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COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

MAR 20 2006

IN THE MATTER OF:

PUBLIC SERVICE
COMMISSION

JOINT APPLICATION OF LOUISVILLE GAS)
AND ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE OF) **CASE NO.**
PUBLIC CONVENIENCE AND NECESSITY FOR) **2005-00467**
CONSTRUCTION OF TRANSMISSION FACILITIES)
IN JEFFERSON, BULLITT, MEADE, AND HARDIN)
COUNTIES, KENTUCKY)

JOINT APPLICATION OF LOUISVILLE GAS)
AND ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE OF) **CASE NO.**
PUBLIC CONVENIENCE AND NECESSITY FOR) **2005-00472**
CONSTRUCTION OF TRANSMISSION FACILITIES)
IN JEFFERSON, BULLITT, MEADE, AND HARDIN)
COUNTIES, KENTUCKY)

* * * * *

**INTERVENORS DENNIS AND CATHY CUNNINGHAM;
CDH PRESERVE, LLC; HARRISON AND HARDIN
NOTICE OF FILING DIRECT TESTIMONY**

* * * * *

Pursuant to the scheduling order adopted by the Commission in this case, Intervenor Dennis Cunningham and Cathy Cunningham, CDH Preserve, LLC, Lisa Harrison, and Jennifer Hardin, (referred to collectively as "Cunningham") hereby give notice of filing of the Direct Testimony of the following:

1. Direct Testimony of Cathy and Dennis Cunningham.
2. Direct Testimony of Lisa Harrison and Jennifer Hardin (verification page not signed but upon receipt signed verification page to be filed prior to the hearing).

3. Direct Testimony of Geoff Young (verification page not signed but upon receipt signed verification page to be filed prior to the hearing).

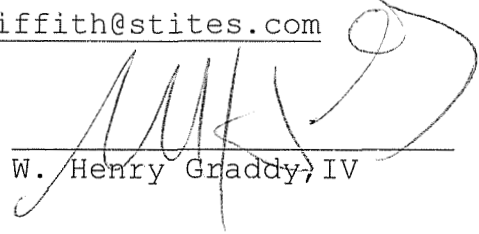
Respectfully submitted,

W. H. GRADDY & ASSOCIATES
103 Railroad Street
P.O. Box 4307
Midway, Kentucky 40347
(859) 846-4905
hgraddy@aol.com
Counsel for Interveners
Dennis and Cathy Cunningham

And

Hon. Robert W. Griffith
Stites & Harbison, PLLC
400 W. Market Street
Suite 1800
Louisville, Kentucky 40202
(502) 681-0422
rwgriffith@stites.com

By:



W. Henry Graddy, IV

CERTIFICATE OF SERVICE

I hereby certify that an original and seven copies were filed with the Public Service Commission and that true and correct copies have been duly served by first-class mail upon the following:

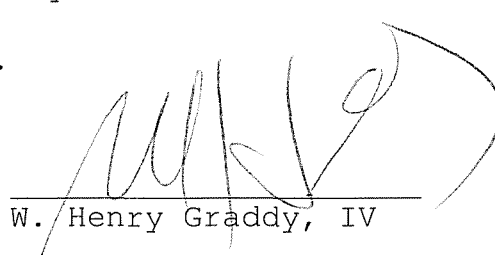
Hon. A.W. Turner
Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, Kentucky 40602

Hon. J. Gregory Cornett
Stoll-Keenon-Ogden, PLLC
1700 PNC Plaza
500 West Jefferson Street
Louisville, Kentucky 40202

Hon. Robert M. Watt, III
Hon. Lindsey W. Ingram, III
Stoll-Keenon-Ogden, LLP
300 West Vine Street, Suite 2100
Lexington, Kentucky 40507

Hon. Elizabeth L. Cocanougher
Senior Regulatory Counsel
Louisville Gas and Electric Company
220 West Main Street
Post Office Box 32010
Louisville, Kentucky 40232
Counsel for Louisville Gas and Electric
Company and Kentucky Utilities Company

This the 00 day of March, 2006.



W. Henry Graddy, IV

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COUNTIES, KENTUCKY)

* * * * *

DIRECT TESTIMONY OF GEOFFREY M. YOUNG

* * * * *

1. **Q. Please state your name and place of employment.**

2. **A.** My name is Geoffrey M. Young. I work out of my home

3. at 454 Kimberly Place, Lexington, KY 40503.

4. **Q. What is your position?**

5. **A.** I own a consulting company specializing in energy

6. efficiency, renewable energy, energy policy, and

7. utility regulation and rate structures.

8. **Q. Please describe your education and employment**

9. **experience.**

10. **A.** I received a bachelor's degree in Economics from

11. the Massachusetts Institute of Technology, a master's

12. degree in Mechanical Engineering from the University of

13. Massachusetts, and a master's degree in Agricultural

14. Economics from the University of Kentucky.

15. From February 1978 to August 1979, I worked as a Staff

16. Engineer at Technology & Economics, a research

17. consulting firm in Cambridge, Massachusetts. I analyzed

18. the economic and energy savings resulting from energy

19. efficiency technologies and prepared a commercialization

20. plan for a low-cost passive solar heating and cooling

21. system. From July 1982 to June 1983, I was the Staff

22. Engineer at the Small Business Development Center,

23. administered by the University of Kentucky in

24. Lexington. I performed cost-benefit analyses of energy

1. efficiency and renewable energy technologies, provided
2. technical assistance to small businesses, and maintained
3. and updated a manual with descriptions of energy
4. technologies. From April, 1990 to September 1991, I
5. worked for the Kentucky Division of Waste Management in
6. the Department for Environmental Protection as an
7. Environmental Engineering Technologist Senior. I
8. performed technical and administrative reviews of
9. applications for hazardous waste facility permits. I
10. provided technical assistance to field and enforcement
11. personnel, conducted hazardous waste facility
12. assessments, and provided information to the public.
13. From September 1991 to November 1994, I worked as an
14. Environmentalist Principal at the Kentucky Division of
15. Energy (KDOE). My major duty at that time was to
16. coordinate the Alternate Energy Development Program. I
17. administered small grants for the demonstration of
18. renewable energy technologies, developed fact sheets
19. and other information for the public, edited a national
20. monthly newsletter on energy efficiency programs in the
21. 50 states, and wrote proposals for grant funding. I was
22. promoted to assistant director of KDOE in November
23. 1994. In addition to administrative duties and
24. continuing management of the Alternate Energy

1. Development Program, my work focused on demand-side
2. management, energy policy issues, energy-efficient
3. building systems, and alternative fuels for vehicles.
4. Between 1994 and 2004, I represented KDOE on demand-
5. side management collaboratives at Louisville Gas and
6. Electric Company (LG&E/KU/KU), Kentucky Power Company
7. (AEP), and Union Light, Heat and Power Company
8. (Cinergy). I was the lead person for the Division in
9. addressing electric industry regulatory issues before
10. the Commission. During 2005, KDOE was shifted into the
11. Commerce Cabinet, and is now known as the Division of
12. Renewable Energy and Energy Efficiency.

13. **Q. Have you participated in other cases before this**
14. **Commission?**

15. **A.** Yes. I submitted prepared testimony in the
16. following cases:

17. Case No. 98-426, Application of Louisville Gas and
18. Electric Company for Approval of an Alternative
19. Method of Regulation of Its Rates and Service.

20. Case No. 98-474, Application of Kentucky Utilities
21. Company for Approval of an Alternative Method of
22. Regulation of Its Rates and Service.

