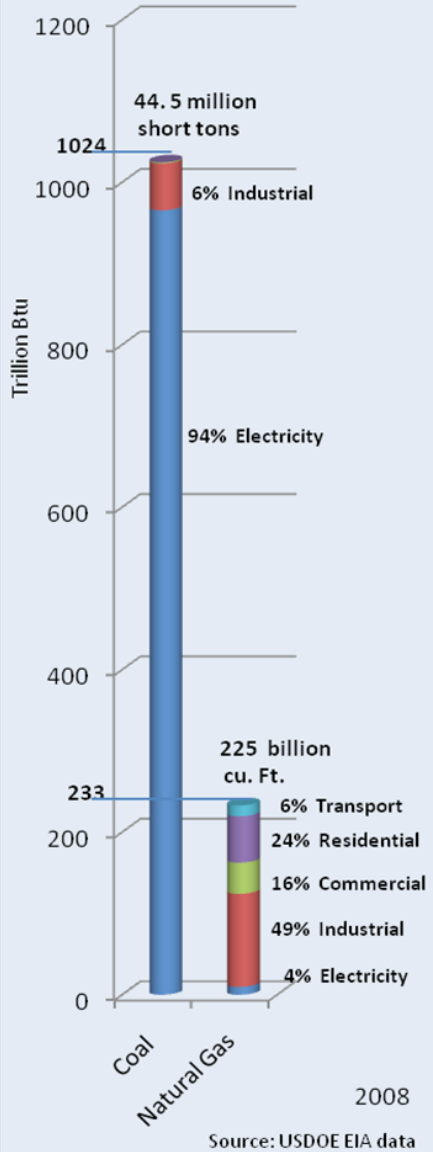
Regulations and legislation will continue to be the biggest influence on companies' energy project plans. While it is unlikely that any substantive legislation on carbon management will be passed in 2011 or 2012, it is equally likely that the U.S. Environmental Protection Agency will continue to promulgate new, more stringent regulations regarding coal mining, coal use, and greenhouse gas emissions.

Unfortunately, uncertainty regarding future requirements that the energy industry must meet will continue. New coal projects will remain difficult to finance, the "rush to gas" will continue for both electricity generation and diesel-to-LNG conversions, and select WTE projects will present growth opportunities.

How Kentucky Uses Coal and Natural Gas

In 2008 Kentucky consumed 44.5 million short tons of coal, 94% was used for electricity generation and 6% was used by industry.

That same year 225 billion cu ft of natural gas were consumed, 49% by industry, 24% by homes, 16% by commercial buildings, 6% for transportation and 4 % for electricity generation.



Source: USDOE EIA data

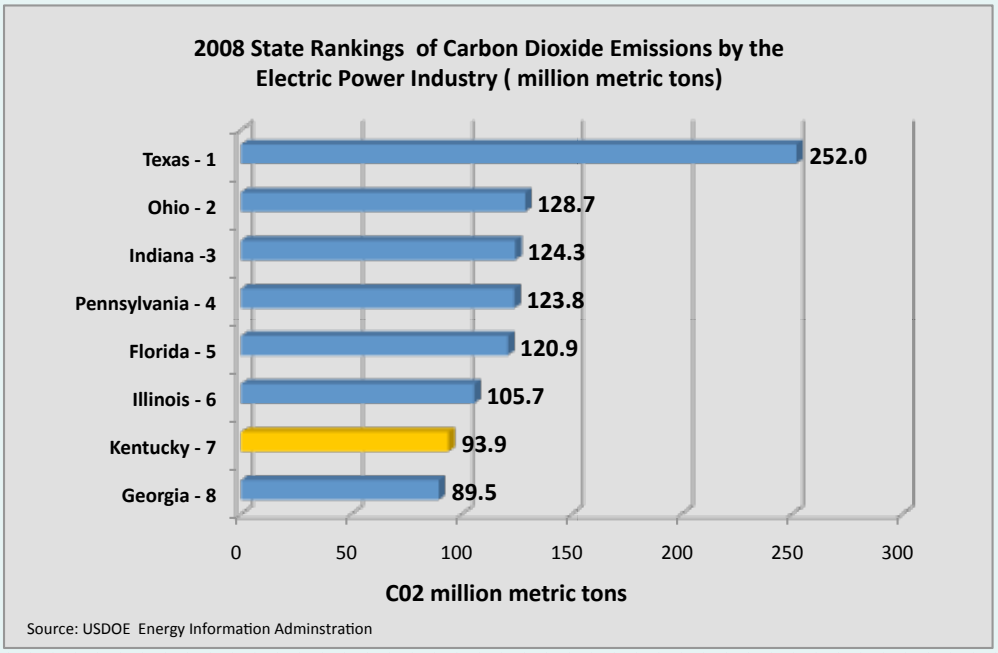
DEDI Organization

Division *of* Carbon Management *-Talina Mathews, Assistant Director*

The Division of Carbon Management's goal is to investigate, develop, and promote technical solutions for carbon capture, storage and reuse; and to engage with state, regional and federal agencies in the development of a state policy designed to manage greenhouse gas emissions, especially carbon dioxide, in a carbon-constrained environment. The division has oversight in implementing Strategy 6 (carbon management). During the past year the division has worked with the Center for Applied Energy Research at the University of Kentucky, the Carbon Management Research group and the Kentucky Geological Survey to establish an integrated carbon capture, storage or reuse project or projects in Kentucky. Kentucky projects already underway include investigation of geologic storage capacity, the use of algae for carbon reuse and development technologies intended to reduce the cost and footprint of retrofitting existing coal-fired power plants.

The division also serves as the project manager for the Kentucky Climate Action Plan Council, an effort to bring together diverse stake holders to craft a Kentucky-specific set of options for the effective and efficient reduction of greenhouse gas emissions.

Looking forward, the division believes that greenhouse gas emissions will continue to be an area of interest for the federal government and that federal regulations and legislation may create a carbon-constrained environment. Kentucky must investigate and discuss carbon management options that are most favorable to the Commonwealth's, and the nation's, economic, environmental and energy future. Development of carbon capture and storage technologies, diversification of our energy supply and increased energy efficiency have many co-benefits including improved air quality, job creation and economic development.



DEDI Organization

Division *of* Energy Generation, Transmission and Distribution

-Bob Amato, Director

The Division of Energy Generation, Transmission and Distribution was created to analyze and develop policies that help facilitate the generation, transmission and distribution of adequate, affordable and clean energy within the commonwealth; to understand the reliability and economic trade-offs for baseload electricity generation; to develop policies that will ensure adequate transmission of energy resources; and to promote alternative and renewable sources for electricity generation. The division also has responsibility for initiating discussion and gathering information on nuclear energy as a base-load source of power for Kentucky's future.

During 2010 the division worked to develop an Energy Assurance Plan and a Kentucky Energy Profile. These documents will provide an overall picture of energy production, consumption and delivery in Kentucky and will improve energy emergency response among other uses.

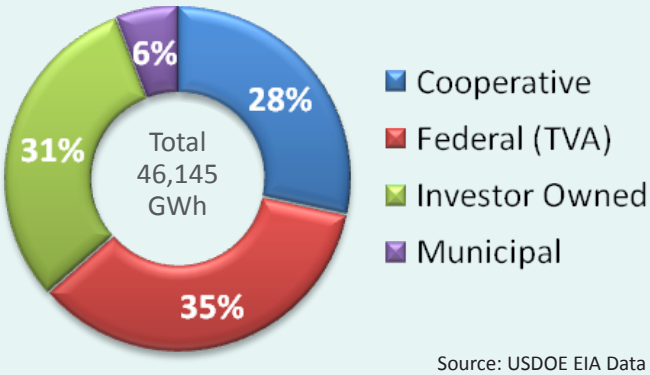
The division also tracks changes in environmental regulations. A challenge for the upcoming year will be to determine the impact of those changes on energy industries in Kentucky, and the potential adaptations to those changes. The division is representing the Governor's office on the Eastern Interconnection States Planning Council (EISPC). The EISPC is a collaboration between state utility commissions and governors' offices of the states east of the Rocky Mountains organized to direct the analysis of electricity system plans for the Eastern Electricity Interconnection. The result of this collaboration will be the identification of needed interstate transmission corridors. The division awarded six ARRA funded smart grid grants to rural electric cooperatives for a variety of projects including advanced metering, self-healing grid applications, and voltage regulation efficiency. A description of these projects can be found on page 44.

Energy Assurance Grant

In 2010, DEDI was awarded a $591,000 Energy Assurance Capabilities and Planning grant from the US Department of Energy. The purpose of the grant is to strengthen and enhance state and local government energy assurance planning and energy system resiliency by building upon existing energy assurance plans and by incorporating Smart Grid applications that will allow Kentucky to better prepare and respond to energy disruptions. The grant will enable DEDI to update and streamline energy assurance procedures, develop an energy resources profile and conduct energy preparedness exercises.

Kentucky Industrial Electric Sales, 2008

Kentucky's 2008 industrial electric sales were 46,145 gigawatthours. Nationally, Kentucky ranks 14th in total state electric industrial sales. The Tennesee Valley Authority supplies the largest portion of this load at 35 percent. Investor owned utilities supply 31 percent, cooperatives supply 28 percent and municipalities supply 6 percent of the sales.



Source: USDOE EIA Data

DEDI Activities

Governor Steve Beshear's energy plan provided DEDI the direction and guidance to initiate and implement many programs and projects throughout the year. These activities connect with Kentucky's economic sectors to help create jobs, save energy, increase the production of alternative energy, and improve the environment. To broaden the impact of these activities, DEDI has built partnerships with many public and private organizations across the Commonwealth. These partnerships have helped transform good ideas into highly successful projects and programs. A chronological list highighting DEDI and its partners more significant activities follow.

January

DEDI Activities

First Lady Jane Beshear congratulated the Kentucky Department of Education (KDE) as the first recipient of a loan from The Green Bank of Kentucky program.

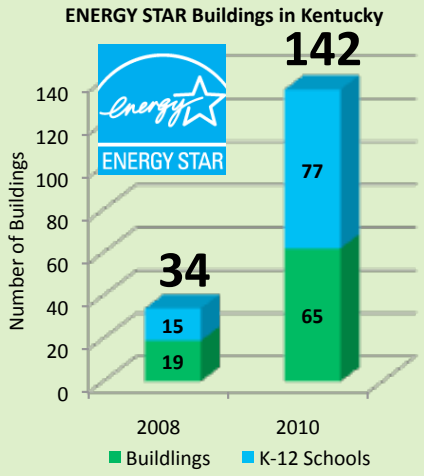
KDE used the loan of nearly $1.3 million implement energy conservation measures at the Kentucky School for the Blind in Louisville, the Kentucky School for the Deaf in Danville and the Future Farmers of America (FFA) Leadership Training Center in Hardinsburg. The Green Bank of Kentucky is supported by ARRA funding administered by the Finance and Administration Cabinet and DEDI.

Students at the Kentucky School for the Blind examine a display at the press conference held by First Lady Jane Beshear. The First Lady visited the school to announce the first loans from The Green Bank of Kentucky.

ENERGYGY STAR Buildings in Kentucky

In 2010 a total of 142 buildings were labeled as ENERGY STAR, 77 K-12 schools and 65 other building types. This is a 317 percent increase in the number of ENERGY STAR labeled building in Kentucky since 2008.

Buildings that earn the ENERGY STAR label use less energy, cost less to operate, lighten the load on the environment and improve the comfort and indoor air quality for building occupants.



Source: US EPA ENERGY STAR www,energystar.gov

January cont.

DEDI Activities

The Kentucky Cabinet for Economic Development issued two Request for Proposals to award up to $4.35 million in competitive ARRA funding for projects that demonstrate advanced energy savings and clean energy technologies in industrial, commercial and manufacturing facilities located in Kentucky. ARRA funding is administered by DEDI.

The Kentucky Climate Action Plan Council (KCAPC) met to identify opportunities for Kentucky to respond to the challenge of global climate change and any federal legislation or regulation to address greenhouse gas emissions while becoming more energy efficient, more energy independent and spurring economic growth.

February

DEDI Activities

The University of Louisville's Kentucky Pollution Prevention Center (KPPC) received $2.23 million in ARRA funding through the Energy and Environment Cabinet for the Kentucky Industrial/Commercial Sustainability Program (KICSP). The funding expands KPPC's nearly decade-long success in providing energy efficiency and renewable energy services for a variety of Kentucky manufacturers, businesses, schools, universities, government agencies and other organizations.

The Governor's Office of Agricultural Policy (GOAP) announced incentives for farms. DEDI has given more than $600,000 in ARRA funding to GOAP for on-farm energy efficiency and production incentives. The incentive program will provide 25 percent reimbursement of the actual cost of a federally qualified energy saving item, up to $10,000.

The Energy Resources Management Board met to discuss the state's energy emergency management plan, current energy modeling efforts, minor organizational changes to Emergency Support Function, committee functions and responsibilities and participation in the New Madrid Fault Training Exercise.

DEDI closed its Request for Proposal on the Utility Smart Grid Initiative. Ten proposals were received for the $2.65 million grant money through the ARRA-funded State Energy Program. The project supports the integration of "smart grid" strategies and technologies into Kentucky's electric utility infrastructure.

The Request for Proposal for the Industrial Facility Retrofit Showcase closed. DEDI created a partnership with the Cabinet for Economic Development to disburse $4.4 million in ARRA funding to industries locating or expanding operations in Kentucky that create or retain "green jobs" while saving energy and reducing carbon emissions. A total of 14 proposals were received for evaluation.

