

**COMMONWEALTH OF KENTUCKY  
BEFORE THE  
KENTUCKY PUBLIC SERVICE COMMISSION**

In The Matter of:

The Application of Duke Energy Kentucky, )  
Inc., for a Certificate of Public Convenience and ) Case No. 2016-00398  
Necessity for Water Re-directs and Basin )  
Closure for East Bend Generating Station )

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**APPLICATION OF DUKE ENERGY KENTUCKY, INC.,  
CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY  
AND REQUEST FOR EXPEDITED REVIEW**

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Now comes Duke Energy Kentucky, Inc. (Duke Energy Kentucky or the Company), pursuant to KRS 278.020 and 807 KAR 5:001 Section 15 Duke Energy Kentucky requests that the Commission grant a Certificate of Public Convenience and Necessity (CPCN) for the Company to construct new and necessary water redirection and wastewater treatment processes, and to close and repurpose its existing coal ash impoundment (Pond) so to accommodate the new and necessary water redirection and treatment processes at its East Bend Generating Station (East Bend) and for all other required relief and approvals.

Emerging environmental regulations, such as the U.S. Environmental Protection Agency's (U.S. EPA) recently published Disposal of Coal Combustion Residuals from Electric Utilities rule (CCR Final Rule),<sup>1</sup> and recently published Steam Electric Effluent Limitations Guidelines (ELG Final Rule)<sup>2</sup> directly affect the handling of ash at coal-fired generating stations

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<sup>1</sup> Available at <https://www.federalregister.gov/articles/2015/04/17/2015-00257/hazardous-and-solid-waste-management-system-disposal-of-coal-combustion-residuals-from-electric> (Last accessed November 20, 2016). The CCR Final Rule was published in the Federal Register on April 17, 2015.

<sup>2</sup> Available at <https://www.epa.gov/eg/steam-electric-power-generating-effluent-guidelines-2015-final-rule> (last accessed November 20, 2016). The ELG final rule was published in the Federal Register on November 3, 2015.

like East Bend. The ELG Final Rule sets new or additional requirements for wastewater streams from several processes and byproducts at steam electric generating plants, including East Bend. These requirements necessitate the modification of the current Pond configuration in order to change the manner in which certain wastewater streams are handled. The CCR Final Rule, among other things, impacts the handling of fly ash, bottom ash, and flue gas desulfurization (FGD) byproducts (typically, calcium sulfate (gypsum) or calcium sulfite) that are destined for disposal (CCRs) through the imposition of additional constraints for continuing the use of coal ash impoundments like the Pond at East Bend Pond. Duke Energy Kentucky must take action now to maintain compliance under the ELG and CCR Final Rules so to continue to operate East Bend.

Because of the lead times for equipment fabrication and acquisition and looming compliance deadlines the Company respectfully requests that the Commission consider this application in an expedited manner and issue an Order on or before April 30, 2017. In order to meet the ELG compliance deadlines and to complete construction during already planned maintenance outages, Duke Energy Kentucky needs to commence construction as soon as practical. The Company has been diligently working to compile the necessary information, including permits, permit applications, and confirmations to support this filing.

### **Introduction**

1. Duke Energy Kentucky is a Kentucky corporation with its principal office and principal place of business at 139 East Fourth Street Cincinnati, Ohio 45202. The Company's local office in Kentucky is Duke Energy Envision Center, 4580 Olympic Boulevard, Erlanger, Kentucky 41018. The Company further states that its electronic mail address for purposes of this matter is [KYfilings@duke-energy.com](mailto:KYfilings@duke-energy.com).

2. Duke Energy Kentucky is a utility engaged in the gas and electric business. Duke Energy Kentucky purchases, sells, stores and transports natural gas in Boone, Bracken, Campbell, Gallatin, Grant, Kenton and Pendleton Counties, Kentucky. Duke Energy Kentucky also generates electricity, which it distributes and sells in Boone, Campbell, Grant, Kenton and Pendleton Counties.

3. Pursuant to 807 KAR 5:001, Section 14(2), Duke Energy Kentucky states that it was originally incorporated in the Commonwealth of Kentucky on March 20, 1901, and attests that it is currently in good standing in said Commonwealth.