23. Case No. 2000-459, The Joint Application of the
24. Louisville Gas and Electric Company and Kentucky

1. Utilities Company for the Review, Modification and
2. Continuation of DSM Programs and Cost Recovery
3. Mechanisms. Case No. 2001-053, the Application of East
4. Kentucky Power Cooperative, Inc. for a Certificate of
5. Public Convenience and Necessity, and a Certificate of
6. Environmental Compatibility, for the Construction of
7. a 250 MW Coal-Fired Generating Unit (With a Circulating
8. Fluid Bed Boiler) at the Hugh L. Spurlock Power Station
9. and Related Transmission Facilities, Located in Mason
10. County, Kentucky, to be Constructed only in the Event
11. that the Kentucky Pioneer Energy Power Purchase
12. Agreement is Terminated. Administrative Case No. 387,
13. A Review of the Adequacy of Kentucky's Generation
14. Capacity and Transmission System. Case No. 2005-00142,
15. Joint Application of Louisville Gas and Electric
16. Company and Kentucky Utilities Company for a
17. Certificate of Public Convenience and Necessity for the
18. Construction of Transmission Facilities in Jefferson,
19. Bullitt, Meade, and Hardin Counties, Kentucky. I was
20. the lead participant and representative for KDOE in the
21. following integrated resource planning cases: Kentucky
22. Power Company (dba AEP), Cases No. 99-437 and 2002-
23. 00377, Big Rivers Electric Corporation, Cases No. 99-
24. 429 and 2002-00428, East Kentucky Power Cooperative,

1. Inc., Cases No. 2000-044 and 2003-00051, Louisville Gas
2. and Electric Company and Kentucky Utilities Company,
3. Cases No. 99-430 and 2002-00367, The Union Light, Heat
4. and Power Company, Case No. 16. 99-449. I prepared
5. testimony for the Division to submit in Administrative
6. Case No. 341, An Investigation Into the Feasibility of
7. Implementing Demand-Side Management Cost Recovery and
8. Incentive Mechanisms. I testified orally at a public
9. hearing and submitted written follow-up comments in
10. Administrative Case No. 2005-00090, An Assessment of
11. Kentucky's Electrical Generation, Transmission, and
12. Distribution Needs.

13. **Q. This case relates to a proposal by LG&E/KU to build**
14. **a new transmission line to handle the power produced by**
15. **the projected Trimble County 2 (TC2) power plant. In**
16. **general, is building new power lines the only way to**
17. **handle increased power flows?**

18. **A.** No. According to Clark Gellings and Kurt Yeager:
19. "We in the US cannot afford to abandon or entirely
20. replace our power delivery system. And we don't need
21. to. What we do need is to use advanced technology to
22. modernize and enhance the use of the existing asset
23. base. Computers, sensors, and computational ability
24. have transformed every major industry in the Western

1. world except the electric power industry... Several
2. available or emerging technologies will help transform
3. the grid into a smart power system capable of supporting
4. the digital society of the 21st Century. In broad
5. strokes, the transformed "intelligrid" will be an
6. integrated, self-healing, electronically controlled
7. electricity supply system of extreme resilience and
8. responsiveness that is capable of responding in real
9. time to the billions of decisions made by consumers and
10. their increasingly sophisticated microprocessor agents.
11. The transformation, we believe, will open the door to a
12. convergence of electricity and communication that will
13. usher in a new era of productivity and prosperity."
14. ("Transforming the Electric Infrastructure," *Physics*
15. *Today*, December 2004; web site:
16. <http://www.physicstoday.org/vol-57/iss-12/p45.html>)
17. The authors list the following technologies that can be
18. used to enhance the performance, reliability,
19. resilience, economic value, and power-carrying capacity
20. of the grid: "**Advanced conductors**. Various techniques
21. can increase the amount of power carried along existing
22. transmission corridors. Some of them, but not all,
23. involve new materials. The methods range from
24. reconfiguring existing lines to using new types of

1. conductors with carbon-fiber cores. The new conductors
2. have higher current-carrying capability, and because of
3. their greater strength and lighter weight, they sag less
4. at the high temperatures associated with high power-flow
5. rates. In the future, high-temperature superconducting
6. cables in underground systems might carry triple the
7. current of conventional conductors, perhaps more. They
8. may also be suitable for retrofitting in some
9. underground and ground-based conduits. **Distributed**
10. **energy resources.** Small generation and storage devices
11. distributed throughout and seamlessly integrated with
12. the power delivery system offer potential solutions to
13. several challenges the electric power industry
14. currently faces. Those challenges include the needs to
15. increase the resilience and reliability of the power-
16. delivery infrastructure, make a range of services
17. available to consumers, and provide low-cost, digital-
18. quality power. **Automation.** This is key to providing
19. high levels of reliability and quality. To a
20. distribution-system operator, automation may mean that
21. in an emergency, a distribution feeder, local
22. distributed energy resources, or both would be
23. automatically isolated from the grid. To a power-system
24. operator, automation could mean a self-healing, self-

1. optimizing power-delivery system that anticipates and
2. quickly responds to disturbances. As a result, power
3. disruptions would be minimized or eliminated altogether.
4. **Power-electronics controllers.** Based on solid-state
5. components, these devices offer control of the power-
6. delivery system with the speed and accuracy of a
7. microprocessor, but at a power level 500 million times
8. higher. **Computer modeling of market tools.** To
9. accommodate changes in retail power markets worldwide,
10. market-based mechanisms will need to offer appropriate
11. incentives to buyers and sellers, facilitate efficient
12. planning for the expansion of the power-delivery
13. infrastructure, and effectively allocate risk. Computer
14. modeling will play an important role in testing market
15. models. **Communications architecture.** To realize the
16. vision of the smart power-delivery system, standardized
17. communications architecture must first be developed and
18. overlaid on today's system. EPRI recommends that
19. integrated energy and communications-system
20. architecture be based on publicly available standards.
21. **Energy portals.** Distribution systems were designed to
22. perform one function—to distribute power to consumers.
23. But many value-added retail services require two-way
24. information exchange between the consumer and the

1. marketplace. An energy portal, which would sit between a
2. consumer's in-house communications network and a wide-
3. area access network, would enable two-way, secure
4. communication between a consumer's equipment and energy-
5. service or communications providers." (Gellings and
6. Yeager, *Ibid.*)

7. **Q. Do the authors of this article have any experience**
8. **that would qualify them as established experts in the**
9. **field of power distribution technology?**

10. **A.** Kurt E. Yeager served as President and Chief
11. Executive Officer of Electric Power Research Institute
12. (EPRI), Palo Alto, California from August 1996 to 2004.
13. He had previously served as EPRI's Executive Vice
14. President and Chief Operating Officer. Mr. Yeager
15. joined EPRI in 1974, progressing through a series of
16. technical management and executive positions from
17. department director to division vice president. In
18. 1990 he became Senior Vice President for Technical
19. Operations, responsible for the integrated management
20. of EPRI's five technical divisions. In 1994 he was
21. appointed Senior Vice President for Strategic
22. Development. In this position he was responsible for
23. corporate strategic planning, core research and
24. environmental issue assessment, client services,

1. regulatory affairs, and government relations.
2. Previously, Mr. Yeager was the director of Energy R&D
3. Planning for the EPA Office of Research. Prior to that
4. he was with the MITRE Corporation as associate head of
5. the Environmental Systems Department and he was a
6. distinguished graduate of the Air Force Nuclear Research
7. Officer's Program. Mr. Yeager is a Fellow of the
8. American Society of Mechanical Engineers, a Trustee of
9. the Committee for Economic Development, and a member of
10. the Conference Board, Inc. He has served on the
11. Executive Board of the National Coal Council as well as
12. several National Academy of Engineering Committees and
13. the Energy Research Advisory Board to the Secretary of
14. Energy. He has authored over 200 technical publications
15. on energy and environmental topics. Mr. Yeager received
16. a Bachelor's degree from Kenyon College and completed
17. post-graduate studies in chemistry and physics at Ohio
18. State and the University of California, Davis. He has
19. also completed post-graduate management programs at the
20. Industrial College of the Armed Forces and the
21. University of Pennsylvania Wharton School of Finance.
22. Clark W. Gellings is Vice President of Power, Delivery
23. and Markets at the Electric Power Research Institute.
24. He joined EPRI in 1982 as a program manager, Customer

1. Systems, and subsequently served in a series of senior
2. Executive positions leading to his current appointment.
3. Mr. Gellings is a registered Professional Engineer, a
4. Fellow in the Institute of Electrical and Electronics
5. Engineers (IEEE), a Fellow in the Illuminating
6. Engineering Society (IES), and President of the U.S.
7. National Committee of CIGRE. He holds a bachelor's
8. degree in Electrical Engineering from Newark College of
9. Engineering, a master's degree in Management Science
10. from Stevens Institute of Technology, and a master's
11. degree in Mechanical Engineering from New Jersey
12. Institute of Technology. He has authored or co-
13. authored 10 books and over 350 article or papers on
14. electricity issues.