A Memorandum of Agreement creating a partnership between DEDI and the Kentucky School Boards Association (KSBA) was executed for the Kentucky School Energy Managers Project (SEMP). The program will operate with $5 million from ARRA funding. Through KSBA, school districts will submit proposals to hire energy managers for their district with SEMP funding paying a portion of the energy manager's salary.

March

DEDI Activities

The Kentucky Climate Action Plan Council (KCAPC) held its second meeting to address state actions being proposed by the technical work groups and to review Kentucky's greenhouse gas emissions inventory draft.

The Kentucky Agricultural Development Board, chaired by Governor Steve Beshear, approved the Kentucky Forage & Grassland Council for $100,000 in agricultural development funds and $100,000 in ARRA funds for the expansion of research related to switchgrass as a renewable energy source. This project is the first award through the ARRA Multi-County Energy Initiative Program being administered by the Governor's office of Agricultural Policy.

DEDI and the Kentucky chapter of the National Energy Education Development (NEED) Project hosted a two-day High Performance Sustainable Schools workshop. First Lady Jane Beshear welcomed more than 200 attendees to the workshop. Superintendents, school board members, and facilities managers attended to learn how high-performance facilities improve student health and productivity, attract quality teachers, significantly reduce energy use and operating costs and protect the environment.

DEDI co-sponsored the second annual Midwest Regional ENERGY STAR Conference. The Midwest Regional ENERGY STAR conference appealed to individuals, trade associations and industry professionals that have any role in the production and sale of homes. On the second day of the conference, First Lady Jane Beshear addressed the more than 425 conference attendees.

First Lady Jane Beshear along with staff members from DEDI recognized North Magoffin Elementary School for earning the prestigious ENERGY STAR, a national symbol for protecting the environment through superior energy performance.

The Center for Renewable Energy Research and Environmental Stewardship (CRERES) held its second meeting at the University of Louisville's Conn Center. Dr. Len Peters, Secretary for the Energy and Environment Cabinet, chairs the CRERES board. The Center's role is to provide leadership, research, support, and policy development in renewable energy.

Midwest Regional ENERGY STAR Conference 2010

As an ENERGY STAR partner, the DEDI joined with the Home Builders Association of Lexington (HBLA) to help sponsor the 2010 Midwest Regional ENERGY STAR Conference. America's leading energy efficiency authorities showcased the latest energy-saving home innovations at the conference March 25-26 at the Lexington Center in downtown Lexington. Hundreds of building professionals, government officials and business leaders attended the conference, which included a trade show and four tracks of educational, in-service-worthy sessions. Additional networking and entertainment activities were designed to encourage better information exchange and awareness within the energy efficient home industry.

The conference featured nationally recognized speakers such as Phillip Fairey of the Florida Solar Institute, who has more than 30 years in building science research, and Steve Baden, Executive Director of the Residential Energy Services Network (RESNET), which sets national standards for energy efficiency ratings. First Lady Jane Beshear, Energy and Environment Cabinet Secretary Len Peters and Finance and Administration Cabinet Secretary Jonathan Miller provided keynote presentations to the participants.

The conference was hosted by the Home Builders Association of Lexington. Kentucky's Touchstone Energy Cooperatives, Louisville Gas and Electric and Kentucky Utilities were major presenting sponsors.

More than 425 participants and exhibitors attended the conference and HBAL expects this number to grow in coming years. The 2011 Midwest ENERGY STAR Conference will take place March 24-25 at the Lexington Center in Lexington, KY. For more information please visit http://www.midwestenergyconference.com/2011/2011index.htm.

April

DEDI Activities

DEDI awarded more than $2.6 million in ARRA in smart grid grants to six rural electric cooperatives. Grants were awarded to Warren RECC, Jackson Energy Cooperative, Owen Electric Cooperative, Blue Grass Energy, Nolin Rural Electric, Hickman-Fulton Counties Rural Electric, and Shelby Energy Cooperative. Shelby Energy Cooperative later withdrew from the program.

The University of Louisville's Kentucky Pollution Prevention Center (KPPC) held Save Energy Now workshops in Erlanger and Richmond, KY. These workshops highlighted KPPC's industrial energy-savings programs. KPPC received over $300,000 in ARRA funding through DEDI to implement a Save Energy Now program that is designed to help industrial and manufacturing facilities.

The Kentucky Agricultural Development Board (KADB), chaired by Gov. Steve Beshear, approved $20,300 for South Kentucky Rural Electric Cooperative Corporation to conduct a feasibility study of biomass power in the Lake Cumberland region. The total represents $10,150 from ARRA funds from DEDI and $10,150 from the state agricultural development fund. This project was approved through the board's Multi-County Agricultural Energy Initiative.

The Green Bank of Kentucky Loan Committee preliminarily approved funds for energy efficiency retrofits of the Old Capitol complex and the state fleet garage near Holmes Street in Frankfort, among others. The funds granted by The Green Bank of Kentucky are made possible by the Finance and Administration Cabinet's partnership with DEDI, which utilizes ARRA funds. The retrofits are expected to increase the energy efficiency of the complexes by 20 to 30 percent.

Gov. Steve Beshear commemorated the 40th anniversary of Earth Day by kicking off the Kentucky Energy Efficient Appliance Rebate Program at Rabon's TV and Appliance in Paris, KY. The Governor was joined by local community leaders as well as Secretary Len Peters, and Gay Dwyer of the Kentucky Retail Federation. The rebates are funded by $4 million in ARRA funds.

Department for Local Government (DLG) Commissioner Tony Wilder announced an Energy Efficiency and Conservation Block Grant (EECBG) Award totaling $125,000, to provide energy improvements to Jeffersontown. Enhancements include the replacement of old streetlights with more efficient lighting, renewable technologies on government buildings and community education and involvement. The EECBG program is funded by ARRA and is administered by DLG and DEDI.

Governor Steve Beshear announces the KY Energy Efficient Appliance Rebate Program

May

DEDI Activities

Governor Beshear announced the award of more than $787,000 in ARRA funding to four Kentucky companies. The funding will be used to replace old, inefficient lighting with advanced energy efficient fixtures in existing Kentucky industrial facilities. Companies receiving ARRA funds for lighting retrofit projects include: Montaplast of North America Inc., Frankfort ($280,500); Florida Tile Inc., Lawrenceburg ($162,500); General Electric Company, Aviation Division, Madisonville ($200,000); and Sekisui Specialty Chemicals America LLC, Calvert City ($144,170).

First Lady Jane Beshear announced that more than 120 Kentucky school districts will employ energy managers to create and implement energy efficiency programs over the next two years. Grants totaling $2.5 million, funded through the ARRA, have been awarded to 27 districts or multi-district partnerships through the School Energy Managers Project (SEMP) administered by the Kentucky School Boards Association.

Kentucky Energy and Environment Cabinet Secretary Len Peters presented the Kenton County School District with a $2 million dollar check to fund solar panels at Turkey Foot Middle School. The grant will enable the new middle school to become one of the first net-zero energy schools in the Commonwealth. The net-zero energy school grant is made possible by the ARRA, through the U.S. Department of Energy.

Kentucky First Lady Jane Beshear announced a $1.374 million grant to Warren County Public Schools for the purchase of solar panels at the new Richardsville Elementary School, putting the facility one step closer to becoming the nation's first school that will produce as much energy as it uses. The Richardsville School is designed to use one-fourth of the energy used in a typical Kentucky school.

The Kentucky Agricultural Development Board, chaired by Governor Beshear, approved the Commonwealth Agri-Energy LLC for $115,000 in Kentucky Agricultural Development Funds ($100,000 state / $10,000 Christian County / $5,000 Todd County) and $100,000 in ARRA funds to reduce the amount of electricity required for the ethanol plant's cooling system.

UK Cooperative Extension Service/State Fair

The University of Kentucky (UK) Cooperative Extension Service and DEDI began a partnership in 2002 to provide energy efficiency and renewable energy education to Kentucky's consumers. Through a grant provided by DEDI, the UK Cooperative Extension Service provides ENERGY STAR information statewide through its network of county extension agents. DEDI funding also helps the UK extension Service support the Kentucky State Fair ENERGY STAR exhibit, train Cooperative Extension staff about the display and take the display to other events across the state throughout the year.

The ENERGY STAR state fair exhibit demonstrates construction and remodeling techniques that can reduce energy costs. The exhibit featured 70 energy saving techniques and practices, such as installing ventilation, insulation and ductwork. The exhibit also displayed ENERGY STAR lighting, windows and appliances. The ENERGY STAR exhibit was in partnership with the UK College of Agriculture "Healthy Homes" exhibit that focused on indoor air quality, radon awareness, moisture control in the home, lead paint in older homes and family health.

During the fair, the ENERGY STAR exhibit was viewed by more than 85 percent, or about 360,000, of the 494,345 state fair attendees. In 2010, the exhibit was taken to over 46 events across the state, such as home shows, conferences and area fairs. An estimated 3,300 technical assistance contacts were made throughout the year with homeowners, contractors, and others about specific issues of home energy efficiency.

June

DEDI Activities

The Kentucky Climate Action Plan Council (KCAPC) met and council members reviewed and approved recommended priority policy options and reviewed proposed changes to the draft Kentucky greenhouse gas emissions inventory and forecast.

KPPC held Save Energy Now workshops in Louisville and Bowling Green to help industries and manufacturing facilities learn how to lower their operating costs through best energy management practices. Workshop sessions are conducted by KPPC engineers and specialists in the energy field, and guest speakers include representatives from the U.S. Department of Energy, regional utilities and consultants. These workshops are supported by ARRA funding administered by DEDI.

KY NEED hosted its annual KY Energy Tour for KY Educators. The tour supports the Governor's Energy Strategy and includes information and site visits consistent with Kentucky's energy plan. Traveling via tour bus with 22 educators, KY NEED visited energy sites in Eastern Kentucky and Eastern Tennessee. Additionally, TVA's Buffalo Mountain Wind Farm and Watts Bar Nuclear Plant were visited. This activity is sponsored by DEDI.

The premiere showing of the film "Coal in Kentucky: A Documentary" took place before a packed audience at the Kentucky Theater in Lexington, Kentucky. Through the voices of coal industry professionals, activists, politicians and everyday people, this documentary examined the significance of coal in Kentucky. The project was funded through a grant from DEDI, the film was presented by the University of Kentucky's Vis Center and Department of Mining Engineering.

The Green Bank of Kentucky Loan Committee led by Secretary Jonathan Miller approved a $171,474 eSelf Green Bank loan for 701 Holmes Street; a $114,211 eSelf Green Bank loan for the Old Capitol Campus; and a loan for $1,818,725 to finance an energy savings performance contract for the KET complex in Lexington. These loans are funded by ARRA and are managed by the Finance and Administration Cabinet through a grant from DEDI.

On June 30, Secretary Len Peters convened the quarterly board meeting of the Center for Renewable Energy Research and Environmental Stewardship. The board received presentations by Western Kentucky University's Kentucky Mesonet system of weather stations and by Mr. Gary Crawford, ecoPower, on a 56 MW biomass power plant facility to be built in Hazard, KY.

*Richardsville Elementary School students pose with First Lady **Jane Beshear** prior to the press conference where she announced an award of $1.3 million in Recovery Act funding to Warren County Public Schools for the purchase of solar panels for Richardsville Elementary.*

Coal in Kentucky: A Documentary

The Vis Center and the Department of Mining Engineering, College of Engineering at the University of Kentucky received funding from the Kentucky Department for Energy Development and Independence for a video documentary project with supporting on-line materials and educational events exploring the enduring significance of coal mining in Kentucky. The intent of this project is to present a balanced picture of coal in Kentucky. The premiere event debuting the documentary was held on June 16, 2010 to a packed house at the Kentucky Theatre in downtown Lexington. For more information visit the DEDI website at ***http://energy.ky.gov.***

July

DEDI Activities

Officials from Kentucky school districts met in Lexington to kick off the Kentucky School Energy Managers Project. The session opened three days of orientation and training for 35 newly hired school energy managers who will be charged with helping up to 130 Kentucky public school districts use energy more efficiently. The energy managers were hired with ARRA stimulus dollars funneled through the Kentucky School Boards Association and DEDI.

At the GE Appliance Park, First Lady Jane Beshear announced that nearly $1.7 million in unclaimed funds remain in the Kentucky Energy Efficient Appliance Rebate Program. During phase one of the program, residents could 'reserve' rebates. Nearly half of Kentuckians who reserved a rebate have not purchased an appliance, making those unclaimed funds available.

The Kentucky Housing Corporation and DEDI hosted KY Home Performance Contractor and Home Auditor Training in Lexington. Over 150 homebuilders, remodelers, contractors, energy providers and installers attended the one-day event to learn about the new statewide program designed to provide assistance with home energy efficiency improvements. KY Home Performance is sponsored by ARRA.

The KY Renewable Energy Consortium and DEDI hosted a special Wind Energy in Kentucky Webinar to begin an interactive conversation with experts in the field. The webinar provided an overview of wind energy potential in the Commonwealth, an industry perspective on wind power in Kentucky and a look at collecting wind speed data for small scale wind projects.

DEDI announced that collaborative conferences will be held across the Commonwealth to provide an opportunity for business owners and entrepreneurs to learn about potential development through bioenergy, mandates that are driving bioenergy markets, and federal and state resource organizations that provide financing, marketing and other services. The Governor's Office of Agricultural Policy, KY Area Development Districts and DEDI are helping to host these events.

Gov. Steve Beshear announced 19 Energy Efficiency and Conservation Block Grants (EECBG) awarded to communities across the Commonwealth in support of energy efficiency programs. The grants, totaling $1.17 million will go toward energy advancements in each community. Improvements include retrofitting light fixtures to decrease energy costs, installing programmable thermostats and replacing doors and windows. EECBG is supported by ARRA being administered by the Department for Local Government and DEDI.