### **Background**

4. On or about December 5, 2003, in Case No. 2003-00252, the Commission approved Duke Energy Kentucky's acquisition of three generating stations from Duke Energy Ohio; East Bend, Miami Fort Unit 6<sup>3</sup> and Woodsdale. Effective January 1, 2006, Duke Energy Kentucky completed the acquisition of these three generating stations.

5. East Bend includes a single 600 MegaWatt (MW), net capacity, coal-combustion generating unit and is Duke Energy Kentucky's only base load and coal-fired resource in its portfolio. Coal combustion byproducts from East Bend are currently disposed of in an on-site landfill owned and maintained by Duke Energy Kentucky (East Landfill). Duke Energy Kentucky is in the process of constructing a second, or replacement, on-site landfill that is referred to as the "West Landfill."<sup>4</sup> The East Landfill is comprised of approximately 162 acres and has been in place since East Bend was constructed in 1981. The West Landfill, once all phases are completed, will consist of approximately 200 acres of lined landfill that is designed to accept approximately 30 years of generator waste from the East Bend Station and other permitted

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<sup>3</sup> The Miami Fort Unit 6 generator retired effectively May 31, 2015.

<sup>4</sup> Duke Energy Kentucky was granted a CPCN to commence construction of its West Landfill in Case No. 2015-000089.

sources only as necessary to properly formulate fixated material from East Bend's scrubber sludge for ultimate disposal. The bottom ash produced at East Bend is currently treated in the on-site Pond for eventual landfill disposal in compliance with the Company's National Pollution Discharge Elimination System (NPDES) Permit No. 0040444 and the Special Waste Facility Permit from the Kentucky Division of Waste Management, Permit No. SW00800006.

6. The Pond was commissioned in 1981, has a volume of 1,844 acre feet, and is used to separate bottom ash from the water used to convey the ash from the plant before the water is discharged to the Ohio River from the pond under the NPDES Permit. The Pond is also used to treat other plant water streams, such as coal pile run-off and landfill leachate, before they are discharged under the NPDES permit. The boiler bottom ash is collected in a wet bottom ash hopper at the base of the boiler and then sluiced to the Pond. These existing ash handling and treatment processes are in need of changing and upgrading to comply with the ELG and CCR Final Rules. Duke Energy Kentucky recently filed its application for a CPCN to convert East Bend's wet bottom ash handling system to a dry ash handling system in compliance with the ELG and CCR Final Rules.<sup>5</sup> The conversion to the dry-ash handling system, as well as the new process water requirements are necessary improvements for compliance with the ELG Final Rule, which in turn, makes the continued operation of the Pond in its current form both incompatible and unnecessary.

### **Environmental Regulations Driving Investment**

7. In April 2009, the U.S. EPA began assessing the integrity of ash dikes nationwide, and began developing regulations to manage CCRs. In June 2010, the EPA proposed a rule containing two options for handling CCRs: 1) as a special waste listed under the Resource

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<sup>5</sup> *In the Matter of The Application of Duke Energy Kentucky, Inc., for a Certificate of Public Convenience and Necessity for Dry Bottom Ash Conversion of the East Bend Generating Station*, Case No. 2016-000268, Application filed July 28, 2016.

Conservation and Recovery Act (RCRA) Subtitle C Hazardous Waste Regulations; and 2) as a solid waste under RCRA Subtitle D Non-Hazardous Waste Regulations. Both options included dam safety requirements and had strict new requirements regarding the handling, disposal, and beneficial use of CCRs except when reused in encapsulated applications (such as ready mix concrete and the production of wallboard).

8. The CCR Final Rule was published as final as a Subtitle D, non-hazardous waste rule on April 17, 2015, and became effective on October 19, 2015. Compliance with some aspects of the CCR Final Rule began within 6-12 months of its enactment, while other actions will be required over the next several years.

9. On September 30, 2015, the U.S. EPA finalized a rule revising the regulations for the ELG category. The ELG Final Rule sets the first federal limits on the levels of toxic metals in wastewater that can be discharged from power plants, based on technology improvements in the steam electric power industry over the last three decades. New technologies for generating electric power and the widespread implementation of air pollution controls over the last 30 years have altered existing wastewater streams or created new wastewater streams at many power plants, particularly coal-fired plants. The 2015 ELG Final Rule addresses these changes in the industry.