15. **Q. What relevance do distributed generation and the**
16. **other technologies listed above have to the voltage**
17. **support problems described in LG&E/KU's application and**
18. **the Liberty Consulting Group's technical review?**

19. **A.** LG&E/KU and the Liberty Consulting Group performed
20. analyses and reviews "of the need for additional power
21. flow, transient stability, and other technical analyses
22. that are used to justify the project. Other technical
23. analyses include reactive requirements, long-term
24. dynamic simulations, or short circuit analyses."

1. [Liberty Consulting Group, Final Report: Focused Review
2. of Documentation Filed by LG&E/KU for a Proposed 345 kV
3. Transmission Line Within Kentucky, page I-3] The
4. alternative technologies listed by Gellings and Yeager,
5. in particular distributed generation technologies, are
6. directly relevant to several of these factors. In 2002
7. the Rocky Mountain Institute published a revolutionary
8. book called *Small Is Profitable*, which describes 207
9. ways in which the size of "electrical resources" -
10. devices that make, save, or store electricity - affects
11. their economic value. Primary author Amory Lovins and
12. his co-authors found "that properly considering the
13. economic benefits of 'distributed' (decentralized)
14. electrical resources typically raises their value by a
15. large factor, often approximately tenfold, by improving
16. system planning, utility construction and operation
17. (especially of the grid), and service quality, and by
18. avoiding societal costs." (Web site:
19. <http://www.smallisprofitable.org/index.html>)
20. Several of the 207 factors listed in that book refer
21. directly to voltage-related, grid stability, and power
22. line siting issues: Benefit #82 - Distributed resources
23. have an exceptionally high grid reliability value if
24. they can be sited at or near the customer's premises,

1. thus risking less "electron haul length" where supply
2. could be interrupted. Benefit #83 - Distributed
3. resources tend to avoid the high voltages and currents
4. and the complex delivery systems that are conducive to
5. grid failures. Benefit #86 - Distributed generation in a
6. large, far-flung grid may change its fundamental
7. transient-response dynamics from unstable to stable -
8. especially as the distributed resources become smaller,
9. more widespread, faster-responding, and more
10. intelligently controlled. Benefit #110 - Distributed
11. resources can reduce reactive power consumption by
12. shortening the electron haul length through lines and
13. by not going through as many transformers - both major
14. sources of inductive reactance. Benefit #111 -
15. Distributed resources can reduce current flows through
16. inductive grid elements by meeting nearby loads
17. directly rather than by bringing current through lines
18. and transformers. Benefit #112 - Some end-use-
19. efficiency resources can provide reactive power as a
20. free byproduct of their more efficient design. Benefit
21. #113 - Distributed generators that feed the grid
22. through appropriately designed DC-to-AC inverters can
23. provide the desired real-time mixture of real and
24. reactive power to maximize value. Benefit #114 -

1. Reduced reactive current improves distribution voltage
2. stability, thus improving end-use device reliability and
3. lifetime, and enhancing customer satisfaction, at lower
4. cost than for voltage-regulating equipment and its
5. operation. Benefit #119 - Distributed resources, by
6. reducing line current, can help avoid voltage drop and
7. associated costs by reducing the need for installing
8. equipment to provide equivalent voltage support or step-
9. up. Benefit #120 - Distributed resources that operate in
10. the daytime, when sunlight heats conductors or
11. transformers, help to avoid costly increases in circuit
12. voltage, reconductoring (replacing a conductor with one
13. of higher ampacity), adding extra circuits, or, if
14. available, transferring load to other circuits with
15. spare ampacity. Benefit #123 - Distributed resources
16. defer or avoid adding grid capacity. Benefit #124 -
17. Distributed resources, by reducing the current on
18. transmission and distribution lines, free up grid
19. capacity to provide service to other customers. Benefit
20. #125 - Distributed resources help "decongest" the grid
21. so that existing but encumbered capacity can be freed
22. up for other economic transactions. Benefit #126 -
23. Distributed resources avoid the siting problems that
24. can occur when building new transmission lines. Benefit

1. #127 - These siting problems tend to be correlated with
2. the presence of people, but people tend to correlate
3. with both loads and opportunities for distributed
4. resources. Benefit #130 - Distributed resources'
5. reactive current, by improving voltage stability, can
6. reduce tapchanger operation on transformers, increasing
7. their lifetime. Benefit #145 - By combining fast ramping
8. with flexible location, often in the distribution
9. system, distributed resources may provide special
10. benefits in correcting transients locally before they
11. propagate upstream to affect more widespread
12. transmission and generating resources. Benefit #149 -
13. Distributed resources can avoid harmonic distortion in
14. the locations where it is both more prevalent (e.g., at
15. the end of long rural feeders) and more costly to
16. correct. Benefit #152 - Appropriately designed
17. distributed inverters can actively cancel or mitigate
18. transients in real time at or near the customer level,
19. improving grid stability. Benefit #173 - Technologies
20. perceived as benign or de minimis in their local
21. impacts can often also receive siting approvals faster,
22. or can even be exempted from approvals processes,
23. further shortening construction time and hence reducing
24. financial cost and risk. Benefit #174 - Technologies

1. perceived as benign in their local impacts have wide
2. flexibility in siting, making it possible to shop for
3. lower-cost sites. Benefit #175 - Technologies perceived
4. as benign in their local impacts have wide flexibility
5. in siting, making it easier to locate them in the
6. positions that will maximize system benefits. Benefit
7. #179 - Most well-designed distributed resources reduce
8. acoustic and aesthetic impacts. Benefit #181 -
9. Distributed resources facilitate local stakeholder
10. engagements and increase the community's sense of
11. accountability, reducing potential conflict. Benefit
12. #182 - Distributed resources generally reduce and
13. simplify public health and safety impacts, especially
14. of the more opaque and lasting kinds. Benefit #184 -
15. Distributed resources are fairer, and seen to be
16. fairer, than centralized resources because their costs
17. and benefits tend to go to the same people at the same
18. time. Benefit #185 - Distributed resources have less
19. demanding institutional requirements, and tend to offer
20. the political transparency and attractiveness of the
21. vernacular. Benefit #186 - Distributed resources lend
22. themselves to local decisions, enhancing public
23. comprehension and legitimacy. Benefit #187 Distributed
24. resources are more likely than centralized ones to

1. respect and fit community and jurisdictional boundaries,
2. simplifying communications and decision-making. Benefit
3. #188 - Distributed resources better fit the scale of
4. communities' needs and ability to address them. Benefit
5. #189 - Distributed resources foster institutional
6. structure that is more weblike, learns faster, and is
7. more adaptive, making the inevitable mistakes less
8. likely, consequential, and lasting. Benefit #190 -
9. Distributed resources' smaller, more agile, less
10. bureaucratized institutional framework is more
11. permeable and friendly to information flows inward and
12. outward, further speeding learning. Benefit #191 -
13. Distributed resources' low cost and short lead time for
14. experimental improvement encourages and rewards more of
15. it and hence accelerates it. Benefit #192 - Distributed
16. resources' size and technology (frequently well
17. correlated) generally merit and enjoy a favorable
18. public image that developers, in turn, are generally
19. both eager and able to uphold and enhance, aligning
20. their goals with the public's. Benefit #193 - With some
21. notable exceptions such as dirty engine generators,
22. distributed resources tend to reduce total air
23. emissions per unit of energy services delivered.
24. Benefit #194 - Since distributed resources' air

1. emissions are directly experienced by the neighbors with
2. the greatest influence on local acceptance and siting,
3. political feedback is short and quick, yielding strong
4. pressure for clean operations and continuous
5. improvement. Benefit #195 - Due to scale, technology,
6. and local accountability informed by direct perception,
7. the rules governing distributed resources are less
8. likely to be distorted by special-interest lobbying than
9. those governing centralized resources. Although Amory
10. Lovins, his co-authors, and the Rocky Mountain
11. Institute have had no connection with this particular
12. case, some of these benefits appear to be directly
13. relevant to the issues now under debate in this case.