Energy Managers hired by the Kentucky School Boards Association's School Energy Managers Project.

August

DEDI Activities

The Governor's Office of Agricultural Policy (GOAP), Murray State University and DEDI hosted a Regional Agri-Energy Field Day at the MSU Pullen Farm and Arboretum Pavilion. The Field Day consisted of speakers addressing the current state of agri-energy, future agri-energy possibilities and the availability of funding for on-farm energy efficiency upgrades and new crop possibilities.

Gov. Steve Beshear announced the award of $481,690 in On-Farm Energy Efficiency and Production Incentives grants to 52 producers. This grant program is the result of the partnership between the GOAP and DEDI with stimulus funds from ARRA.

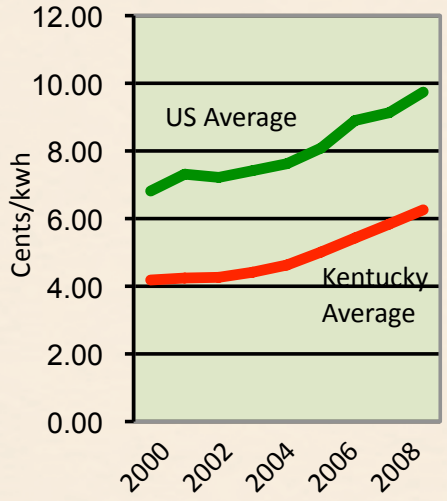
The Kentucky Cabinet for Economic Development Business Programs, Morehead-Rowan County Economic Development Council, Governor's Office of Agriculture Policy and DEDI hosted an Economic Development through BioEnergy symposium at Morehead State University. The symposium updated attendees about the economic development opportunities associated with the expansion of a bioenergy industry in Kentucky.

Gov. Steve Beshear announced the award of $3.35 million in ARRA funding to three Kentucky companies. The funding will be used for energy efficiency upgrades in existing Kentucky industrial facilities. Companies included General Electric Company (GE) in Louisville ($2.5 million); Arch Chemicals Inc. in Brandenburg ($450,000); and International Paper Company in Henderson ($400,000). The grants awarded through this Industrial Facility Retrofit program are one component of the Commonwealth's State Energy Program that was funded through ARRA.

With grant funding from DEDI, the Kentucky Geological Survey (KGS) developed an interactive web map titled "Kentucky Energy Infrastructure." The map service includes tools which allow a user to select a defined area, choose a level of detail, and click on mapped items, such as power plants, mines and coal-related facilities, to see information on the particular feature.

Between 2000 and 2008 US and Kentucky average retail electricity price per kWh have increased by over 43 percent, averaging an increase of over 5.5 percent per year.

Average Kentucky & US Electricity Rates



Source: USDOE EIA data

September

DEDI Activities

Gov. Steve Beshear and Energy and Environment Cabinet Secretary Len Peters visited General Electric's Aviation Division in Madisonville to view the results of the company's recent lighting retrofit investment project. GE Aviation was awarded $200,000 in ARRA funding to replace old, inefficient lighting with advanced energy efficient fixtures. GE Aviation was one of seven companies selected for a grant through a competitive Request for Proposal (RFP), which was administered by the Cabinet for Economic Development through a partnership with DEDI.

Kentucky Pollution Prevention Center in partnership with the Kentucky School Boards Association (KSBA) hosted a series of four workshops to train school district energy managers, energy team members and other district stakeholders who want to learn how to establish a sustainable energy management program that yields cost savings year after year. The four workshops were held at various locations across Kentucky from September 27 to October 1. These workshops are supported by ARRA funding and DEDI.

Mount Washington soon will begin replacing some streetlights and evaluating energy efficiency of older residential buildings, thanks to a $125,000 state grant. The city, which maintains nearly 2,000 streetlights, wants to replace 300 of the oldest lamps and fixtures with higher-efficiency light-emitting diodes, or LEDs. The grant was supported by ARRA, Department for Local Government and DEDI.

October

DEDI Activities

The University of Kentucky's Center for Applied Energy Research (CAER) broke ground on what will become the University's first Leadership in Energy and Environmental Design (LEED) laboratory. DEDI is providing a $3.5 million ARRA grant to help CAER achieve the LEED standard.

Gov. Steve Beshear announced the launch of KY Home Performance, a comprehensive energy efficiency program that will help homeowners across the Commonwealth save money and energy while creating jobs. Announcement was made at the opening of an new Arronco store. Arronco installs environmentally friendly geothermal heating and cooling systems throughout the state. As a service provider for KY Home Performance, Arronco Comfort Air expects its business to grow, and therefore plans to bring 20 new jobs to Lexington by the end of 2011.

Kenton County School District accepted an Energy Leadership Award from the Kentucky Energy and Environment Cabinet at the 34th Governor's Conference on the Environment in Louisville. Energy Leadership Awards are awarded to leaders in the Kentucky energy field who have made a positive impact on Kentuckians by promoting energy efficiency and the exploration and usage of alternative energy sources. Kenton County School District received the award due to exemplary efforts to increase the energy efficiency of their buildings.

*State and local dignitaries broke ground on the new NIST laboratory at the University of Kentucky's Center for Applied Energy Research. L-R: State Senator **Tom Jensen**, UK **President Lee Todd, Jr.**, CAER Executive Director **Rodney Andrews**, NIST Chief Facilities Management Officer **Fiotes Stella**, Governor **Steve Beshear**, Lexington Mayor **Jim Newberry**, KY Speaker of the House **Greg Stumbo**, CAER Board Member and House Majority Leader **Rocky Adkins**.*

October cont.

DEDI Activities

Warren County Public Schools accepted one of two Energy Leadership Awards from the Kentucky Energy and Environment Cabinet at the 34th Governor's Conference on the Environment in Louisville. Warren County Public Schools received the award due to exemplary efforts to increase the energy efficiency of its buildings. Since 2003, the district has implemented energy-saving programs that have avoided more than $5.4 million in energy costs. With the rapid success of energy management strategies, the district took on the challenge of constructing more efficient school buildings.

Gov. Steve Beshear announced that Kentucky Educational Television's (KET) network center in Lexington has been awarded a loan of more than $1.8 million from the The Green Bank of Kentucky program. With the low-interest loan, KET will implement energy efficiency and conservation measures. The money saved through reductions in energy and utility costs will be used to repay the loan.

A ribbon-cutting ceremony marked the official opening of the new research laboratory for Eastern Kentucky University's Center for Renewable and Alternative Fuel Technology (CRAFT). The opening of the state-of-the-art research facility symbolizes the rapid growth of CRAFT since its establishment in December 2008. In less than two years, the center has grown from a concept into a viable research center dedicated to fostering interdisciplinary research to develop a regional biofuels industry in Kentucky.

Fifteen companies from across Kentucky were recognized at an awards ceremony for their commitment to reducing energy usage through the Kentucky Save Energy Now (KY SEN) initiative. Administered by KPPC, KY SEN is modeled after the national Save Energy Now program which is run by the U.S. Department of Energy. KY SEN helps energy-intensive facilities build self-sustaining energy-savings programs. The program is supported by ARRA funds administered by DEDI.

The Kentucky Cabinet for Economic Development issued a third Request for Proposal (RFP) for the purpose of awarding up to $250,000 in competitive funding for energy efficiency and renewable energy initiatives. The RFP is seeking projects that introduce and demonstrate advanced energy savings and clean energy technologies in for-profit industrial, commercial and manufacturing facilities located in Kentucky. Two similar RFP's issued by the Cabinet earlier in the year resulted in seven companies receiving more than $4 million for energy efficiency projects supported by ARRA funds.

DEDI Deputy Commissioner John Davies presents the Energy Leadership Award to Kenton County School District, accepted by Chris Baker and Rob Haney.

John Davies, Superintendent Tim Murley and CFO Willie McElroy from Warren Co. Public Schools

November

DEDI Activities

First Lady Jane Beshear visited the home of Lexington residents Larry and Melissa LeVine to see firsthand the energy-efficiency improvements being made as a part of KY Home Performance, a comprehensive, energy-efficiency program designed to help Kentucky homeowners save energy while increasing the comfort of their homes. KY Home Performance is funded by a $4 million State Energy Program Grant, provided by ARRA, plus an additional $2.1 million from the Kentucky Housing Corporation (KHC). The program is a partnership between KHC, DEDI and the Finance and Administration Cabinet.

First Lady Jane Beshear congratulated Oldham County Public School District for being a state leader in building ENERGY STAR schools. Nancy Wenz, Oldham County Schools energy manager said Crestwood is the first school in Kentucky to earn a perfect ENERGY STAR rating of 100. Locust Grove Elementary earned a 99 and East Oldham Middle School earned a 92.

Hundreds of Warren County residents, parents, school officials and elected leaders celebrated the new state-of- the-art school, Richardsville Elementary, November 22 during its ribbon-cutting and dedication ceremony. The 77,000-square-foot, $12.6 million building is the first net-zero energy school in the nation. An ARRA grant administered by DEDI provided a portion of the funding.

Energy Intensity in Kentucky In Comparison to the Rest of the United States - 2008 *(1= most energy intensive)*

14th	Total Electricity Consumption	7th	Energy Consumption per capita
3rd	Electricity Consumption per capita	8th	Energy Consumption per dollar GSP
18th	Total Energy Consumption	15th	Motor Gasoline Expenditures per capita

Source: USDOE Energy Information Administration

December

DEDI Activities

The Green Bank of Kentucky Loan Committee reviewed and approved a $2.2 million loan for the Kentucky Department of Veteran's Affairs to initiate an energy savings performance contract (ESPC) at three veteran centers Thomas-Hood, Wilmore; Paul E. Patton Eastern Kentucky, Hazard; and Western Kentucky, Hanson. The ESPC will include improvements to lighting systems, water systems and heating and cooling systems.

The Green Bank Loan Committee reviewed and approved a $2.6 million loan for the Finance and Administration Cabinet to initiate a Frankfort State Buildings ESPC. ESPC improvements will include lighting, water, controls, mechanical equipment and building envelope. A total of eight facilities are included representing over 741,000 square feet.

Governor Beshear delivered the keynote address at the NAATBatt 2010 Annual Meeting and Conference at the Seelbach Hilton Hotel in Louisville. The conference focused on the impact of plug-in electric vehicle (PEV) recharging on local electric distribution and transmission systems. Utilities, utility regulators, automakers and battery manufacturers from across the nation attended the first comprehensive, cross-industry discussion of how the grid can best handle the advent of mass-market PEV's. Both the technical and policy implications of integrating PEV's onto the grid were discussed.

Representatives from Kentucky's industries, universities and government gathered at the Sherwin-Williams facility in Richmond for a facility tour and the inaugural meeting of the Kentucky Energy Alliance. Attendees got a first-hand look at the energy management techniques that helped the company realize a 24.9 percent drop in electricity usage between 2006 (their baseline year) and 2009. Sherwin-Williams has implemented dozens of energy-saving projects over the past few years, and has been recognized nationally for its significant progress in energy efficiency. Kentucky Energy Alliance is being sponsored by the Kentucky Pollution Prevention Center using ARRA funds administered by DEDI.

Kentucky Climate Action Plan Council

The Energy and Environmental Cabinet (EEC) established the Kentucky Climate Action Plan Council (KCAPC) process to identify opportunities for Kentucky to respond to the challenge of global climate change while becoming more energy efficient, more energy independent and spurring economic growth.

In December 2009 the EEC Secretary appointed a diverse group of stakeholders representing academia, agriculture, business, forestry, industry, environmental groups and many levels of government to serve on the KCAPC. The council is charged with collectively developing an action plan to address the causes of climate change, prepare for the likely consequences and impacts of climate change to Kentucky and establish firm benchmarks and timetables for implementing the KCAPC recommendations. KCAPC is on schedule to complete its work by the spring of 2011. Visit the KCAPC website at http://www.kyclimatechange.us/.

DEDI Puts Recovery Dollars To Work

KENTUCKY ☆ AT WORK

In early 2009, President Barack Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA) to stimulate the nation's economy.

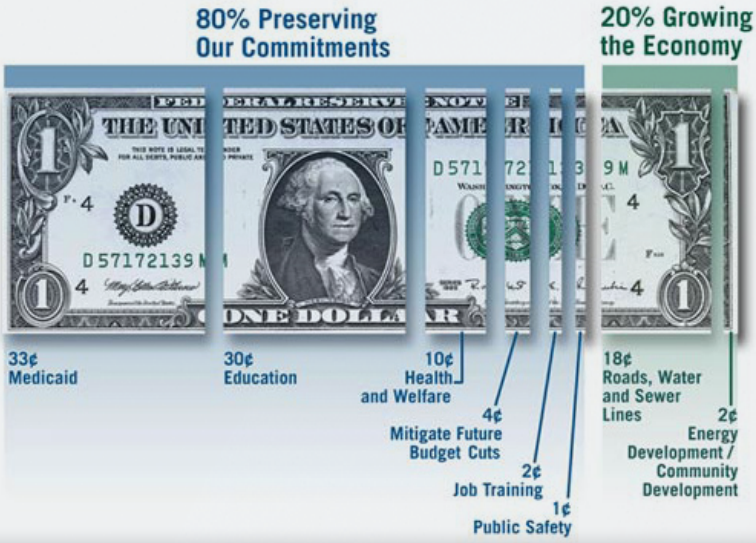
Of the approximately $787 billion that Congress appropriated nationally, Kentucky will receive about $3 billion, a staggering inflow of new money into the Kentucky economy. This funding will be spread over about three years.