10. Together, the CCR Final Rule and ELG Final Rule result in conversions to dry handling of bottom ash; increased use of landfills; the closure of existing wet ash storage ponds; and the addition of alternative wastewater treatment systems across the utility industry.

11. As a result of emerging environmental regulations, specifically, the ELG Final Rule, Duke Energy Kentucky has determined it must also take action at East Bend to comply with these regulations. The Company evaluated multiple potential strategies to determine the

appropriate, recommended, feasible, and reasonable cost-effective compliance strategy, as is proposed herein. The Company has developed its engineering plan to utilize existing infrastructure and minimize disruptions to operations.

12. The combination of ELG Final Rule and CCR Final Rule implementation require Duke Energy Kentucky to take several compliance actions at East Bend. As described in this Application and the accompanying testimony in support, these compliance actions require installation of balance-of-plant wastewater treatment systems, including: 1) a new FGD maintenance tank and associate facilities; 2) water redirection for storm and wastewater to a new lined holding basin; and 3) cleanout and repurposing of the existing Pond through closure and construction of a new lined retention basin. Under current estimates of CCR and ELG Final Rule compliance requirements, these water redirect activities and Pond closure will likely need to occur prior to the first ELG Final Rule compliance date of November 2018.

13. The West Landfill design factors in these new regulations allowing East Bend to continue to have an onsite repository for its generator waste and allow continued operation and under current and emerging environmental compliance regulations involving handling of CCRs.

14. The bottom ash excavation work is consistent with existing permit requirements. The East Bend Pond is only used for storage and treatment of bottom ash, as it is not permitted for permanent ash disposal. The East Bend bottom ash is routinely excavated for both beneficial use, and Pond maintenance through landfill disposal. Thus some bottom ash removal is already occurring and has been for some time as part of normal operation.

15. Duke Energy Kentucky intends to perform the water redirect, process water system construction, and Pond closure and repurposing work beginning in April 2017. This work will occur while East Bend is in operation and will not require any additional extended outages,

other than what has already been planned for other projects. Duke Energy Kentucky is targeting a significant completion date of fourth quarter 2018 so to be in compliance in advance of East Bend's KPDES permit expiration on October 31, 2019 and within the ELG Final Rule compliance timeline.

16. The bottom ash currently stored in the Pond will be fully excavated and disposed of in accordance with existing permits and processes for disposal in the on-site landfills. The process to remove CCR from the Ash Pond includes dewatering and utilizing appropriate equipment and methods to move the CCR to the existing on-site landfill. Dewatering will include removal of all free water and interstitial water to an appropriate level to allow for safe excavation activities. Existing appurtenant structures, if any, such as inlet troughs, spillways, outfalls, and piping will be properly removed and transported to a permitted disposal facility or prepared for reuse.

17. The Pond closure and new process water systems will not result in wasteful duplication. "Wasteful duplication" is defined as an "excess of capacity over need and an excessive investment in relation to productivity or efficiency and an unnecessary multiplicity of physical properties."<sup>6</sup> The construction will result in Duke Energy Kentucky eliminating its existing wet bottom ash storage/disposal process that can no longer be maintained under the CCR Final Rule and ELG Final Rule, and repurposing the current Ash Pond structure for new process water systems that meet current environmental regulations. Duke Energy Kentucky examined other compliance alternatives and the present strategy represents the most reasonable strategy in terms of cost and compliance.

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<sup>6</sup> See *In the Matter Of: Joint Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity and Site Compatibility Certificate for the construction of a Combined Cycle Combustion Turbine at the Cane Run Generating Station and the Purchase of Existing Simple Cycle Combustion Turbine Facilities from Bluegrass Generation Company LLC, in Lagrange, Kentucky*, Case No. 2011-00385 at 13-14( Ky.P.S.C. May 3, 2012).

18. Pond repurposing for the new process water systems is a reasonable compliance strategy in that these new systems require such a repository. East Bend's existing campus is limited insofar as it lacks a more suitable location to construct an entirely new pond for such systems. A closure in place strategy for the Pond will require additional permitting and it will not alleviate the need for a pond for the new ELG compliant process water systems. Pond repurposing addresses both concerns.