14. **Q. Does Amory Lovins, the lead author of the book,**
15. ***Small Is Profitable*, have any experience that would**
16. **qualify him as an established expert in the field of**
17. **distributed energy technology?**

18. **A.** Amory B. Lovins, chief executive officer of Rocky
19. Mountain Institute, is a consultant experimental
20. physicist educated at Harvard and Oxford. He has
21. received an Oxford MA (by virtue of being a don), nine
22. honorary doctorates, a MacArthur Fellowship, the Heinz,
23. Lindbergh, Right Livelihood ("Alternative Nobel"),
24. World Technology, and TIME Hero for the Planet awards,

1. the Happold Medal, and the Nissan, Shingo, Mitchell, and
2. Onassis Prizes. His work focuses on transforming the
3. hydrocarbon automobile, real estate, electricity, water,
4. semiconductor, and several other sectors toward advanced
5. resource productivity. He has briefed eighteen heads of
6. state, held several visiting academic chairs, authored
7. or co-authored twenty-nine books and hundreds of papers,
8. and consulted for scores of industries and governments
9. worldwide. The *Wall Street Journal* named Mr. Lovins one
10. of thirty-nine people worldwide "most likely to change
11. the course of business in the '90s"; *Newsweek* has
12. praised him as "one of the Western world's most
13. influential energy thinkers"; and *Car* magazine ranked
14. him the twenty-second most powerful person in the
15. global automotive industry.

16. **Q. What are the implications of advanced technologies**
17. **such as those described above?**

18. **A.** It may be possible for LG&E/KU to implement one or
19. more of these technologies and strategies during the
20. next few years instead of building a new power line.
21. The utility should analyze the total resource cost of
22. addressing its projected voltage problems by means of
23. the alternatives listed above, alone or in combination.
24. The economic impacts of enhanced reliability, grid

1. resilience, and power quality should be factored into
2. the analysis to the extent possible. If any of the
3. alternatives, alone or in combination, yield a lower
4. total cost than the proposed new transmission line, the
5. utility should select the lowest-cost option.

6. **Q. Has LG&E/KU or the Liberty Consulting Group analyzed**
7. **any of the alternative technologies described above?**

8. **A.** There is no indication in the testimony filed in this
9. case that either LG&E/KU or the Liberty Consulting Group
10. has seriously looked at or quantitatively analyzed any
11. of the alternative technologies described above. This
12. represents a serious methodological oversight, in that
13. the most economically advantageous solution to the
14. identified voltage problems may have been overlooked.
15. See the following URL reference to a recent article
16. concerning the way advanced materials and designs at:
17. <http://www.utilityproducts.com/Articles/2005/10/fci.htm>

18. **Q. Does this conclude your testimony?**

19. **A.** Yes.

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UTILITIES COMPANY FOR A CERTIFICATE OF)	CASE NO.
PUBLIC CONVENIENCE AND NECESSITY FOR)	2005-00467
CONSTRUCTION OF TRANSMISSION FACILITIES)	
IN JEFFERSON, BULLITT, MEADE, AND HARDIN)	
COUNTIES, KENTUCKY)	

JOINT APPLICATION OF LOUISVILLE GAS)	
AND ELECTRIC COMPANY AND KENTUCKY)	
UTILITIES COMPANY FOR A CERTIFICATE OF)	CASE NO.
PUBLIC CONVENIENCE AND NECESSITY FOR)	2005-00472
CONSTRUCTION OF TRANSMISSION FACILITIES)	
IN JEFFERSON, BULLITT, MEADE, AND HARDIN)	
COUNTIES, KENTUCKY)	

* * * * *

DIRECT TESTIMONY OF LISA HARRISON AND JENNIFER HARDIN

1. **Q. Please state your name and address.**

2. A. My name is Jennifer Hardin. I reside at 230 Aulbern
3. Drive East, Mount Washington, KY 40047. My sister,
4. Lisa Harrison, lives at 2352 New Salem Church
5. Road, Vine Grove, KY 40175. Lisa has reviewed this
6. testimony and we submit this testimony together.

7. **Q. What is your interest in this case?**

8. A. Our interest in this case is our property in
9. Hardin County and Meade County -2352 New Salem Church
10. Road, Vine Grove, KY 40175. Lisa is an owner of this
11. property and I have an inheritable interest.

12. **Q. Describe 2352 New Salem Church Road, Vine Grove, KY
13. 40175, including the improvements you and Lisa have
14. made there.**

15. **A.** This land was purchased by our parents in 1972. It
16. is a beautiful rural landscape, consisting of 51
17. acres. Nearly half of the land is wooded and there are
18. two ponds on the farm. One of the ponds spans almost
19. one acre. We want to keep the farmland from being
20. developed. When my parents purchased the land, they had
21. to hand clear rocks from the tillable land. On the
22. property is also a historic home that was once a one-
23. room school house that has been added onto over the
24. years.

1. On many occasions, Indian artifacts, such as arrowheads,
2. have been found on many areas of the property. We also
3. have a familial burial ground on our property. My father
4. loved this farm so much that he insisted on being buried
5. on a hill overlooking the farm. This is an area that we
6. have set aside and all of our immediate family intends
7. to be buried there near my father. The power lines will
8. disrupt the view from our cemetery. We have recently
9. redone all fencing around the land and have added some
10. buildings for farming purposes. This is land that we
11. have farmed for many years. We raise horses and cattle,
12. and produce hay and corn.

13. Lisa and I both grew up on this farm and greatly enjoy
14. the wide open space for horseback riding. Lisa has no
15. plans to sell the property and my husband and I intend
16. to retire on this farm one day.

17. **Q. What are your concerns about the proposed**
18. **transmission facilities at issue here?**

19. We are concerned about the loss of land and the direct
20. impact that it will have on the amount of income from
21. our small farm. It is no secret that small, family
22. owned and operated farms are a dying breed and the
23. financial impact of the transmission lines will only
24. make our daily struggle to survive even more difficult.
25. The placement of transmission lines on our property

1. will cost us valuable grazing land and cropland. These
2. pasture areas are crucial to the cattle we raise. We
3. will also be losing the potential opportunity for
4. logging as a much needed source of supplemental income.
5. We have observed one cave entrance on our property which
6. we have never investigated and do not know whether it
7. serves as habitat for the Indiana bat. There are six
8. major sinkholes on the farm and smaller ones forming
9. from time to time. We are not certain that the karst
10. topography of our land is even suitable for transmission
11. poles because of the sinkholes and depressions. Two of
12. the major sinkholes are in the path of the proposed
13. easement. We are also concerned about the aesthetic
14. damage the transmission lines will have on the
15. property. This land is untouched by industrial commons
16. and the addition of transmission lines will
17. substantially damage that appearance. We are concerned
18. the use of pesticides and herbicides by the power
19. company for maintaining the transmission lines will
20. damage our water supply from a well located on the
21. property and we are concerned about the drainage of the
22. pesticides and herbicides into the water table.
23. Another concern for us is how much these power lines
24. will destroy the Kentucky farmer. These are businesses
25. in every aspect and there will be lost incomes and

1. damages to businesses. These power lines will also be
2. damaging to all landowners in the area since they will
3. significantly lower the value of the land thereby
4. depriving landowners who want to develop or reaping the
5. highest price possible when selling for development.

6. **Q. What do you want the Public Service Commission to do**
7. **in the matter of Case No. 2005-00467 and 2005-472?**

8. **A.** We want the Public Service Commission to deny the
9. preferred and also the alternative transmission line
10. applications because there is not an immediate need for
11. these lines. Additionally, E-On should be required to
12. do what the Public Service Commission ordered them to
13. do in Case #2005-00142 - address the issues that were
14. raised in the siting model meeting on February 28, 2006
15. and develop a siting model that addresses the issues of
16. Kentuckians before the Public Service Commission makes
17. a ruling. E-On should be required to withdraw these
18. applications and resubmit a route that utilizes more
19. pre-existing corridors. Property owners concerns
20. will be satisfied when 80-100 percent of pre-
21. existing corridors are utilized. This will be much
22. less destructive to all affected property owners. There
23. are already two 345,000 KV lines coming into the
24. Elizabethtown Substation, one from the east and one

1. from the west. Another 345,000 KV line is redundant
2. and would amount to "the cluttering of the land with
3. unnecessary poles, towers, and wires". We question what
4. percentage of this total project would go to meeting
5. the customers needs in the affected counties and what
6. percentage would simply flow through these lands
7. to be retailed on the wholesale market. Should E-On's
8. need be deemed necessary at this time, we believe that
9. the power company should use existing easements,
10. regardless of the higher cost. We feel that the route
11. using the most collocation is best suitable for the
12. project. For example, Route ACQ uses 99% collocation
13. and we believe it is reasonably priced considering the
14. amount of land and the amount of farm income that will
15. be saved. Route AUL is also very reasonable because it
16. uses 95% collocation. Both of these routes involve
17. taking much less land and should have been seriously
18. considered by LG&E, but were not. We question what
19. incentives there are for landowners who wish to
20. preserve their property for future generations. If
21. this transmission line comes through our property, our
22. dreams of maintaining our property in its natural state
23. will be destroyed forever. The state of Kentucky has
24. placed a high value on preserving property by private
25. landowners and this value should be honored by