Let's put the resources available for energy programs in context. Only a small fraction of the ARRA funds – about 2 cents on the dollar (see "Dollar Bill" chart) – are devoted to energy. Of this, DEDI is administering about $68 million over the three-year period. Some other energy-related funds for hybrid school buses, low-income weatherization of homes and jobs training are being administered through other state agencies.

DEDI normally gets only $450,000 to $700,000 in federal grants per year to operate it's energy efficiency and renewable energy programs, and for those funds, a 20 percent cost share is required. It is clear that ARRA provides a much-needed, one-time infusion of dollars. This unanticipated bonus has allowed DEDI to expand proven programs and to create innovative programs that will have beneficial impacts for years to come.

How are these funds helping Kentuckians? They help further DEDI's overall goal of market transformation, meaning an increased demand for efficient and renewable sources that can result in an increase in green jobs. The benefits of market transformation and the four metrics DEDI tracks to determine program effectiveness include 1) an increase in jobs created or retained; 2) a decrease in energy consumed; 3) an increase in renewable energy generated; and 4) a reduction in greenhouse gas emissions.

Kentucky will receive approximately $3 billion in total ARRA funds.



One good example of how Kentucky taxpayers will benefit from ARRA funding is the Energy in Education Collaborative, several different organizations that are delivering programs to make schools more energy efficient (see page 26 for more). The collaborative is an expansion of a program that was operated for a couple of years on a pilot basis with a shoestring budget involving a handful of districts. Today's program is offered in all 174 school districts. It is estimated that the program can, conservatively, bring about at least a 10 percent reduction in energy consumption in Kentucky's K-12 public schools. While 10 percent may not seem like a large amount, its importance grows when you realize that public K-12 schools spent $143 million on energy to light, heat and cool school buildings during the 2008-2009 school year. If we save just 10 percent of this, we will have saved over $14 million a year – and the value of these savings increases over the years as energy prices escalate. These are taxpayer dollars that can be put to better use educating our students.

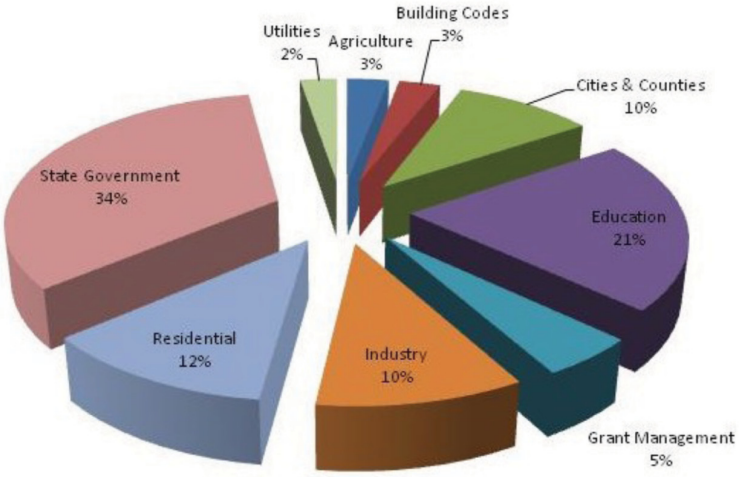
The Kentucky Home Performance Program (page 33) creates a new, state-wide initiative with incentives to help homeowners identify, implement and pay for improvements to their homes, a process that creates jobs and cuts energy bills for consumers.

Programs aimed at the industrial sector (page 34) have achieved savings of 25 percent in a factory over a one-year period and over 32 percent savings in another factory over a two-year period. One plant manager said the programs have allowed his company to bid lower for jobs and to get work they wouldn't have gotten otherwise. What's more, in several instances plant managers indicated that the knowledge gained at their plants in Kentucky was going to influence their corporate-wide operations, both domestically and in Europe. As we reduce energy costs for Kentucky-based operations, we make our plants more competitive and keep jobs in Kentucky.

In state government (page 41) we are funding increased efficiency in state buildings so that we can "lead by example." Among other things, we have worked with the Finance and Administration Cabinet to upgrade controls and software in a group of state buildings in Frankfort, which will lead to energy and cost savings that will continue to accrue for decades to come.

These and numerous other examples have shown us that a move toward energy efficiency is the smart decision, the right decision, the best to yield benefits to the Kentucky taxpayer now and into the future.

Accountability and transparency are key priorities of the ARRA initiative. To help Kentuckians learn how thier tax dollars are being spent Governor Beshear directed that the Kentucky At Work Web site be created. By visiting www.kentuckyatwork.ky.gov you can better understand the impact that these ARRA dollars are having on your local commnunity.



"Recovery funds are helping energize Kentucky's residential, commercial and industrial sectors as well as our schools, communities, farms and state facilities."

- KY Secretary Len Peters, EEC

Education

Energy *in* Education Collaborative

The Energy in Education Collaborative is a partnership involving four programs and two projects. The program elements of the collaborative are designed to be a comprehensive, holistic approach to focusing on energy and sustainability issues in the design, construction and operation of energy-efficient sustainable schools as well as addressing educational/curriculum opportunities presented by this focus.

While the four programs are discussed in greater detail in the following pages, the principal partners and their roles are:

The SEMP (School Energy Managers Project) is administered by the Kentucky School Boards Association. Under this program, SEMP uses ARRA funding to pay a portion (75 percent the first year and 50 percent the second year) of the salary for energy managers at the local district level. SEMP is funding 35 energy managers serving some 130 school districts and, for 4 districts that already had full-time energy managers, SEMP helps fund energy curriculum coordinators. A number of other districts also already have energy managers on staff. The school energy managers are the front-line managers responsible for coordinating energy efficiency and sustainability programs in the district. http://www.ksba.org/energy-management

The KEEPS (Kentucky Energy Efficiency Program for Schools) activity is administered by the Kentucky Pollution Prevention Center at the University of Louisville's J.B. Speed School of Engineering. KEEPS provides technical consulting services to Kentucky's 174 public school districts thereby supporting the SEMP managers. Specifically, KEEPS conducts school energy assessments, provides training for school energy managers and assists them with establishing energy teams and implementing a structured energy management programs using the proven ENERGY STAR model. https://louisville.edu/kppc/

The Kentucky NEED (National Energy Education Development) Project is part of a national non-profit organization that focuses on energy curriculum development. NEED provides energy workshops for teachers, grade-appropriate curriculum materials and kits for energy activities in the classroom. NEED has a program to assist schools with the formation of student-based energy teams that study how energy is used in the school. NEED also works with DEDI to produce an annual High Performance Schools workshop focused on the best practices for design of new schools. The workshop target audience is architects, engineers and school officials, particularly those officials who are from districts that plan to build or renovate within to years. www.need.org

The Kentucky Green and Healthy Schools (KGHS) program is administered by the Kentucky Environmental Education Council in the Education and Workforce Development Cabinet. This inquiry-based program uses the entire school grounds as a learning laboratory for students. Students conduct inventories in nine different areas, including energy. They then develop and implement improvement projects in each area, receiving awards and recognition as certain milestones are reached. http:// www.greenschools.ky.gov/

An additional unfunded program partner is the Kentucky School Plant Management Association (KSPMA). KSPMA provides energy efficiency-oriented training and workshops to school facilities personnel and facilitates the exchange of "best practice" information among peers.

The two projects in education involve two new schools that were occupied in the fall of this year – Richardsville Elementary School (Warren County Public Schools) and Turkey Foot Middle School (Kenton County School District). Each of these schools was designed to be very energy efficient. So much so, in fact, that they are projected to use only about 1/4 as much energy as the typical school built to meet Kentucky's building energy codes. DEDI has awarded Richardsville Elementary $1.3 million and Turkey Foot Middle $2 million to pay a portion of the cost to install sufficient photo voltaic solar capacity to make each of the schools a net-zero energy school – among the first public schools in the nation to achieve this.

The Energy in Education Collaborative provides schools a total package that addresses all of their energy-related needs. The collaborative ensures an immediate on-the-ground staff capability devoted to energy management, training and technical consulting expertise, education curriculum and building occupant involvement in energy management and a student-focused effort that enhances the learning process.

Kentucky Energy Efficiency Program *for* Schools

On February 8th, Gov. Steve Beshear joined University of Louisville President Dr. James Ramsey at Roby Elementary School in Shepherdsville to announce a partnership between the Department for Energy Development and Independence and U of L's Kentucky Pollution Prevention Center (KPPC) to expand the Kentucky Energy Efficiency Program for Schools (KEEPS). Recovery funding gave KEEPS a boost of $4.8 million from the U.S. Department of Energy to help all Kentucky school districts get enrolled in the energy efficiency program. KEEPS helps Kentucky school districts reduce energy consumption and lower operating expenses.

Through ARRA funding from DEDI, KEEPS was expanded to provide support for the 174 Kentucky districts. Managed by the University of Louisville's Kentucky Pollution Prevention Center (KPPC), KEEPS regional coordinators, technicians and engineers guide school districts through the process of implementing energy efficiency programs. "Enrolling in the KEEPS program is an excellent way for our school districts to gain energy cost savings while also protecting the environment. These energy savings help schools save valuable funds and teach children the importance of energy conservation," said Gov. Beshear. By the end of the summer, KPPC was able to achieve KEEPS participation by 100 percent of Kentucky's public school districts.

Kentucky National Energy Education Development Project

Kentucky NEED is the state affiliate of the National Energy Education Development (NEED) Project, a national non-profit organization. Kentucky NEED focuses on the scientific concepts of energy and provides objective, grade-appropriate information about conventional and emerging energy sources—their use and impact on the environment, economy, and society.

Teachers participate in workshops and receive curriculum materials and resources to teach energy in any discipline at any grade level. NEED Regional Coordinators work to develop contacts with schools to establish energy management programs and build relationships with community partners, such as technical schools and local 4-H agents. NEED provides training to partners to enable successful implementation of school energy programs and classroom presentations. Participating schools receive NEED kits to include in their curriculum which enable students to surpass expectations and open new doors in a variety of energy careers.

Through its partnership with the Department for Energy Development and Independence, NEED received American Recovery and Reinvestment Act funds to hire regional coordinators, increase teacher workshops and support the High Performance Sustainable Schools Workshop. On March 23-24, school superintendents, board members, facilities managers, architects and engineers gathered for the Workshop, at Embassy Suites in Lexington, to learn how high-performance facilities improve student health and productivity, attract quality teachers, significantly reduce energy use and operating costs, and protect the environment. The Workshop was opened with remarks by First Lady Jane Beshear. The keynote speaker was Michael J. Spearnak, AIA, CEFPI, Director of Planning, Design and Construction for Poudre School District in Fort Collins, Colorado, who related the process and strategies that have earned their school district more than thirty awards for sustainable environmental design and energy efficiency.

Participants also heard from Kentucky Department of Education Commissioner Terry Holliday about the vital need for districts to promote sustainability in their schools. The commissioner congratulated administrators on their current efforts. The Workshop also took participants by charter bus to nearby high performance school buildings, including Russell and Southern Elementary Schools, in Scott County. The site visits provided school leaders and designers with a first-hand look at high performance buildings.

Design teams responsible for the projects described how the district achieved high performance goals to reduce operating costs, reduce greenhouse gas emissions, increase health and comfort for students and staff, utilize emerging technologies, harvest daylight, and create student energy teams. “Kentucky has quickly moved from the end of the line to the front of the pack nationally in energy efficiency, thanks in large part to innovative, informative programs like the High Performance Sustainable Schools Workshop,” said Mrs. Beshear. In 2011, the Workshop will be held in Bowling Green and include a tour of the state’s first net-zero energy school, Richardsville Elementary.

Kentucky Green & Healthy Schools Program

Kentucky Green and Healthy Schools (KGHS) is an initiative of the Kentucky Environmental Education Council (KEEC) and the Kentucky Department of Education. The Department for Energy Development and Independence formed a partnership to expand KGHS with the help of Recovery funds from the U.S. Department of Energy. KGHS is a state-wide, student-centered program that empowers students and staff to move their school toward becoming safer, healthier, and more environmentally sustainable. By helping schools create a team of students, teachers and school administrators (a Green & Healthy Team), KGHS helps schools work to improve their facility in nine different areas, including instructional leadership, water, energy, solid waste, hazardous chemicals, green spaces, transportation, health and safety and indoor air quality. KGHS also offers a design manual for districts that want to build high performance schools. ARRA funding allows KGHS to offer grants to schools to assist them with energy efficiency improvements. "The Kentucky Green and Healthy Schools Program is first and foremost an educational program that helps students think critically about the environmental and health impacts of their school surroundings," said Jane Eller, retired senior executive director of KEEC. "In KGHS, students conduct research in their schools on a variety of topics...[and] based on the analysis of their findings in each category, students then carry out improvement projects which they design. As they complete these projects, KEEC recognizes their efforts with plaques, banners and flags. However, the real rewards come from the feelings of accomplishment that students get from creating a more sustainable environment, a healthier school, and from the real-world learning that takes place."

School Energy Managers Project

In support of the State's energy plan to increase energy efficiency in Kentucky's public schools, Governor Steve Beshear authorized $5.1 million in Recovery funds from the U.S. Department of Energy to create the Kentucky School Energy Managers Project (SEMP). The Department for Energy Development and Independence coordinated a partnership with the Kentucky School Boards Association (KSBA) to bring increased energy efficiency management to school districts throughout the state by hiring local Energy Managers. KSBA administers the Project, which helped pay for 35 energy manager positions throughout the state. According to KSBA Executive Director Bill Scott, Energy Managers "receive training and return to their school districts to support local boards in addressing two of their most critical responsibilities: the oversight of the district's budget and the maintenance of safe and efficient school facilities."