**Request for Certificate of Public Convenience and Necessity**

19. In accordance with 807 KAR 5:001 Section 12(2)(a)-(i), Duke Energy Kentucky is filing the following information in Exhibit 1, which is incorporated herein and made a part of this Application filed in this proceeding:

<b><u>Exhibit 1</u></b>	<b><u>Description</u></b>	<b><u>807 KAR 5:001</u></b>
<b><u>Page</u></b>		<b><u>Section Reference</u></b>
	Financial Exhibit	12 (2)
1	Amount and kinds of stock authorized	12(2)(a)
1	Amount and kinds of stock issued and outstanding	12(2)(b)
1	Terms of preference or preferred stock	12(2)(c)
1	Brief description of each mortgage on property of Duke Energy Kentucky	12(2)(d)
2	Amount of bonds authorized and issued and related information	12(2)(e)
2	Notes outstanding and related information	12(2)(f)
2-3	Other indebtedness and related information	12(2)(g)
3-4	Dividend information	12(2)(h)
4-6	Detailed Income Statement and Balance Sheet	12(2)(i)

20. 807 KAR 5:001, Section 15 sets forth the requirements to receive a CPCN:

- a. In accordance with Section 15(2)(a), the application herein describes the facts relied upon to show the closing and repurposing of the pond and related water redirection is required by public convenience or necessity and



is necessary for the Company to continue to comply with environmental regulations and will allow Duke Energy Kentucky to continue to provide safe, reliable and reasonably priced retail electric service to customers by not having to procure third-party disposal services for generator waste material.

b. In accordance with Section 15(2)(b), the Company has previously filed with the Commission the applicable franchises from the proper public authorities. In addition, Exhibits 2 through 6 of this application includes copies of the necessary permits or submitted applications for such permits related to the construction contemplated for the CPCN. These required permits include the following:

- Exhibit 2 is the Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification and Dam Construction Permit Modification Report (Application for Stream Construction). This Application for Stream Construction is to obtain a final Stream Construction Permit for Construction in or Along a Stream. The Company has filed the Dam Construction Permit Modification Report and anticipates filing the Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification with the Kentucky Department of Environmental Protection (KDEP) as soon as it receives the necessary proof of publication affidavits from the newspapers. The Company does not anticipate any difficulty in obtaining this permit. The Company will supplement this exhibit with the affidavits upon receipt.

- Exhibit 3 is the Company's Indiana Bat Conservation Memorandum of Agreement Modification No. 2 and Federally Listed Species Coordination Request and Threatened and Endangered Species Habitat Survey (Tree Clearing Permit Application). This Tree Clearing Application Permit was filed with The United States Department of Fish and Wildlife Resources in order to remove trees to enable the construction. The Company does not anticipate any difficulty in obtaining this permit.
- Exhibit 4 is the Dewatering Concurrence Letter from the Department of Water. A request was submitted to KDEP, Division of Surface Water, under KPDES Permit #0040444, for regulatory concurrence involving redirection of flow during construction activities associated with ash pond ash removal, lining and repurposing to secondary settling basins.
- Exhibit 5 is the Station Permit from the Kentucky Division of Waste Management, Permit number SW00800006. This permit, along with KDEP application form number 7094A, details the allowed means of generator waste disposal at East Bend, including ash, that is to be disposed of in the on-site Landfills.
- Exhibit 6 is a copy of the concurrence letter issued by the Kentucky Department of Environmental Protection, Division of Waste Management confirming, among other things, that permit modifications are not necessary for ash removal and that the Division

of Waste Management considers clean closure of the surface impoundment to be a potentially effective corrective action for groundwater impacts related to special waste (CCR) management and disposal at East Bend Station.