1. corporations who do business here.
2. **Q. Does this conclude your testimony?**
3. **A. YES.**

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

MAR 20 2006

PUBLIC SERVICE
COMMISSION

IN THE MATTER OF:

JOINT APPLICATION OF LOUISVILLE GAS)
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1. corporations who do business here.
2. **Q. Does this conclude your testimony?**
3. **A. YES.**

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COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

MAR 20 2006

PUBLIC SERVICE
COMMISSION

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COUNTIES, KENTUCKY)	

* * * * *

DIRECT TESTIMONY OF CATHY AND
DENNIS CUNNINGHAM

* * * * *

1. **Q. Please state your name and address.**

2. A. Cathy L. Cunningham and Dennis L. Cunningham,
3. we live at 2530 North Highway 11 SE, Elizabeth,
4. Indiana, 47117. We submit this testimony together.

5. **Q. What is your interest in this case?**

6. A. Our interest in this case is our property in
7. Hardin County - CDH Preserve, LLC. - located at 2697
8. Bethlehem Academy Road, Cecilia, Kentucky.

9. **Q. Describe CDH Preserve, LLC, including the
10. improvements you and Dennis have made there.**

11. **A.** Our property consists of 150 acres of land. We
12. purchased the first 46 acres in August, 2001,
13. and an additional 104 acres in December, 2003. It is a
14. beautiful rural landscape consisting of a 5 acre lake,
15. 25 acres of "high level" wooded wetlands, and 104 acres
16. prime farmland. We have 1/2 mile of
15. road frontage on Bethlehem Academy Road, and 1/2 mile
16. of road frontage on St. John's Road which makes up the
17. 104 acres of prime farmland. The previous owner of
18. the 46 acres of land that we call Camp Deer Haven, had
19. used it as a dump. In the first year we removed
20. truckloads of waste; over 50 used car tires, remnants
21. of railroad ties and pieces of track, along with
22. machinery and trash. The property included a small

1. pond, which we enlarged in order to help slow down the
2. massive amounts of water that drained across our
3. property and flooded Bethlehem Academy Road. We incurred
4. the total cost of the lake expansion on our own and
5. completed it in August, 2003. We had no financial help
6. from any federal or state agency. It is now a five-
7. acre lake that attracts a wide variety of birds. We are
8. in the migratory path of sand hill cranes. Thousands of
9. them winter here from mid-February to mid-March,
10. drinking and bathing in our lake. We have documented an
11. endangered whooping crane on our property, possibly the
12. first such bird to visit Kentucky in over 60 years. In
13. a letter dated July 20, 2005 from the U.S. Fish and
14. Wildlife Service, the Service acknowledged that the
15. whooping crane is federally protected under the
16. Endangered Species Act. The letter also clearly stated
17. the our land is "suitable habitat for the whooping
18. crane" and that LG&E should "make every effort to avoid
19. transmission line construction in these areas." See
20. attached 7/20/2005 letter to us. We believe and we ask
21. the Public Service Commission to find that this
22. recommendation from the U.S. Fish and Wildlife Service
23. was clearly stated in the June 17, 2005 letter to Mr.
24. Dan Rice, at LG&E Response to Cunningham Data Request:

1. Question 8, page 88: "We strongly encourage LG&E to make
2. every effort to avoid transmission line construction in
3. areas that may provide suitable habitat for whooping
4. cranes." In the next paragraph of that letter, LG&E is
5. informed that there are wetlands in the vicinity of the
6. proposed corridor. "*Avoidance of these areas is*
7. *extremely important.*" [Emphasis added.] We believe and
8. we ask the PSC to find that the strong recommendations
9. of the U. S. Fish and Wildlife Service was not modified
10. or weakened by a letter dated October 31, 2005 from the
11. U.S. Fish and Wildlife Service to Mike Winkler.

12. Response to Cunningham Data Request, Answer Question 8,
13. page 92. That letter assumed the transmission line
14. must cross our farm, and suggested the better of all
15. bad options. It does not avoid these areas, as
16. requested. We hope and pray the whooping crane that has
17. rested in our preserve can return to habitat left
18. intact not only on our property but the surrounding
19. property as well. Among the unusual birds sighted at
20. the preserve are Belted Kingfishers, Great Blue Herons,
21. Green Herons, Bitterns, American Woodcocks, as well as
22. the usual backyard birds, ducks, Canadian geese and
23. Snow geese. The property also contains approximately 25
24. acres of "high-level wetland woods", according to

1. representatives of the U.S. Army Corps of Engineers, who
2. visited the site in June, 2005. These wetlands are
3. extremely rare in this part of the state and should be
4. preserved for that reason alone.

5. **Q. What are your concerns about the proposed
6. transmission facilities at issue here?**

7. **A.** Although E-On has now changed their preferred route
8. to by-pass our lake, the proposed alternate route still
9. fails to protect our land. The alternate route will
10. take 23 acres in easement of our 100 acre field along
11. with approximately 1700 feet in prime road frontage on
12. Bethlehem Academy Road. This alternate route will
13. remove 23 acres from viable use on our property,
14. resulting in permanent financial hardship and a
15. dramatic decrease in our property's value. As a result
16. of this transmission line, we will be unable to hold
17. any sanctioned kite flying events in our open 100 acre
18. field because it will put all participants in extreme
19. danger from contact with overhead power lines. We will
20. not be able to use the land as intended when we
21. purchased the 100 acres in 2003. Additionally, we have
22. recently built a meeting facility to have a place to
23. educate children and adults on the educational and
24. recreational aspects of building and flying kites.

1. That facility will be worthless since we will be unable
2. to fly kites in the area. In essence E-On is attempting
3. a "bait and switch" by appearing to take our valid
4. concerns seriously, but really moving ahead with their
5. original plans which are still going to permanently
6. damage our property. The Department of Interior had
7. already requested E-On avoid not just our property, but
8. other locations on and near the proposed right-of-way
9. that provides suitable habitat for the Endangered
10. Whooping Crane in letter dated July 20, 2005. We are
11. also concerned about the impact the proposed
12. transmission lines will have on the Bethlehem Academy
13. Historic District. It has been listed on the National
14. Register of Historical Places and we feel strongly that
15. the presence of the transmission lines will disrupt the
16. historic nature of the area. (See E-On's answer to
17. question #5 per our Data request).

18. **Q. What do you want the Public Service Commission to**
19. **do in the matter of Case No. 2005-00467 and 2005-**
20. **00472?**

21. **A.** We want the Public Service Commission to deny the
22. preferred and also the alternative transmission line
23. applications because this is not an immediate need and
24. E-On has the time to do what the Public Service

1. Commission ordered them to do in Case #2005-00142. E-On
2. at the very least should address the issues that were
3. raised in the siting model meeting on February 28, 2006
4. and come up with a siting model that addresses the
5. issues of Kentuckians and not Georgians so the Public
6. Service Commission can make a sound and fair ruling. At
7. the very least E-On should be required to withdraw
8. these applications and resubmit a route that utilizes
9. the rebuilding along pre-existing corridors and start
10. a journey towards becoming a good Corporate Citizen.
11. Only until 80-100 percent of pre-existing corridors are
12. utilized will property owners concerns be met. This
13. will be much less destructive to all affected property
14. owners and to the Commonwealth and will set a precedent
15. for all other utilities to follow thus helping to
16. eliminate the animosity created between power companies
17. and landowners that the 2004 statute intended to
18. address. There are already two 345,000 KV lines coming
19. into the Elizabethtown Substation, one from the east
20. and one from the west that was determined in case
21. #2005-00142. Another 345,000 KV line would be
22. redundant and would amount to "the cluttering of the
23. land with unnecessary poles, towers, and wires". This
24. proposed line will cross over Blue Ball Church Road,