Recovery funds helped to underwrite the operation of the program and pay 75 percent of a district energy manager's salary up to $45,000 for the first year, with a 50-50 split between the program and the district in the second year. Ideally, Energy Managers will be successful in helping to reduce their district's energy costs enough to support their position and boost the schools budgets with extra savings. Several Kentucky school systems have been ahead of the curve in hiring energy managers, and have already seen major savings. Bullitt County Schools, for example, saves $300,000 per year, more than enough to offset the $75,000 cost of its energy efficiency effort.

Ron Willhite, an electrical engineer and retired utility company executive, directs the SEMP. Wilhite was vice president of regulation and economic planning for Kentucky Utilities, where he guided the study and development of a plan for energy management activities that customers could use. He was later a vice president for Kentucky Utilities and Louisville Gas & Electric following their merger. Willhite also served on the Scott County school board in the 1990s and still helps the district as a member of its energy team. In a recent KSBA article, Willhite said, "I'm looking forward to assisting districts in developing their own energy teams and programs." His team will include four project coordinators, two of whom will be in satellite locations, one in southeastern Kentucky and one in western Kentucky. SEMP works in concert with the Kentucky Energy Efficiency Program for Schools (KEEPS) at the University of Louisville's Kentucky Pollution Prevention Center.

Green and Healthy Schools & KY NEED Awards Day

More than 20 Kentucky schools participated in the Kentucky Green and Healthy Schools and the Kentucky National Energy Education Development (NEED) Project's Third Annual Youth Summit on May 13 at the Convention Center in Frankfort. During the summit, participating schools set up presentations and demonstrated their schools' energy projects. Students gave demonstrations of the different types of energy used in Kentucky, as well as clean energy technologies that are new to many businesses, schools and organizations. Students were able to showcase the knowledge they've gained through Kentucky Green and Healthy Schools and NEED and how this knowledge is being put to use to green their school. First Lady Jane Beshear and Kentucky Department of Education Commissioner Dr. Terry Holliday were two of the special guests who dropped by for the students' presentations.

*East Carter students explain the benefits of CFL bulbs to First Lady **Jane Beshear** and **Dr. Terry Holliday**, Comissioner of the KY Department of Education, during the Green and Healthy Schools and KY NEED Awards luncheon.*

Energy Efficient Schools in Kentucky

Kentucky is making great strides in creating energy efficient schools. In 2005, Kentucky had no ENERGY STAR labeled schools. Since then 77 K-12 public schools in the Commonwealth have earned the ENERGY STAR label. The rising number of ENERGY STAR schools is partially a result of successful energy efficiency and sustainability programs that have helped implement energy management systems and energy education in many Kentucky school districts.

Schools that earn the ENERGY STAR label perform better than 75 percent of all similar buildings nationwide. Additionally, Richardsville Elementary in Warren County and Turkey Foot Middle in Kenton County are equipped to become some of the first net-zero energy schools in the nation. The benefits of these programs speak for themselves. When implemented properly, they help offset the 104 percent increase in energy costs that have occurred in the past decade, by increasing the energy efficiency of a building all the while reducing carbon emissions and meeting budget constraints.

Net-Zero Energy Schools

On May 19th, First Lady Jane Beshear announced the award of a $1.374 million grant to Warren County Public Schools for the purchase of solar panels that put Richardsville Elementary School one step closer to achieving an energy-neutral facility. At a simultaneous press conference in Kenton County, Energy and Environment Secretary Len Peters announced a $2 million grant to Kenton County School Districts for the purchase of solar panels for Turkey Foot Middle School. Both grants, funded by the American Recovery and Reinvestment Act, are designed to help the schools achieve net-zero energy usage over the course of a year.

"Sustainable schools, like Richardsville Elementary, not only have a positive 'green' impact by protecting the environment and helping with national energy security, but also teach children how to live their lives as responsible environmental stewards," said First Lady Jane Beshear. "This is a message we cannot emphasize enough." Following years of strategic building designs that have enabled the schools to consume a minimal amount of energy, the energy that is used will be offset by the energy produced with solar panels. In Warren County, the clean energy the school is able to feed back into the grid will be sold to the Tennessee Valley Authority and essentially result in an energy-neutral facility.

(Above) *First steps of laying solar panels on Richardsville Elementary School's roof.*

(Left) *Richardsville Elementary after completion. Photo courtesy of biofriendly.com*

Residential

DEDI manages two programs that address the residential sector. The Kentucky Energy Efficient Appliance Rebate Program offered residents the opportunity to get rebates on a range of qualified energy efficient appliances. The Kentucky Home Performance (KHP) program is structured to provide incentives to homeowners to improve the energy efficiency of their residences in a manner that is cost-effective and ensures that their investment is installed correctly. KHP eliminates the four biggest barriers to energy efficient home improvements 1)homeowners don't know what to do; 2)they don't know who to get to do it; 3)they don't want to go to a bank to finance it; and 4)they don't know how to verify that the work was done correctly. The KHP program is administered by DEDI's partner, the Kentucky Housing Corporation, an agency that is part of the Kentucky Finance and Administration Cabinet.

In addition to these residential programs, the Kentucky Finance and Administration Cabinet administers ARRA grant funds in excess of $70 million for the Weatherization Assistance Program. These funds do not pass through DEDI.

Kentucky Energy Efficient Appliance Rebate Program

Thanks to American Recovery and Reinvestment Act funding from the U.S. Department of Energy, the Kentucky Department for Energy Development and Independence was able to administer an appliance rebate program that offered Kentuckians almost $4 million on 16 ENERGY STAR qualified appliances, including clothes washers, dish washers, refrigerators, freezers, room air conditioners, water heaters, central air conditioners, air source heat pumps, geothermal heat pumps, gas furnaces, and gas boilers. This provided residents with the widest choices possible, and represented appliances accounting for 70 percent of typical household energy costs.

Gov. Steve Beshear commemorated the 40th anniversary of Earth Day by kicking off the Kentucky Energy Efficient Appliance Rebate Program at Rabon's TV and Appliance in Paris, KY.

On July 15, at the GE Appliance Park in Louisville, Kentucky First Lady Jane Beshear announced that nearly $1.7 million in unclaimed funds remained in the Kentucky Energy Efficient Appliance Rebate Program. During phase one of the program, residents could 'reserve' rebates. Nearly half of Kentuckians who reserved a rebate had not purchased an appliance, making those unclaimed funds available. As of December 2010 the program had expanded all rebate funds.

KY Home Performance

At the Midwest Regional ENERGY STAR Conference during the last week in March, Kentucky Housing Corporation Executive Director Rick McQuady announced the creation of the Kentucky Home Performance (KHP) program. KHP is designed to generate more energy-efficient homes across the Commonwealth and create jobs in the 'green' building industry. KHP was created by a partnership between Kentucky Housing Corporation (which contributed $2.1 million), the Kentucky Department for Energy Development and Independence and the Kentucky Finance and Administration Cabinet, with $4 million in funding from the American Recovery and Reinvestment Act through the U.S. Department of Energy. KHP is designed to give Kentuckians the resources to make home improvements that will increase energy efficiency. The program targets moderate to high-income households, as the comparable federal Weatherization Assistance Program already exists that targets low-income households. Kentucky has adopted the Building Performance Institute's (BPI) Building Analyst I Technical Standards as part of KHP and the national ENERGY STAR program. Contractor and home inspection evaluator trainings and certifications will be offered by a network of education institutions around the state. The Kentucky Community and Technical College System will initially offer BPI-approved instruction and certification at several locations around the state. To assist with the cost of improvements, KHP offers cash rebates or below-market-rate financing to contractors and consumers to complete energy-efficient improvements and retrofits to single-family residences.

On July 22nd contractors, home energy auditors, and both public and private agencies and organizations involved in residential building gathered in Lexington for an introduction to Kentucky Home Performance. More than 200 building professionals from across the state gathered to learn how they can be involved in a program promoting energy efficiency construction and retrofits for the home. Participants heard presentations by KHP administrators from the Kentucky Housing Corporation, learned about best practices from the Conservation Services Group, and watched a demonstration of the Home Auditor Software, among other things. Following the orientation, the Home Builders Association of Lexington and E.ON sponsored a reception for participants to mingle and get to know KHP staff.

On November 15th, First Lady Jane Beshear visited the home of Lexington residents Larry and Melissa LeVine to see firsthand the energy efficiency improvements being made as a part of KY Home Performance, helping them save money on their utility bills each month while increasing the comfort of their home. "I encourage Kentuckians to take advantage of this unique program to make home improvements just as Steve and I have done in the Governor's Mansion and in our own home," said Mrs. Beshear. "KY Home Performance assists Kentucky families in financing energy efficiency upgrades to make their homes more energy efficient while also creating opportunities for green jobs."

For more information please visit www.kyhomeperformance.org

Industrial & Commercial

DEDI funds three programs that address energy efficiency in the industrial and commercial sectors. Two of these programs, Save Energy Now (SEN) and the Kentucky Industrial/Commercial Sustainability Program (KICSP) are at the University of Louisville's Kentucky Pollution Prevention Center (KPPC). The two programs, although funded from two different federal grants, have essentially the same objectives and activities – helping companies establish effective energy management programs and providing energy assessments and other technical assistance to clients. The third program, Kentucky Industrial Facility Retrofit Program, is implemented by the Kentucky Cabinet for Economic Development and provided competitive grant funds for energy efficiency upgrades in existing industrial plants. Preference in the award processed went to industries that produce "green" products and that create or retain the most jobs.

Save Energy Now & Industrial/Commercial Sustainability Program

On February 17th Kentucky Energy and Environment Cabinet Secretary Len Peters joined University of Louisville President James Ramsey at Fetter Group in Louisville to make the official announcement that the Kentucky Industrial and Commercial Sustainability Program (KICSP) received $2.23 million through the American Recovery and Reinvestment Act (ARRA), granted by the U.S. Department of Energy. "Moving toward sustainability requires a commitment to continual improvement. One of the first steps...is getting that top management commitment," commented Cam Metcalf, the Executive Director of the University of Louisville's Kentucky Pollution Prevention Center (KPPC). The funding provided to KPPC through the Kentucky Department for Energy Development and Independence will help further KPPC's work of providing energy efficiency and renewable energy options to businesses, schools and manufacturers across Kentucky. Grant funds will be available through April 2012.

KPPC has evaluated more than 500 consumer clients across Kentucky, making great strides toward optimal energy performance. FetterGroup is one of the many Kentucky companies that have utilized KPPC's services. Terry Gill, President of FetterGroup, noted, "In 2007, we established our baseline energy usage. We reduced our total [energy] consumption by 32 percent since 2007. The ability to take our dollars and reinvest them in our business...has been a tremendous asset for us."

On October 28th, the Kentucky Save Energy Now (KY SEN) initiative recognized fifteen companies from across Kentucky for their commitment to reducing energy usage. Administered by KPPC, KY SEN is modeled after the national Save Energy Now program, which is run by the U.S. Department of Energy. It promotes and leverages the wide array of U.S. DOE resources, but is tailored to Kentucky companies and builds upon the technical expertise of KPPC's engineers. KY SEN helps energy-intensive facilities build self-sustaining energy-savings programs. The goal is to reduce energy use in these facilities by 2.5 percent per year for 10 years. Through KY SEN, KPPC offers assessments, training, technology demonstrations, assistance with identifying project implementation resources and recognition of achievements. For a list of award recipients, please visit the KY SEN website at https://louisville.edu/kppc/es

Modeled after the U.S. Department of Energy's Industrial Assessment Centers, the Industrial/Commercial Sustainability Program increased support for KPPC to perform energy analyses at industrial, commercial and institutional firms or organizations. The program also conducted energy efficiency workshops for target groups. During the start-up period, ARRA funds assisted KPPC to retain a Program Manager, two Senior Sustainability Engineers, a Sustainability Engineer Intermediate and two full time student cooperative interns to work on the ICS Program. In the program's first few months, KPPC provided 13 brief assistances and four energy assessment reports to 17 facilities in Kentucky, including support for a pharmaceutical distribution facility that requested assistance with auxiliary power suppliers to reduce idling at the facility for refrigerated trucks. Fuel savings were estimated at 281 gallons per year based upon current idling patterns.

Cost savings of $165,890 were estimated for the recommendations made in four Utility Bill & Rate Structure Analysis Assessment Reports. The clients included a medical facility, a hospitality facility, a medical company data center, a medical company data center and an automotive parts manufacturing facility.

To help industries and manufacturing facilities learn how to lower their operating costs, KPPC hosted its Save Energy Now workshops throughout state. Sessions were conducted by KPPC engineers and specialists in the energy field, and guest speakers included representatives from the U.S. Department of Energy, regional utilities and consultants. These workshops marked the launch of expanded services enabled by funding from ARRA that allow KPPC to support clients through the development of self-sustaining energy-savings programs. The goal of the workshops and the Save Energy Now program is to help industrial and manufacturing facilities reduce their energy use by 2.5 percent per year for 10 years. By the end of the workshop, participants understand the benefits of an energy management program, the steps necessary for proper implementation, and the available resources at KPPC to assist in the implementation, measuring and monitoring the energy management program. The Kentucky Save Energy Now workshops are funded by ARRA, through the combined efforts of the following organizations: Kentucky Department for Energy Development and Independence, the U.S. Department of Energy and KPPC. The workshops recruited a total of 11 companies to commit to the program, which will help them to conduct an energy audit, build an energy management plan, and offer guidance with its implementation.