- c. In accordance with Section 15(2)(c), which requires the Company to provide a full description of the proposed location, route, or routes of the proposed construction or extension, including a description of the manner in which the facilities will be constructed, the Company states that the Ash Pond closing, repurposing, and water redirection will be performed at the Company's East Bend station located in Boone County, Kentucky. Exhibit 7 to this application contains Duke Energy Kentucky's Project Definition Report for Water Redirection Program East Bend Station prepared by Duke Energy Kentucky's outside engineering consultant (Report). The Report is stamped by a professional engineer licensed in the commonwealth of Kentucky and contains a detailed description of the need, construction, design, and location of the water redirection and Pond repurposing portion of the project. Exhibits 8 and 9 contains the Pond Closure Plan and drawings and schematics for the Pond closure, both executed by a professional engineer.
- d. In accordance with Section 15(2)(d)(1)-(2), requiring maps showing the location or route of the proposed construction or extension and plans and specifications and drawings of the proposed plant, equipment, and facilities, Duke Energy Kentucky respectfully states that the Report,

Appendix C<sup>7</sup> includes an overhead map schematics and drawings of the East Bend site showing the proposed location of the construction activities for the water redirection. Additionally, the Report Appendices C, D, F,G contains the plans, specifications, and drawings of the water redirection portion of the project. Exhibit 9 contains the drawings and specifications for the Pond closure. Because this construction will be located at Duke Energy Kentucky's own facility, the construction of the new process water systems, Pond closure and repurposing will not compete with any other utilities, persons or corporations.

- e. In accordance with Section 15(2)(e), the Company states that it proposes to finance the construction through continuing operations and debt instruments, as necessary. In addition, the Company may seek to include this project as part of an overall environmental compliance plan pursuant to KRS 278.183. A final decision in that regard has not yet been reached and the Company will seek Commission approval to implement such a mechanism through a separate filing.
- f. In accordance with Section 15(2)(f), the fully loaded total estimated cost of Pond closure (bottom ash removal and dewatering) is approximately \$29,016,801.63. The estimated fully loaded cost of construction (internal and external labor included) for Pond repurposing to a lined retention pond for ELG compliance is approximately \$36,071,634. The total estimated fully loaded costs of construction for water redirection (internal and external labor included) is approximately \$28,097,675. The estimated

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<sup>7</sup> Exhibit 7

incremental annual ongoing costs of operation once the project is completed is approximately \$187,000.

**Testimony and Exhibits**

21. Additional facts supporting this Application are set forth in the following direct testimonies attached to this Application as Exhibits 10 through 14:

- a. David A. Renner Vice President Coal Combustion Products Engineering provides an overview of the Company's electric generation operations and the project;<sup>8</sup>
- b. Brandon Delis, Director Generation Strategic Engineering Programs discussed the analysis, design, plans and specifications, cost estimates, and considerations that lead to the Company's proposal for Pond closure, repurposing, and water redirection at East Bend;<sup>9</sup>
- c. Joseph G. Potts, Principal Engineer discusses the project construction, and ongoing operation of East Bend;<sup>10</sup>
- d. Tammy Jett, Principal Environmental Specialist, discusses the environmental regulations necessitating the Pond closure, repurposing, and water redirection at East Bend, the permits that enable this project, how the project will comply with these regulations, and the additional work that will need to occur in the near future for East Bend's continued compliance;<sup>11</sup> and

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<sup>8</sup> Exhibit 10.  
<sup>9</sup> Exhibit 11.  
<sup>10</sup> Exhibit 12.  
<sup>11</sup> Exhibit 13.

- e. William Don Wathen Jr., Director of Rates and Regulatory Strategy Ohio and Kentucky, discusses the estimated impacts to the Company's rates of the project.<sup>12</sup>

**Requested Relief**

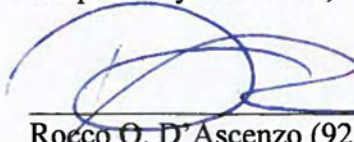
WHEREFORE, Duke Energy Kentucky respectfully requests that the Commission expeditiously issue an Order grant the necessary CPCN.

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<sup>12</sup> Exhibit 14.



Respectfully submitted,



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**CERTIFICATE OF SERVICE**

This is to certify that a copy of the foregoing Application of Duke Energy Kentucky, Inc. has been served via overnight mail to the following party on this 2<sup>nd</sup> day of Dec., 2016.

  
\_\_\_\_\_  
Reece O. D'Ascenzo

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