1. Highway 1375, St Johns Road, Bethlehem Academy Road,
2. Tabb Road and Crisp road all within approximately a 5
3. mile area ruining our rural farming landscape forever.
4. We question just what incentives there are for
5. landowners who wish to preserve their property for
6. future generations. If this transmission line comes
7. through our property, our dreams of maintaining our
8. property in its natural state will be destroyed forever.
9. The state of Kentucky has placed high value on property
10. preserved by private landowners and this should be
11. honored by utilities especially when there are a
12. multitude of alternatives to preserve the
13. Commonwealth's land for our future generations. Based
14. upon the LG&E application using a model that we do not
15. think should be used in Kentucky, we still know that
16. LG&E can do a better job of collocation. We know these
17. routes are more closely responsive to the Public
18. Service Commission order in the earlier case: ROUTE ACQ
19. achieves near **complete collocation: 98.9%** at a cost of
20. \$74.6 million. ROUTE ACU accomplishes 88.1 %
21. collocation at a cost of \$73.1 million. ROUTE ADC
22. accomplishes 83.7 % collocation at a cost of 71.5
23. million. ROUTE ADS accomplishes 79.8 % collocation at
24. a cost of \$72.3 million. ROUTE ADK accomplishes 77.1 %

1. collocation at a cost of \$67.8 million. The routes are
2. located within 3000 feet of 1 National Register of
3. Historic Structures We urge the Public Service
4. Commission to reconsider the earlier finding of present
5. need, and find that LG&E has failed to establish a
6. present need for the Mill Creek to Hardin County
7. transmission line. The PSC order in Case No. 2005-00142
8. on September 8, 2005 found that the MC to HC line was
9. needed and will be required upon the commencement of
10. operations at TC2. Page 6. This finding was clearly
11. contrary to the evidence. LG&E/KU has conceded that
12. the MC to HC line will "possibly" be needed within 5 to
13. 8 years after TC2 begins commercial operation.
14. According to LG&E/KU, TC2 is not needed until 2010
15. Case No. 2005-00142, Hearing Transcript, page 69:
16. Q: I'm asking what are the immediate needs of LG&E/KU.
17. What is needed now? A: TC2 is not required for today..
18. Q: So then TC2 itself is a future need? A: That is
19. correct. Page 70: Q: And the Mill Creek to Hardin
20. County line is future beyond that future? A. In
21. general, I would agree with that statement, but, again,
22. when we plan we plan for the long term, not the short
23. term. Page 74: Q: Yet, where this line is not needed
24. until 2015 -2018 at the earliest based upon the LG&E/KU

1. estimates, which are in dispute, the applicants want to
2. start right of way acquisition as soon as the PSC grants
3. approval. A. "As soon as possible; yes." Mr. Johnson was
4. asked about the statement that appears of Data Response
5. to PSC Question 10, page 3 of 7, "This area of the LG&E
6. transmission system is expected to potentially have
7. marginal voltage problems in the future." He defined
8. "potential" as, "[T]hat there is a possibility that
9. there could be could be voltage issues in the future."
10. Page 121, lines 2 through 4. The witness agreed that
11. the word "marginal" would describe the magnitude of the
12. problem from an engineering standpoint. Lines 8 thru
13. 10. Based upon the foregoing we ask the Public Service
14. Commission to find and conclude that LG&E failed to
15. follow the instructions in the above referenced
16. September 8, 2005 Order, that it "comprehensively
17. consider the use of existing corridors in planning
18. future transmission" and that this lack of information
19. prevented the PSC from being able to determine whether
20. LG&E/KU complied with the standards enunciated in the
21. 1952 Kentucky Utilities case that warned against
22. "multiple sets of right of ways and a cluttering of the
23. land with poles and wires. The Public Service
24. Commission should find and conclude that LG&E failed to

1. follows PSC orders where the PSC previously invited
2. LG&E/KU to reapply "after the Company has conducted a
3. more thorough review of all reasonable alternatives,
4. including locating the line partially or fully along
5. existing transmission corridors." Page 11.

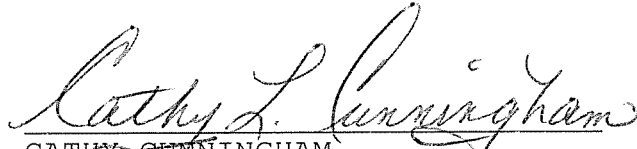

6. **Q. Does this conclude your testimony?**

7. **A. YES.**

VERIFICATION

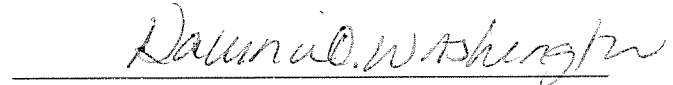
COMMONWEALTH OF KENTUCKY
STATE AT LARGE

The undersigned, Cathy and Dennis Cunningham, being duly sworn hereby verifies that the statements contained hereinabove are true and correct to the best of their knowledge and belief.


CATHY CUNNINGHAM

DENNIS CUNNINGHAM

COMMONWEALTH OF KENTUCKY, STATE AT LARGE

Subscribed and sworn to before me by, Cathy and Dennis Cunningham, on this _____ day of March 20, 2006.


NOTARY PUBLIC

MY COMMISSION EXPIRES: April 17, 2007



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1761 Georgetown Road
Frankfort, Kentucky 40601

July 20, 2005

Mrs. Cathy Cunningham
CDH Preserve, LLC
2530 N Hwy 11 SE
Elizabeth, Indiana 47117

Subject: FWS 05-1031; Cunningham Property Visit, Hardin County, Kentucky

Dear Mrs. Cunningham:

Thank you for the opportunity to have members of my staff visit your property in Hardin County on June 13, 2005. We are aware of your active concern and appreciation for wildlife, and commend you for the efforts you have made to construct hat houses and bird houses and to maintain a pond, which provides suitable foraging and resting/roosting habitat for waterfowl and shorebirds.

In April 2005, you contacted our office to inform us of a Louisville Gas & Electric Company (LG&E) power line, which LG&E has proposed to site across a portion of your property. You provided us information that demonstrated that a pond on your property had been used in early spring 2005 as a stop-over feeding and resting area for a flock of migrating sandhill cranes (*Grus canadensis*) that also contained a whooping crane (*Grus americana*).

As you are aware, whooping cranes are federally listed under the authority of the Endangered Species Act (ESA) as an endangered species. Having the opportunity to observe one in the wild is a rare occasion not afforded to most people. The whooping crane is known for being the tallest bird in North America standing 5 feet tall. The species nests in marshy areas among bulrushes, cattails, and sedges that provide protection from predators. When migrating, whooping cranes stop along the way to roost and feed in a variety of wetlands and croplands, just like the whooping crane did at your pond.

Based on the information you provided us, we confirmed that the whooping crane documented on your property was part of an established Non-essential Experimental Population (NEP) of whooping cranes that migrates from Wisconsin to Florida every fall. NEPs are the most common and flexible type of experimental population established for federally listed species by the Service, because they allow for species reintroductions but with less associated ESA regulation. This particular NEP was established in order to avoid and minimize potential ESA-related conflicts with private landowners and other stakeholders along the migratory route of these birds while still allowing state, federal, and private conservation efforts for the species to

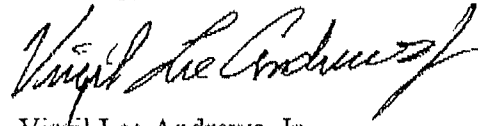
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proceed. Because these migrating whooping cranes are part of this NEP, they do not benefit from the same level of ESA protection that other whooping cranes receive.

Nonetheless, we have emphasized to LG&E the importance of providing habitat for these birds, because it would improve the species' chances to be recovered (i.e., removed from the list of threatened and endangered species) in the long-term. Because we know that suitable habitat for the whooping crane exists on your property, and likely at other locations on and near the proposed right-of-way for the proposed LG&E powerline, we have strongly encouraged LG&E to make every effort to avoid transmission line construction in areas that may provide suitable habitat for whooping cranes. The Service and the Kentucky Department for Fish and Wildlife Resources have met with LG&E staff and are currently working with LG&E to address fish- and wildlife-related concerns associated with the proposed powerline. This coordination has included specific discussions regarding potential impacts to whooping cranes, other federally listed species (e.g., Indiana bat), and federal trust resources (e.g., migratory birds) and potential ways to avoid and minimize those potential impacts. We hope that this early coordination will influence LG&E's placement of the proposed powerline in such a way that impacts to these important fish and wildlife resources are avoided and minimized as much as possible.