Kentucky Industrial Facility Retrofit Program

In August, Gov. Steve Beshear announced the award of $3.35 million in Recovery funding to three Kentucky companies to be used for energy efficiency upgrades in existing industrial facilities. Companies receiving ARRA funding include General Electric Company (GE) in Louisville ($2.5 million); Arch Chemicals Inc. in Brandenburg ($450,000); and International Paper Company in Henderson ($400,000).

"Reduced energy consumption is critical in today's economy," said Gov. Beshear. "I am committed to reducing energy costs within state government, and I am pleased that government can partner with private industry through ARRA funding to spur energy efficiency gains. The industrial facility retrofit projects undertaken as a result of these grant awards will serve as an example of the energy efficiency improvements that can be realized in the private sector. Not only will the companies save money on energy costs, but the environment will benefit as well from reduced emissions."

The purpose of the grant funding is to accelerate energy efficiency and renewable energy industrial projects for businesses locating or expanding operations in Kentucky that create or retain jobs while saving energy and reducing carbon emissions. Additionally, the funding will help achieve the goals set by Gov. Beshear's Intelligent Energy Choices for Kentucky, a 7-Point Strategy for Kentucky. The program is funded by the Department for Energy Development and Independence. Companies were selected through a competitive Request for Proposal (RFP) process administered by the Cabinet for Economic Development. Thirteen proposals were received and scored using the following criteria: jobs created or retained, with an emphasis on green jobs; amount of energy saved per grant dollar invested; degree of investment/impact in the local community; private dollar match/leverage of grant funds; project elements that maximize demonstration/showcase value; and offeror qualifications/capability, and responsiveness to the RFP. The cabinet will provide between 40 and 60 percent of the funds needed for each project, with the exact amount varying between projects. Each company awarded a grant will provide the balance of funding to complete their projects.

Grant Recipients' Projects:

ARCH

Arch Chemicals Inc. will use ARRA funds to install a "condensing economizer" to recover the latent heat from the condensable gasses produced as a result of the combustion of natural gas (exhaust system). This latent heat will be used to pre-heat the feed water; increasing feed water temperature from 140°F to 180°F.

International Paper will install a "white water filtration" unit to recycle processed water within its paper mill. This will reduce the energy used to heat fresh water and reduce the cost and energy to purify the wastewater-containing paper fibers. The paper fibers give the water a milky appearance and the name of "white water."

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General Electric will complete four projects within their facility:

- **GE Office Re-lamp project** — will change out old, inefficient T-12 lamps with T-8s (more efficient) in the office areas and T-8 high bay lights in the 47-acre warehouse.

- **An air conditioning system upgrade** — will replace the R-22 Freon system in AP3 with combination of heat pumps, zoned heating and point of use technologies to drive conservation through added space controls and programmed time-of-day controls.

- **IWT Upgrade** — will upgrade the waste treatment system with pH controls and chemical flow to match IWT flow rates.

- **Steam Upgrade** — will replace the 1953 system (and many upgrades to the system) by installing a decentralized system that will have the flexibility to heat point-of-use areas and time-of-day controls.

Participant Spotlight

In honor of Pollution Prevention Week, the Kentucky Pollution Prevention Center (KPPC) at the University of Louisville presented its outstanding partners with Environmental Sustainability Awards, reserved for companies that have achieved environmental sustainability successes, including waste minimization and water and energy efficiency. Kindred Healthcare Support Center in Louisville, which is a KPPC partner in the Save Energy Now program, received an award and was very proud to do so. In the past year Kindred Healthcare Support Center has taken the initiative to become an all around greener facility and has made great strides toward this goal.

After hearing Cam Metcalf, KPPC's Executive Director, speak at a luncheon in 2009, Stephanie Warren, Kindred Healthcare's Senior Director, Corporate Facilities Management immediately investigated the possibility of implementing energy programs at her facility. After a quick phone call Stephanie was soon on the path to helping Kindred Healthcare's Support Center implement positive changes. The facility first underwent an energy efficiency assessment and began an analysis of its utility bills (encompassing a two-year period) and rate structure. Following the assessment Kindred immediately implemented interval demand metering from LG&E to better analyze energy demand. The assessment led Kindred to develop a program to minimize peak demand and reduce unnecessary electricity usage. Kindred is also in the process of installing variable frequency drives (VFD) on their air handler units and are installing new cooling towers for which they changed the specification to VFDs on the units.

In addition, Kindred's technical services team is researching options for computer management software in order to push out patches and upgrades when needed so that computers can be turned off when not being used (as opposed to running 24/7). Kindred is also an active participant in the Louisville Energy Alliance's Kilowatt Crackdown and is an ENERGY STAR partner.

In conjunction with its energy efficiency programs, Kindred has implemented a variety of sustainability programs and created a 'Sustainability Think Tank' made up of volunteer staff. Because Kindred Healthcare's Support Center works hard to decrease its carbon footprint and to create a healthier working environment for its employees, its easy to see why they are deserving of recognition. "We believe these programs establish Kindred as a responsible corporate citizen, drive greater employee satisfaction and pride, and save money through the conservation of resources," said Warren.

Governor Visits GE Aviation Retrofit Project

On September 27th, Governor Steve Beshear visited the GE Aviation Plant in Madisonville for a tour of the building. During this tour GE employees were able to showcase the great success in energy reduction they've experienced thanks to the Recovery-funded Industrial Retrofit Program.

Formed through a partnership between the Kentucky Department for Energy Development and Independence and the Kentucky Cabinet for Economic Development, the program has enabled industrial facilities to save thousands of dollars in energy costs through industrial lighting retrofits to their facilities.

GE Aviation was one of seven companies selected for a grant through a competitive Request for Proposal which was administered by the Cabinet for Economic Development. More than $4 million in total ARRA funds have been awarded to date through this initiative. The cabinet provides 50 percent of the funds needed to complete the lighting upgrades and each company provides the additional funding required to complete its project. GE estimates that the lighting retrofit project will save the company $200,000 per year in utility costs, while providing better lighting in which to work and reducing the company's carbon footprint.

*Madisonville Mayor **Will Cox**, Governor **Steve Beshear**, and GE Plant Manager **David Groth** at GE Aviation Plant. Photo courtesy of Thomas Wortham.*

*Kentucky Save Energy Now award recipients with Energy and Environment Cabinet Secretary **Len Peters** and University of Louisville President **James Ramsey**. Photo courtesy the University of Louisville.*

Agricultural

Both of the ARRA-funded programs that target the agricultural sector are managed by the Governor's Office of Agricultural Policy. The On-Farm Energy Efficiency Initiative provides partial funding for individual farmers to install energy efficiency or renewable energy technologies on their farms. The Multi-County Agricultural Energy Initiative, on the other hand, provides funding for projects that involve multiple partners.

On-Farm Energy Efficiency Initiative

In February, the Governor's Office of Agricultural Policy (GOAP) announced its partnership with the Department for Energy Development and Independence and the On-Farm Energy Efficiency & Production Incentives Program, enabled by American Recovery and Reinvestment Act funding. This program will provide 25 percent reimbursement of the actual cost of a qualified energy saving project (with a cap of $10,000).

Qualified projects include energy audits, energy efficient farm building components, on-farm energy upgrades and on-farm energy efficiency training. ('On-farm' refers to agriculture production and excludes farm residency.) Energy efficiency updates can help farmers save valuable funds through energy cost savings. "The on-farm energy incentive program will provide Kentucky's farmers with the opportunity to make changes...that will improve their profit and reduce agriculture's impact on energy consumption.," said Roger Thomas, executive director of GOAP. Applications for these reimbursements are currently being accepted and will be reviewed by a committee comprised of representatives from GOAP, the Kentucky Agricultural Development Board, the UK College of Agriculture, a Rural Electric Cooperative, as well as a representative from USDA Rural Development and the Kentucky Energy and Environment Cabinet serving in an ex-officio capacity.

Multi-County Agricultural Energy Initiative

The Multi-County Agricultural Energy Initiative is a program that encourages regional collaboration by providing a 1:1 match with ARRA funds and state Agricultural Development Funds for agriculturally related renewable energy projects. This program is the result of the partnership between Governor's Office of Agricultural Policy and the Department for Energy Development and Independence.

The Kentucky Agricultural Development Board, chaired by Governor Steve Beshear, approved Commonwealth Agri-Energy LLC for $115,000 in Kentucky Agricultural Development Funds ($100,000 state / $10,000 Christian County / $5,000 Todd County) and $100,000 in American Recovery and Reinvestment Act (ARRA) funds to reduce the amount of electricity required for the ethanol plant's cooling system.

"Farming and energy are two keystones of Kentucky industry and its future, and can have a mutually beneficial relationship," said Gov. Beshear. "With the help of the Kentucky Agricultural Development Fund, we are positioning agriculture to be a leader in the development of alternative energy sources."

This project will allow Quarry Lake water to be utilized as cooling water for the plant's cooling process systems. This change in operations will result in significant energy savings, as well as cost savings in the plant's operations. Commonwealth Agri-Energy is 100 percent farmer-owned with 3,000 farmer members.

MSU Field Day

In August, Gov. Steve Beshear announced the award of $481,690 in On-Farm Energy Efficiency and Production Incentives grants to 52 producers. This grant program is the result of the partnership between the Governor's Office of Agricultural Policy (GOAP) and Kentucky's Department for Energy Development & Independence with stimulus funding from the American Recovery and Reinvestment Act (ARRA). "In October 2009, I announced the availability of stimulus funds for on-farm energy efficiency improvements in Kentucky," said Gov. Beshear. "I am pleased to announce that 52 farm families were able to take advantage of this opportunity to improve farm energy efficiency or biomass production."

Recipients of these energy stimulus incentives may receive 25 percent reimbursement of the actual cost of a federally qualified energy saving project, up to $10,000. Permissible eligible items include, but are not limited to, energy audits, energy efficient farm building components, on-farm energy upgrades, on-farm energy efficiency training and biomass energy production activities. "These on-farm energy efficiency incentive grants represent only a small part of Kentucky's State Energy Program award," said Roger Thomas, executive director of GOAP, "but they will provide enormous benefit to Kentucky's farm families and position Kentucky agriculture as a leader in on-farm energy efficiency."

On August 5th, Murray State University hosted an Agri Energy Field Day to announce the launch of the West Kentucky AgBioworks, a program funded by an ARRA grant. According to a press release from MSU, the West Kentucky AgBioworks initiative is focused on positioning West Kentucky as a leader in the bio-economy where the basic building blocks for industry and the raw materials for energy are derived from renewable plant/feedstock (biomass) creating new jobs and helping to improve the quality of life in the region. According to Loretta Daniel, Director of the Regional Business and Innovation Center at Murray State University, "Our purpose is to build infrastructure to achieve advances in high growth sectors, capitalizing and building our telecommunications, bio-agriculture and energy and environmental sciences strengths in the western region of the Commonwealth of Kentucky."

State & Local Government

DEDI uses ARRA funds from two different grants to support activities directed at state and local governments. Money from the State Energy Program is channeled through the Kentucky Finance and Administration Cabinet for projects that provide staffing to implement energy efficiency programs; purchase software and controls to monitor and control building energy consumption for a group of state-owned Frankfort buildings; and establish The Green Bank of Kentucky, a revolving loan fund that provides financing for energy efficiency improvements in state government buildings. Loans are then paid off using the savings from reduced energy bills.

Local governments are eligible to receive funds through the ARRA Energy Efficiency and Conservation Block Grant managed under a partnership with the Kentucky Department for Local Government. To date, some 40 cities and counties have been selected for funding, with a maximum grant up to $125,000 for efficiency improvements, planning development or installation of renewable energy technology.

The Green Bank of Kentucky

In September 2009, Gov. Steve Beshear launched The Green Bank of Kentucky that allows state government energy-efficiency projects to compete for low-interest loans that can be paid back through the energy savings generated. The program will make public buildings more energy efficient, a move that will reduce costs, protect the environment and create "green collar" jobs. The Green Bank of Kentucky is administered by the Finance and Administration Cabinet in partnership with the Department for Energy Development and Independence. On Jan. 21st, First Lady Jane Beshear congratulated the Kentucky Department of Education (KDE) as the first recipient of a loan. KDE will use the loan of nearly $1.3 million to make improvements and implement energy conservation measures in three of its facilities. This project will reduce energy consumption by employing advanced technologies to improve energy efficiency at the Kentucky School for the Blind in Louisville, the Kentucky School for the Deaf in Danville and the Future Farmers of America Leadership Training Center in Hardinsburg. These technologies include lighting system improvements, equipment control systems, mechanical system improvements and more efficient dishwashing systems. After the energy conservation measures are in place, KDE will realize savings of nearly $140,000 annually from a reduction in utility costs. "With the support of the Green Bank loan, these energy efficiency projects can be fully realized...[and] will spur our school systems to develop their own energy-saving enterprises," said Education Commissioner Terry Holliday.

In early November Governor Steve Beshear announced that Kentucky Educational Television's (KET) network center in Lexington was awarded a loan of more than $1.8 million from The Green Bank of Kentucky program. With the low-interest loan, KET will implement energy efficiency and conservation measures. KET will implement several cost-cutting efficiencies. Key updates include new, high efficiency boilers along with an innovative heat recovery system that will transfer heat generated in the studios and server rooms back into the heating system; state-of-the-art HVAC controls; high-efficiency light fixtures and occupancy sensors; and new water fixtures estimated to reduce annual water usage by approximately 50,000 gallons. Combined, these and other energy-saving measures made possible by this loan will cut KET's annual energy consumption nearly in half. "While we fully anticipated there would be several areas in which to address energy efficiency at KET, the projected savings of these improvements are far greater than any of us could have hoped for," said Shae Hopkins, KET executive director and chief executive officer. "We are extremely grateful to the Governor and this program for presenting the opportunity to do our part for both the environment and the economy. Now, more of our resources will be directed toward the valued services we provide to Kentucky homes and classrooms."

Small Cities and Counties Initiative

To bring energy efficiency and conservation to local communities, the Department for Energy Development and Independence (DEDI) has partnered with the Department for Local Government (DLG) to implement projects funded through the Energy Efficiency and Conservation Block Grant Program (EECBG). Designed to invest the cheapest, cleanest, most reliable energy technologies—energy efficiency and conservation — which can be deployed immediately, the EECBG was passed by Congress in 2007 but was not funded until the passage of the American Recovery and Reinvestment Act (ARRA) of 2009.

The Kentucky EECBG Small Cities and Counties Initiative, provides $6.25 million to assist local governments in implementing strategies to reduce fossil fuel emissions, reduce total energy usage, and improve energy efficiency in the transportation, building and other appropriate sectors. The program also spurs economic growth through creation and retention of jobs funded under ARRA. The program provided for a grant of $10,000 to $125,000. Multi-jurisdictional projects were also funded. Only county and city governments were eligible to apply for EECBG funding; however, local governments could apply on behalf of non-profit agencies.

The Small Cities and Counties Initiative funding was announced in late October of 2009 and was followed by a series of workshops in Frankfort, Hopkinsville, and Prestonsburg to allow potential applicants to meet with DLG staff to discuss the grant program and application process. Applications were accepted until mid-December 2009. The first projects were announced in April. In Madison County, Pattie A. Clay Hospital received funds to retrofit the facility with energy efficient windows. The City of Berea will use funds to upgrade lighting for five city buildings and upgrade to solar water heating for two fire stations. Berea will also use EECBG funds to reduce city-wide energy consumption by developing and implementing an energy efficiency program and by developing a cooperative solar farm.

Utilities

The Division of Energy Generation, Transmission and Distribution was created to analyze and develop policies that help facilitate the generation, transmission and distribution of adequate, affordable and clean energy within the commonwealth; to understand the reliability and economic trade-offs for baseload electricity generation; to develop policies that will ensure adequate transmission of energy resources; and to promote alternative and renewable sources for electricity generation. The division also has responsibility for initiating discussion and gathering information on nuclear energy as a base-load source of power. The division awarded and administered the following smart grid grants.

Smart Grid

The Kentucky Department for Energy Development and Independence (DEDI) announced the award of seven 'smart grid' grants to Kentucky electricity distributors. The smart grid grants are funded by the American Recovery and Reinvestment Act, and distributed through the U.S. Department of Energy. DEDI awarded grants to Warren RECC, Jackson Energy Cooperative, Owen Electric Cooperative, Blue Grass Energy, Nolin Rural Electric, and Hickman-Fulton Counties Rural Electric. A seventh utility that was selected for funding later withdrew from the grant. The electric cooperatives will use the funds to accelerate the modernization of electricity delivery in Kentucky.

The companies will install advanced meter infrastructure that will allow customers to see and control their own real-time energy usage from an in-home display. They will also install distribution automation equipment that will reduce system energy losses and improve system reliability. These types of projects will reduce the number of times utility staff will have to make field visits, thus reducing cost and energy used by the utility. The goals of these smart grid technology projects are to create jobs, reduce the peak load on utilities' grids, improve overall system reliability, and reduce carbon dioxide emissions.

Smart Grid Awardees- Project Descriptions

Warren County RECC — $950,000

Warren County RECC will use Recovery funds to install and upgrade communications equipment, including 14 miles of fiber optic cable throughout its distribution system, to enable the operation of advanced meter infrastructure.This will allow customers to see their own real-time energy usage from an in-home display as well as reduce the number of times utility staff will have to visit customer homes, reducing cost and energy used by the utility.

Blue Grass Energy — $330,700

Blue Grass Energy will use Recovery funds to install Distribution Automation and to install in-home displays on a pilot basis. This system will cut electric losses and improve reliability through adaptive recloser controls, optimizing feeder voltage profiles during normal operation conditions and reducing load demand through voltage optimization. The project will increase customer awareness of energy usage by enabling them to monitor and control their total energy consumption.

Hickman-Fulton RECC — $168,000

Hickman-Fulton RECC will install 200 smart meters capable of recording and transferring demand side end-use data back to a central office server. The information will allow the utility to be better prepared for more efficient retail rate and pricing designs as wholesale power providers move toward more time-dependent demand and charge structure. Fifty prepay meters will also be installed that will allow customers to monitor and control their own energy consumption, reduce security deposits, eliminate reconnection charges and reduce energy consumption.

Owen Electric Cooperative — $119, 250

Owen Electric Cooperative will create two energy efficiency programs with Recovery funding. It will create the Penn Station Self-healing Project, which will be a self-healing distribution system for its Penn Substation in Scott County, by the installation of voltage regulators, switches, controllers, monitors, and communications equipment. The coop will also establish a voluntary peak load-reduction program called 'Beat the Peak' that will give customers in-home devices that alert them when systems are operating at 'peak' condition.

Nolin RECC — $100,000

Nolin RECC will use Recovery funds to implement a prepaid electric meter program that is designed to give customers control of their energy usage, reduce security deposits, eliminate reconnection charges and reduce energy consumption.

Jackson Energy Cooperative — $100,000

Like the Nolin RECC project, Jackson Energy Cooperative will also use Recovery funds to implement a pre-pay electric meter program that is designed to give customers control of their energy usage, reduce security deposits, eliminate reconnection charges, and reduce energy consumption. Jackson Energy Cooperative will plan for, deploy and analyze the effectiveness of pre-pay electric meters for reference in future projects.

Energy Efficiency and Conservation Block Grant

The Energy Efficiency & Conservation Block Grant (EECBG) Program, funded for the first time by the American Recovery and Reinvestment Act (ARRA) of 2009, is intended to assist local and state governments in developing, promoting, implementing and managing energy efficiency and conservation projects and programs. These funds represent a major investment in our local communities and provide opportunities for the cheapest, cleanest and most reliable energy technologies available – energy efficiency and conservation.

Administered by the U.S. Department of Energy (DOE), the EECBG program is modeled after the Community Development Block Grant (CDBG) program administered by the Department of Housing and Urban Development (HUD) and provides funding through both formula grants as well as some competitive funding opportunities.

Direct Formula Grants

In Kentucky, the 10 largest populated cities and counties (20 total) received awards directly from the U.S. DOE. These local communities were required to submit a proposed Energy Efficiency and Conservation Strategy which included the goals and proposed plan for the funds. The proposed strategies had to be approved by U.S. DOE and had to follow DOE's list of 14 eligible activities for the EECBG program.

The following local governments received direct EECBG awards totaling $14,955,500.

City	Amount	County	Amount
Bowling Green	$585,600	Boone	$368,100
Covington	$188,500	Bullitt	$289,900
Florence	$126,400	Campbell	$351,600
Frankfort	$132,100	Hardin	$426,500
Henderson	$123,100	Kenton	$465,200
Hopkinsville	$143,600	Laurel	$246,000
Lexington-Fayette	$2,753,800	McCracken	$289,900
Louisville-Jefferson	$7,000,400	Oldham	$222,200
Owensboro	$557,200	Pike	$282,800
Richmond	$145,600	Pulaski	$257,000

Along with direct awards to local communities, states also received awards from U.S. DOE under the EECBG program under the requirement that at least 60 percent of a state's award had to be made available to the smaller cities and counties that did not receive a direct allocation from DOE. Kentucky received $10,427,000 in EECBG funding, of which $6,256,200 had to be made available to smaller cities and counties that did not receive a direct allocation.

DEDI partnered with the Department for Local Government (DLG) to administer that portion of the funding reserved for the smaller cities and counties. DLG issued the RFP and received and reviewed applications from local governments to perform activities based on the 14 criteria outlined in the federal funding opportunity announcement. DLG received approximately 120 applications totaling more than $12 million.

DLG

Funding will be provided for at least fifty-six (56) projects to implement energy efficiency, energy conservation and renewable energy projects. The most any one community could receive was $125,000, although some communities working together could ask for proposed funding to be combined and go toward a specific project. Total funding being provided to small cities and counties under this program is $6,302,226. Opportunities to fund additional projects may exist if some projects come in under the estimated budgets.

Local	Amount	Local	Amount
Berea	$125,000	Jackson	$125,000
Livingston County	$125,000	Paducah	$50,000
Jeffersontown	$125,000	Elizabethtown	$125,000
Rowan County	$125,000	Estill County	$125,000
Madisonville	$125,000	Mount Washington	$125,000
Monticello	$125,000	Calvert City	$125,000
Whitley County	$125,000	Clark County	$125,000
Madison County	$125,000	Daviess County	$58,800
Ballard County	$125,000	Fulton	$99,044
Bardwell	$35,000	Fulton County	$65,155
Butler County	$108,688	Greenville	$125,000
Henderson County	$125,000	Murray	$125,000
LaRue County	$68,000	Olive Hill	$125,000
Marshall County	$68,000	Pendleton County	$125,000
Mayfield	$125,000	Winchester	$56,802
Franklin County	$125,000	Whitesville	$75,600
Wayne County	$35,200	Cynthiana	$125,000
Caldwell County	$125,000	Lincoln County	$125,000
Hart County	$125,000	Guthrie	$65,650
McLean County	$125,000	Central City	$72,126
Garrard County	$11,769	Greenup County	$125,000
Hickman County	$125,000	Carlisle County	$101,210
Warren County	$41,494	Crofton	$47,450
Danville	$125,000	Hickman City	$50,000
Carroll County	$75,000	Calloway County	$45,675
Trigg County	$125,000	Boyle County	$125,000
Knott County/Pippa Passes/ Hindman	$375,000	Leitchfield/Grayson County	$250,000
Warsaw/Gallatin County	$250,000		

Net Zero

Three other projects are being funded with the remaining EECBG funds awarded to Kentucky.

Net-Zero Energy School Program – Richardsville Elementary – $1,422,588 -- funding has been provided to partially match existing school funding to bring Richardsville Elementary School in Warren County to near-net-zero energy use. This school is the first of its kind in Kentucky and one of the first in the nation.

KDHBC

Funding was provided to the Kentucky Department for Housing, Buildings and Construction (KDHBC) for two programs. $457,153 was provided for training programs focusing on the 2009 Building Code that stresses energy efficiency and conservation in the construction of buildings. Training will be provided to residential and commercial construction professionals throughout the state. Under a separate program, KDHBC received $1,198,895 to fund the initial start-up costs associated with the creation and implementation of a new program to promote energy efficiency in both commercial and residential new constructions. The program is planned to be self-sustaining after the first year of inspections and will be administered by KDHBC. These programs help move Kentucky closer to the goal of updating building codes and moving toward the 90 percent compliance rate anticipated by U.S. DOE.

Mike Martindale and Arthur Ball, of the Kentucky Department of Housing, Building and Construction, inspect an HVAC system for a home builder.

DEDI Featured Program

The Kentucky Energy Efficient Appliance Rebate Program

Through federal stimulus legislation, the American Recovery and Reinvestment Act awarded Kentucky approximately $4.096 million in funds to implement an Energy Efficient Appliance Rebate Program for residents who purchased ENERGY STAR home appliances to replace older, less efficient models. The program, was administered through DEDI and kicked off on Earth Day, April 22, 2010. The program is aimed at helping the state achieve Governor Steve Beshear's goal in Intelligent Energy Choices for Kentucky's Future to derive 18 percent of Kentucky's energy needs through energy efficiency by the year 2025.

Kentucky offered rebates on 16 different ENERGY STAR qualified appliances. This provided residents with an array of choices and represented appliances that account for 70 percent of typical household energy costs. Consumers could receive one rebate per product category. All rebate requests were monitored for eligibility to ensure fraud prevention. Purchases also had to replace an older, less efficient product with an ENERGY STAR qualified appliance. Eligible consumers were Kentucky residents purchasing replacement appliances from Kentucky retailers.

> ***"Beyond the obvious energy efficiencies... they are helping stimulate Kentucky's economy as well. I call that a great deal for everyone."***
>
> ***- Kentucky Governor Steve Beshear***

"What better way to acknowledge 40 years of Earth Day celebrations than to give Kentuckians the opportunity to be environmentally responsible by purchasing energy efficient appliances while at the same time receiving rebates for making our planet a better place to live," said Gov. Beshear. "Kentucky has expanded the list of appliances beyond what many of our neighboring states have done in order to give the people of the Commonwealth a better opportunity to purchase what is needed for their homes. Even beyond the obvious energy efficiencies that will be realized, they are helping stimulate Kentucky's economy as well. I call that a great deal for everyone."

Residents reserved all rebate funds within 30 days of the program's kickoff. In early July Kentucky consumers had failed to claim $1.7 million in rebate reservations and DEDI initiated a relaunch making funds available strictly on a first-come, first-served basis to encourage consumers to make their purchases and then turn in applications as soon as possible.

To rebuild the momentum for the program, DEDI held a second press conference on July 15th with First Lady Jane Beshear at the GE Appliance Park in Louisville. Radio ads were broadcast on 86 stations across the Commonwealth. The re-launch announcement resulted in soaring sales.

In just two weeks available funds were down $700,000. The re-launch of the program was a resounding success and jump-started appliance sales throughout the Commonwealth. The US Dept. of Energy recognized Kentucky for being one of the first states to enter the final phase and in executing a successful energy efficient appliance rebate program.