Thank you again for the opportunity to visit your property and provide you with this information. If you have any questions regarding the information that we have provided, please contact Mindi Brady at (502) 695-0468 (ext. 229).

Sincerely,

A handwritten signature in cursive script, reading "Virgil Lee Andrews, Jr.", written in black ink.

Virgil Lee Andrews, Jr.
Field Supervisor



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1761 Georgetown Road
Frankfort, Kentucky 40601

June 17, 2005

Mr. Dan Rice
Jordan, Jones & Goulding
6801 Governors Lake Pkwy
Norcross, Georgia 30071

Subject: FWS #05-1031; Electric Transmission Line Survey, Trimble, Franklin,
Woodford, Anderson, Jefferson, Bullitt, Meade, and Hardin Counties, Kentucky

Dear Mr. Rice:

Thank you for your correspondence of May 17, 2005, regarding the proposed corridor route for a section of transmission line across Fort Knox, Kentucky. It is our understanding that habitat surveys will be conducted during summer 2005 on the proposed corridor for the entire project. We are providing you with species-specific information on certain federally listed species that may be affected by the proposed project in order to familiarize you with their preferred habitats and any habitat that may be critical to their recovery. Below is a list of federally threatened or endangered species and the county and/or counties in which they may occur.

<u>Common Name</u>	<u>Scientific Name</u>	<u>County</u>
Eggert's sunflower	<i>Helianthus eggertii</i>	Hardin
running buffalo clover	<i>Trifolium stoloniferum</i>	Jefferson, Woodford
Braun's rockcress	<i>Arabis perstellata</i>	Franklin, Anderson
globe bladderpod	<i>Lesquerella globosa</i>	Franklin, Anderson
clubshell	<i>Pleurobema clava</i>	Bullitt, Meade, Hardin
orangefoot pimpleback	<i>Plethobasus cooperianus</i>	Bullitt
whooping crane	<i>Grus Americana</i>	Hardin
gray bat	<i>Myotis grisescens</i>	Bullitt, Hardin, Meade, Jefferson
Indiana bat	<i>Myotis sodalist</i>	Franklin, Bullitt, Hardin, Meade, Jefferson, Woodford Anderson

Eggert's sunflower (*Helianthus eggertii*) - Eggert's sunflower occurs in barrens/woodland ecosystems which are a mix of grassy treeless openings among a thin overstory of small to medium sized trees, usually oaks. They have also been found on roadsides and even in fields where barrens formerly existed. Eggert's sunflower blooms during August and September. Loss of habitat due to development is the primary cause of decline. Surveys for Eggert's sunflower

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should be conducted during the flowering period in August and September so that it can be properly identified.

Running buffalo clover (*Trifolium stoloniferum*) - Habitat for running buffalo clover can range from stream banks and low mesic forests to lawns and cemeteries. Running buffalo clover requires periodic disturbance such as light grazing or occasional mowing. Changes in landscape resulting from settlement and the elimination of large herbivores (bison and deer) are major causes of decline. Surveys for running buffalo clover should be conducted during the flowering period in April and May in order to properly identify it.

Braun's rock cress (*Arabis perstellata*) - Habitat for Braun's rock cress can be found in steeply sloped, dry to mesic forests on thin calcareous soils. This plant is endemic to Kentucky and more specifically to the Kentucky River drainage north of Frankfort. However, records do exist just south of Frankfort. Surveys for this plant should be concentrated on those areas where the transmission line will be crossing the Kentucky River and South Benson Creek in Franklin and Anderson Counties.

Globe bladderpod (*Lesquerella globosa*) - Globe bladderpod is a federal candidate for listing and occurs in Anderson, Bourbon, Clark, Fayette, Jessamine, Mercer, Powell, and Scott Counties, Kentucky. It grows on steep, rocky wooded slopes and talus areas. The species also occurs along cliff tops and bases and cliff ledges. Most populations are closely associated with outcrops of calcareous rocks. Like Braun's rock cress, surveys for this plant should be concentrated where the transmission line will be crossing the Kentucky River, South Benson Creek, and any steep, rocky areas.

Gray bat (*Myotis grisescens*) - Gray bats are restricted to caves or cave-like habitats. They roost, breed, rear young, and hibernate in caves year round. For hibernation, the roost site must have an average temperature 45 to 52 degrees F. Summer caves must be between 57 and 77 degrees F. Gray bats forage for insects over streams and reservoirs. They are very vulnerable to human disturbance, which has contributed greatly to their decline. It is very important that the proposed transmission corridor is thoroughly surveyed for the presence of any caves. It is our understanding that the transmission line poles are driven into the ground several feet. We want to be sure that the poles will not puncture through a cave system, which could lead to temperature changes and air flow alteration thereby causing potential harm to bats.

Indiana bat (*Myotis sodalis*) - This species utilizes floodplain and riparian forests for both summer foraging and roosting habitat; however, other habitats are often used as well. Indiana bats typically roost under exfoliating bark, or in cavities of dead and live trees, and in snags (i.e., dead trees or dead portions of live trees). For hibernation, the Indiana bat prefers limestone caves, sandstone rockshelters, and abandoned underground mines with stable temperatures of 39 to 46 degrees F and humidity above 74 percent but below saturation. Project-related activities that may impact this species include, but are not limited to, logging practices, which include the removal of trees greater than six inches in diameter at breast height, and clearing of forested riparian corridors. In order to avoid impacting summer roosting Indiana bats, trees within the project area should only be cleared between October 15 and March 31. If trees cannot be cleared

during this time frame, the Service would recommend a summer mist net survey for the entire reach of the project corridor to determine the presence or absence of this species.

Clubshell (*Pleurobema clava*) and Orange-foot pimpleback (*Plethobasus cooperianus*) - Both of these mussels are considered big river species. The orange-foot pimpleback is typically found in the Ohio and Tennessee Rivers burrowed in sand or gravel substrates. The clubshell is currently known in the upper Green River and has also been recorded historically from the lower Ohio River. A record for the orange-foot pimpleback does exist for the Salt River, and the clubshell has been recorded in the Rough River in Hardin County. The transmission line should span any streams that could provide suitable habitat for these mussels. In order to decrease the amount of sediment being introduced to the streams from construction efforts, we strongly encourage you to leave a sufficient riparian/vegetated buffer along each stream crossing in order to avoid impacts to mussels and other aquatic life.

Whooping Crane (*Grus Americana*) - The whooping crane is known for being the tallest bird in North America standing 5 feet tall. The crane nests in marshy areas among bulrushes, cattails, and sedges that provide protection from predators. When migrating, whooping cranes stop along the way to roost and feed in a variety of wetlands and croplands. During the spring of 2005, a whooping crane was documented at a pond in Hardin County, Kentucky, traveling with several sandhill cranes. The pond where this particular bird stopped for a couple days is within the proposed transmission line corridor. Whooping cranes are federally listed as endangered; however, this particular bird is part of an established Nonessential Experimental Population (NEP) of whooping cranes from Florida. NEPs are the most common and flexible type of experimental population established by the Service because they allow for the reintroduction and protection of species, but their associated regulatory burden is far less stringent. The federal NEP rule was necessary to carry out the Whooping Crane Eastern reintroduction. Even though NEP whooping cranes are not afforded the same kind of protection as an endangered whooping crane, we still want to emphasize the importance of these birds toward recovery efforts. Because we know that suitable habitat for the whooping crane exists in Hardin County and has been utilized, we strongly encourage LG&E to make every effort to avoid transmission line construction in areas that may provide suitable habitat for whooping cranes.

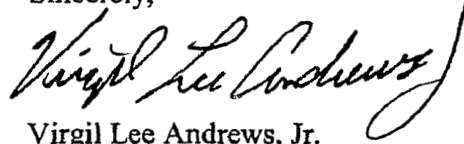
As mentioned earlier, wetlands provide important foraging and roosting habitat for the whooping cranes, but they also provide cover and foraging habitat for other wildlife such as deer, turkey, song birds, etc.. Information available to the Service indicates that wetlands exist within the vicinity of the proposed project corridor. Avoidance of these areas is extremely important. However, if avoidance of these areas is not possible, the Corps of Engineers, Louisville District, should be contacted regarding the presence of regulatory wetlands and the requirements of wetlands protection statutes.