Did You Know?

6,269	• Number of average households powered with total lifetime energy savings from the program
11,361	• Total Clothes Washer Rebates
13,988	• Number of average cars removed from the roads to reduce equivalent CO2 emissions
17,359	• Number of forested acres needed to sequester equivalent CO2 emissions
34,265	• Rebates Approved to Date
38,072	• Total Rebate Submissions
$4.096	• Millions of $$ Received
42,394	• Millions of Btu Energy Savings Per Year

*On July 15, **First Lady Jane Beshear** held a press conference at GE's Appliance Park in Louisville to announce nearly $1.7 million in unclaimed funds.*

Gov. Steve Beshear, Rep. Sannie Overly, Wayne Rabon, and Paris Mayor Michael Thornton at the event kickoff hosted by Rabon's TV & Appliance in Paris, KY.

Kentucky Bioenergy Development

DEDI's roadmap for development of a Kentucky bioenergy industry is primarily focused upon implementation of strategic actions and recommendations from Governor Beshear's Executive Task Force on Biomass and Biofuels Development, which in turn supports implementation of Strategies 2 and 3 of the Governor's strategic energy plan.

In response to the Task Force recommendation, related to promoting awareness of KY's bio energy potential, DEDI organized and conducted a symposium series, Economic Development through bioenergy, as a vehicle for outreach and education. In collaboration with the United States Department of Agriculture, Kentucky's universities, Kentucky Cabinet for Economic Development, and the Governor's Office of Agricultural Policy, a dozen public forums have been held in 2010 that attracted approximately 2000 people interested in bioenergy development. The Division of Biofuels has also met individually with dozens of individual project developers to provide advice and assistance, and keeps it doors open to help Kentucky's citizens respond and profit from a rapidly growing international bioenergy industry.

In response to another Task Force recommendation to recognize that a baseline for biomass development is already established in Kentucky by the successful start of numerous private companies, as well as the initiation of significant public and private research, DEDI has published on its website a bioenergy directory that summarizes Kentucky bioenergy businesses and projects. A Directory of bioenergy research, consultants, and supporting organizations will be published in 2011.

The Task Force also recognized that sustainability of a bioenergy industry was crucial so that Kentuckians not only enjoy the fruits of developing a new biomass industry, but that the industry evolves in an environmentally friendly manner that does not detract from food and feed supplies or place undue risks upon existing industry. Much discussion on biomass sustainability is occurring across the United States today, and DEDI has identified multiple sustainability standards that have been adopted, including 11 different standards that are being used by a single institution—the Federal Government. DEDI is a participant in the development of a single National Standard for Biomass Sustainability that is currently under discussion in Congress that will allow Kentucky not only to develop, but to protect its natural biomass resources.

(from left to right) Frank Moore, Scott Maas, Robert Finch, Roger Thomas, John W. McCauley, and Tim Hughes at the Mayfield Biomass Symposium

Public Education on Coal Issues

Kentucky Revised Statute 132.020(5) authorizes funding to the Energy and Environment Cabinet from the un-mined minerals tax collected each year for the purpose of public education of coal related issues. DEDI has the responsibility to solicit proposals each year from non-profit agencies having the experience and expertise to successfully conduct programs or activities. The department selected six projects for 2010, which are highlighted in the table below.

Awardees	Amount	Project Description	Start Date	End Date
Kentucky Mining Institute	$25,000	Kentucky Mining Institute will edit and publish a 6th edition of the Coal Mining Reference Book. This is an essential text for coal mining foremen and supervisors that was last updated in 1998.	10/1/2010	6/30/2011
Coal Education Development and Resource (CEDAR) - East	$85,000	Coal Education Development and Resource (CEDAR) will use its grant to develop coal educational materials and sponsor a coal fair for K-12 students in 12 eastern Kentucky counties.	8/1/2010	6/30/2011
Coal Education Development and Resource West (CEDAR) - West	$50,000	Coal Education Development and Resource West (CEDAR West) will develop coal educational materials and sponsor field trips for K-12 students in 6 western Kentucky counties.	8/1/2010	6/30/2011
Kentucky Foundation	$15,000	Kentucky Foundation will edit and publish the 11th edition of Coal Facts, a reference publication of coal data across Kentucky.	10/1/2010	6/30/2011
University of Kentucky	$150,000	Gatton College of Economics will conduct an economic analysis on the potential impact of electrical energy cost increases (resulting from national legislation or regulation, or any other exogenous source) on Kentucky's manufacturing economic segment.	11/1/2010	6/30/2011
University of Kentucky's Center for Applied Energy Research (CAER)	$83,000	CAER will develop post-secondary energy education clubs at University of Kentucky and University of Louisville to attract and motivate students toward energy careers. Clubs will place emphasis on fossil energy development and conservation.	8/1/2010	6/30/2011

Energy Commercialization and Research Grants

Under the enacted biennial budget, DEDI has appropriated funding to support research projects relating to clean coal, new combustion technologies, thin-seam coal extraction, safety, tracking and communication devices, coal slurry disposal and synthetic natural gas produced from coal through gasification processes, and the development of alternative fuels produced by processes that convert coal or biomass resources or extract oil from oil shale and other coal research. These research dollars are used to provide benefits to Kentucky's Local Government Development Fund eligible counties. The supported projects are explained in the table below.

Awardees	Amount	Project Description	Start Date	End Date
Paducah Uranium Plant Asset Utilization Group	$140,000	Paducah Uranium Plant Asset Utilization Group will develop new opportunities for the Paducah Gaseous Diffusion Plant which supports numerous jobs in the Paducah area and is the major customer of the TVA coal-fired power plant in the region.	8/1/2010	6/30/2011
Platform Energy Group, LLC	$350,000	Platform Energy Group, LLC will build a high-tech gasifier on the premises of a corrugated paper manufacturing plant operated by Temple-Inland in Maysville, KY. The gasifier will generate steam to be used by the Temple-Inland plant in its operations. The fuel for the gasifier will be waste products generated at the Temple-Inland facility and the project is expected to create approximately 10 new full-time jobs.	8/1/2010	6/30/2011
University of Louisville	$250,000	University of Louisville will use these funds to support four projects related to biofuel development and CO2 utilization that will improve economics and process efficiencies. These funds are matched by a $2 million award by US Department of Energy.	9/1/2010	6/30/2011
E.ON US	$300,000	E.ON US is developing and planning a carbon capture and storage demonstration project at an E.ON US coal -fired power plant.	9/1/2010	6/30/2011
ecoPower Generation	$400,000	ecoPower Generation is completing engineering design and procurement of a 50 megawatt biomass to electricity project in Perry County. The total value of the project will be over $150 million and is projected to create 40 new full-time jobs.	8/1/2010	12/31/2011

Awardees	Amount	Project Description	Start Date	End Date
University of Kentucky's Center for Applied Energy Research (CAER)	$1,000,000	UK's Carbon Management Research Group (CMRG) is an industry-university-government consortium dedicated to developing a cost-effective and efficient flue gas CO2 capture process. This grant is matched with $1,200,000 from industry.	8/1/2010	6/30/2011
University of Kentucky's Center for Applied Energy Research (CAER)	$200,000	CAER is developing a Coal-to-Liquid Research and Demonstration Facility that is matched with $1.9 million in federal grant funds.	8/1/2010	6/30/2011
University of Kentucky's Center for Applied Energy Research (CAER)	$500,000	The Development of an algae-based System for CO2 Mitigation from Coal–fired Power Plants project. This project is designed to be an effective capture technology that does not require sequestration and can produce a liquid fuel from the captured CO2.	8/1/2010	6/30/2011
University of Kentucky	$85,720	The University of Kentucky will continue research into Separation and Recovery of High-value Pentose Derivatives from Cellulosic Biomass. This is year three of a three-year project to develop important refined biomass products. The project is matched with federal funds of $200,000.	11/1/2010	6/30/2011
University of Western Kentucky	$62,500	Western Kentucky University will conduct Feasibility Studies on Process Coupling of Transesterification and Methanol Synthesis Using Cellulose Biomass and Bio-oil. This project will establish guidelines for the selection and evaluation of suitable catalysts to promote both methanol synthesis and bio-oil-transesterification; and investigation of its performance under non-pressurized conditions. The project is matched with federal funds of $500,000.	11/1/2010	6/30/2011

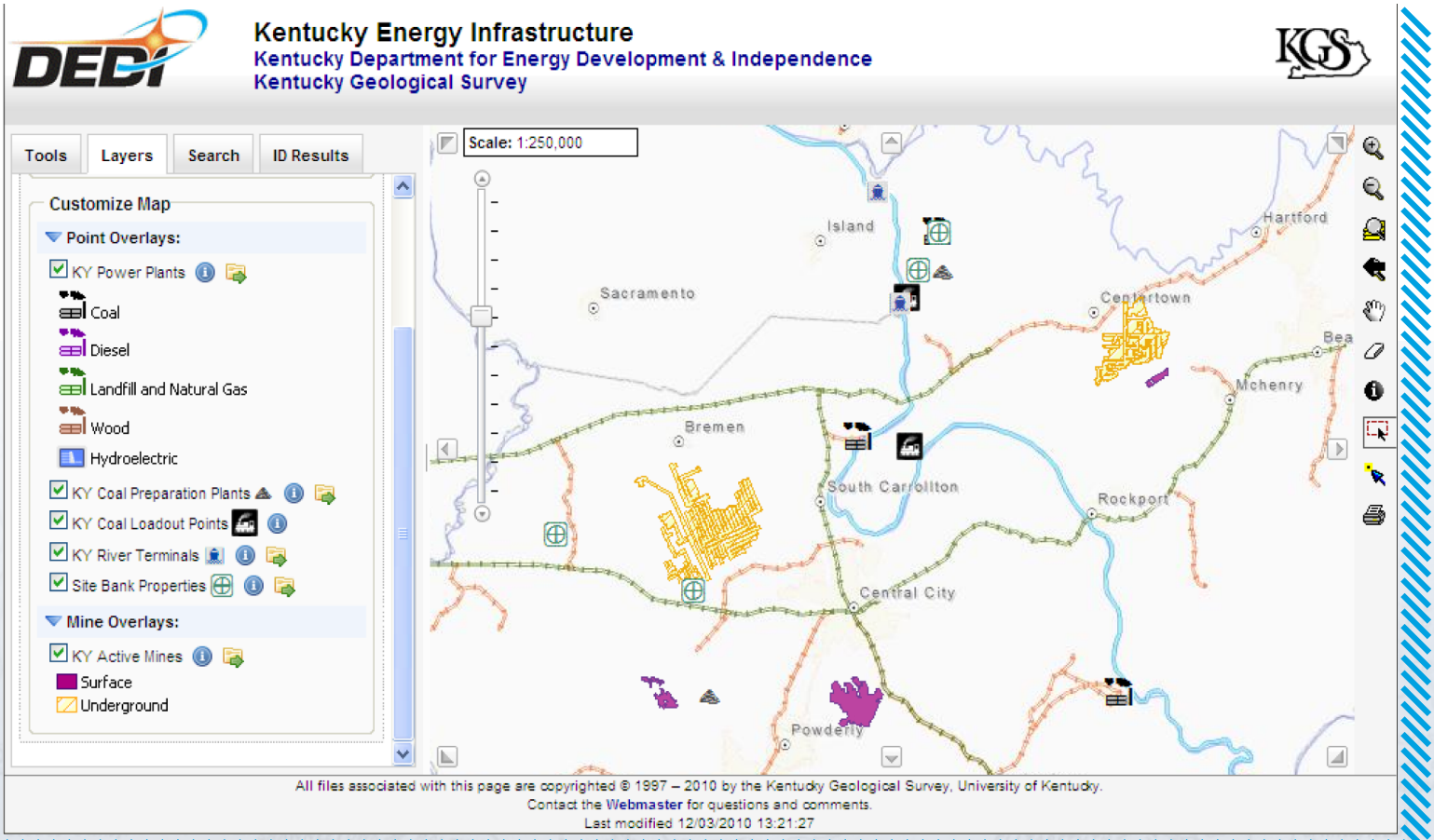
DEDI Partnerships

To better coordinate energy initiatives among interested stakeholders, DEDI works to build partnerships across Kentucky and the nation. These partnerships help to leverage scarce resources and pool intellectual capacity to achieve results. Two such DEDI partnerships that are having success are with the UK Center for Applied Energy Research (CAER) and Kentucky Geological Survey.

In October 2010, CAER broke ground on what will become the University of Kentucky's first LEED-certified laboratory. The $19.8 million renewable energy laboratory will allow the center to expand research devoted to Kentucky's growing renewable energy industries, including biomass and biofuels, electrochemical power sources (like capacitors and batteries) and distributed solar energy technologies.

The facility is being funded by a competitive grant from the U.S. Department of Commerce's National Institute of Standards and Technology (NIST). The award consisted of $11.8 million in NIST federal funds, with matching resources of $3.5 million provided by the Commonwealth of Kentucky and $1 million from UK. An additional award of $3.5 million in state ARRA funds has also been provided by DEDI to achieve LEED certification and ensure this new laboratory is a model for energy efficiency and renewable energy technologies.

Rendering of the University of Kentucky's first LEED-certified laboratory.



In August 2010, the Kentucky Geological Survey and DEDI joined to develop an interactive web map titled "Kentucky Energy Infrastructure." The map service was created with funding from the Kentucky Coal Education grant and can be found at http://kgs.uky.edu/kgsmap/ KYCoal/viewer.asp. The new web-based service helps to quickly find the location of power plants, railroads, active coal mines, and other coal processing, handling and transportation facilities in Kentucky.

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