In addition, we would also like to take the opportunity to request that you provide us with any alternative routes which were previously considered and that those alternative routes be discussed within the Alternative Analysis portion of the Environmental Assessment (EA). A "least damaging to the environment" alternative should be discussed in the EA and should include a justification as to why it has or has not been selected as the preferred alternative. Also, we know that other transmission lines exist near sections of the proposed transmission corridor.

The EA should consider using the existing corridors for these lines as opposed to new line construction.

Thank you for the opportunity to provide comments on this proposed action. If you have any questions regarding the information that we have provided, please contact Mindi Brady at (502) 695-0468 (ext. 229).

Sincerely,



Virgil Lee Andrews, Jr.
Field Supervisor

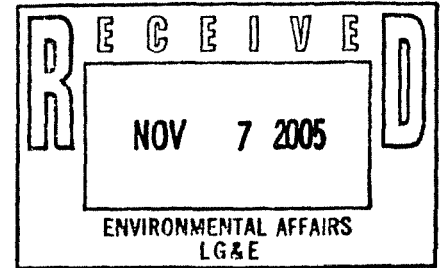


United States Department of the Interior

FISH AND WILDLIFE SERVICE

3761 Georgetown Road
Frankfort, Kentucky 40601

October 31, 2005



Mr. Mike Winkler
LG&E Energy Corp.
P.O. Box 32010
Louisville, Kentucky 32010

Subject: FWS #06-0109; Technical Assistance Request for a Portion of a Proposed Electric Transmission Line in Hardin County, Kentucky

Dear Mr. Winkler:

Thank you for meeting with us recently regarding Louisville Gas & Electric Company's (LG&E) proposed construction of a section of 345 kV transmission line. LG&E should note that this letter is only in response to the specific section in Hardin County and does not represent the Fish and Wildlife Service (Service) comments for the entire transmission line project. At this time, only a limited amount of information has been submitted to our office regarding the proposed transmission line project. Comments from the Service pertaining to additional areas proposed for construction will be submitted once this office has received further detailed information and survey results. With that said, the intent of our comments is to provide technical assistance to your specific questions regarding the section in Hardin County. Specifically, you have requested our input regarding the original route's proposal to traverse a large pond and adjacent forested wetland complex that has been documented to be utilized heavily by migratory birds and a whooping crane (*Grus americana*) in late February 2005.

LG&E has provided the Service with both an original and alternative route for the proposed transmission line. The alternate route proposed by LG&E would avoid the forested wetland areas and the pond while still remaining on the same property. Based on a site visit by biologists from the Service and Kentucky Department of Fish and Wildlife Resources (KDFWR) on June 13, 2005, it was concluded that high quality habitat for migratory birds (e.g., sandhill cranes, whooping cranes, ducks, geese, etc...) exists on the property. The pond that is proposed to be crossed by the transmission line has both shallow and deep water which provide a food source for a variety of wading/shorebirds and diving waterfowl. Also, the forested wetlands adjacent on both sides of the pond provide additional foraging, roosting/resting, and cover for birds and other wildlife. The forested wetlands are intact with little to no invasive species, and consist of a wide variety of mature hard-mast producing species. These wetlands are also connected to a significantly larger wetland complex found directly south and east of the property visited. We believe that the combination of the forested wetlands, the pond, and the surrounding agriculture create a favorable area for wildlife, thus providing an optimal stopover location for migrating birds.

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As mentioned, a whooping crane traveling with several sandhill cranes was documented at the pond during late winter 2005. The whooping crane is known for being the tallest bird in North America standing 5 feet tall. The crane nests in marshy areas among bulrushes, cattails, and sedges that provide protection from predators. When migrating, whooping cranes stop along the way to roost and feed in a variety of wetlands and croplands. Whooping cranes are federally listed as endangered; however, this particular bird is part of an established Nonessential Experimental Population (NEP) of whooping cranes from Florida. NEPs are the most common and flexible type of experimental population established by the Service because they allow for the reintroduction and protection of species, but their associated regulatory burden is far less stringent. The federal NEP rule was necessary to carry out the Whooping Crane Eastern reintroduction. Even though NEP whooping cranes are not afforded the same kind of protection as an endangered whooping crane, these birds are still extremely valuable for the species' recovery efforts. Because suitable habitat for the whooping crane exists in Hardin County and has been documented on the pond and adjacent wetlands in question, we have strongly encouraged LG&E to make every effort to avoid transmission line construction in areas that may provide suitable habitat for whooping cranes.

In an effort to meet the Service's recommendations regarding migratory birds, LG&E has proposed an alternate route for the transmission line, which would be considered the "least damaging to the environment" alternative. The alternate transmission line corridor would utilize an open field to the north and east of the pond and would avoid impacting all of the forested wetland areas while still remaining on the same property ownership. Based on habitat characterization work done by the Service in occupied whooping crane habitat, we have determined that a 328-foot buffer is required between foraging roosting/resting sites and transmission line structures in order to avoid collisions with transmission lines. This is because birds, especially large birds such as cranes, herons, and egrets, are not adept at avoiding such lines. In order to prevent collisions, diverter devices can be placed on the transmission lines to increase line visibility to the birds and divert them away. The alternate route proposed would exceed the buffer requirement by 72 feet, thus negating the need for any mitigative measures such as bird flight diverters. With the documented large number of shorebirds and waterfowl that have used the pond and adjacent wetlands in the past and because the pond's future use by migratory birds is highly probable based on the available surrounding cover, foraging, and resting/roosting habitat, the Service strongly recommends that LG&E select the alternate route as the preferred alternative.

The original proposed transmission corridor would cross a large portion of the forested wetlands adjacent to the pond on the property and also span the pond. A 200-foot right-of-way (ROW) is also proposed for the transmission line, which would require clearing of trees and maintenance activities. We recommend that all woody vegetation be left inside the ROW and only the trees classified as hazard trees be topped to fifteen feet and girdled in order to provide habitat for wildlife such as other migratory birds and small mammals. In order to maintain the habitat within the ROW, we have provided below recommendations LG&E should consider implementing during regularly scheduled maintenance activities for the ROW.

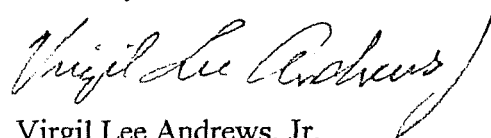
1. No removal or felling of trees that are 6-inches in diameter or larger and that have loose bark, exfoliating bark, and/or broken branches should occur between April 1 and October 31.
2. No removal or side-trimming of tree branches that are larger than 4-inches and that have dead or loose bark should occur between April 1 and October 31.
3. No use of herbicides should occur.

As mentioned earlier, forested wetlands provide important foraging and roosting habitat for whooping cranes, but they also provide cover and foraging habitat for other wildlife such as deer, turkey, and migratory birds. Based on the information provided to us, the ROW would result in the loss of a substantial amount of mature hard-mast producing trees which would in turn decrease the quality of the wetlands and reduce the forage base for wildlife. Therefore, we would recommend LG&E consider off-site protection of similar quality habitat within the same watershed as mitigation for the loss of such important resources. We offer our assistance in identifying and selecting suitable properties, if necessary.

In addition to the above mentioned mitigation measures, the Service also recommends that LG&E use bird diverting structures over the section of transmission line proposed to span the pond in order to reduce the potential for avian collisions if the original transmission line route is used. If LG&E decides to adopt the alternative route instead of the original route, bird-diverting devices would not be necessary. However, if the original route is chosen, this office will provide more detailed information to LG&E on the number, type, and positioning of bird diverter structures that will need to be used in order to minimize avian collisions associated with the transmission line.

Thank you for the opportunity to provide comments on this specific request for technical assistance. We look forward to further coordinating with LG&E and providing additional recommendations for mitigation measures if the original route is chosen. The comments we have provided to you in this letter have been in coordination with the Kentucky Department for Fish and Wildlife Resources. If you have any questions regarding the information that we have provided, please contact Mindi Lawson at (502) 695-0468 (ext. 229).

Sincerely,



Virgil Lee Andrews, Jr.
Field Supervisor

cc: Mr. Mike Hardin, KDFWR, Frankfort, KY