

FILED
November 30, 2023
INDIANA UTILITY
REGULATORY COMMISSION

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF DUKE ENERGY INDIANA, LLC,)
PURSUANT TO INDIANA CODE 8-1-8.4, REQUESTING)
(1) A CERTIFICATE OF PUBLIC CONVENIENCE AND)
NECESSITY FOR FEDERALLY MANDATED COAL)
COMBUSTION RESIDUALS (“CCR”) RULE)
COMPLIANCE PROJECTS AND COSTS; (2) APPROVAL)
OF ESTIMATED COSTS OF ITS FEDERALLY)
MANDATED COMPLIANCE PROJECTS; (3))
AUTHORITY TO REFLECT COSTS AND CREDITS)
INCURRED FOR THE FEDERALLY MANDATED)
PROJECTS THROUGH ITS EXISTING STANDARD)
CONTRACT RIDER NO. 62; (4) RECOVERY OF 80% OF)
THE FEDERALLY MANDATED COSTS ON A TIMELY)
BASIS AND APPROVAL OF THE USE OF A)
REGULATORY ASSET TO ACCRUE SUCH COSTS,)
WITH FINANCING COSTS, UNTIL THE COSTS ARE)
REFLECTED IN PETITIONER’S RATES; AND (5))
AUTHORITY TO ACCRUE A REGULATORY ASSET FOR)
THE DEFERRAL OF 20% OF THE FEDERALLY)
MANDATED COSTS ON AN INTERIM BASIS, WITH)
CARRYING COSTS, UNTIL THE APPLICABLE COSTS)
ARE REFLECTED IN PETITIONER’S BASE RETAIL)
ELECTRIC RATES)

CAUSE NO. 45940

DIRECT TESTIMONY OF BENJAMIN INSKEEP ON BEHALF OF

CITIZENS ACTION COALITION OF INDIANA

- PUBLIC VERSION -

NOVEMBER 30, 2023

I. INTRODUCTION

1 **Q. Please state your name, position and business address.**

2 **A.** My name is Ben Inskeep, and I am the Program Director at Citizens Action Coalition of
3 Indiana, Inc. (“CAC”). My business address is 1915 West 18th Street, Suite C, Indianapolis,
4 Indiana 46202.

5 **Q. Please describe your current responsibilities.**

6 **A.** I have served as CAC’s Program Director since March 2022. In that role, I work to advance
7 CAC’s policy and programmatic priorities related to energy, utilities, and consumer
8 affordability and protection, including serving as a subject matter expert in proceedings
9 before the Indiana Utility Regulatory Commission (“IURC” or “Commission”) and at the
10 General Assembly.

11 **Q. Please briefly summarize your prior employment and educational background.**

12 **A.** I have more than a decade of experience working on energy and utility issues. My prior
13 employment includes working as a policy analyst at the North Carolina Clean Energy
14 Technology Center at North Carolina State University (2014-2016). I also worked for EQ
15 Research LLC, a clean energy policy consulting firm, from 2016-2022. In that role, I
16 managed EQ Research’s general rate case subscription service, contributed as a researcher
17 and analyst to other policy service offerings, such as a legislative and regulatory tracking
18 services, and performed customized research and analysis for clients. In addition, my client
19 engagements included participation in state utility regulatory proceedings, including
20 analyzing utility proposals and serving as an expert witness on ratemaking and energy
21 policy issues.

1 I earned a Bachelor of Science in Psychology with Highest Distinction from Indiana
2 University in 2009 and both a Master of Science in Environmental Science and a Master
3 of Public Affairs from the O’Neill School of Public and Environmental Affairs at Indiana
4 University in 2012. I completed the EUCI’s Utility Accounting 101 course in April 2023.

5 My resume is provided in Attachment BI-1.

6 **Q. Have you previously filed testimony before the Indiana Utility Regulatory**
7 **Commission?**

8 **A.** Yes. Attachment BI-2 identifies the cases in which I have previously filed testimony.

9 **Q. On whose behalf are you testifying?**

10 **A.** I am testifying on behalf of CAC.

11 **Q. Are there attachments to your testimony?**

12 **A.** Yes. I am sponsoring the following attachments:

- 13 • Attachment BI-1: Resume of Benjamin Inskeep
- 14 • Attachment BI-2: Testimonial Experience of Benjamin Inskeep
- 15 • Attachment BI-3: Relevant Discovery Responses and Attachments
- 16 • Attachment BI-4: U.S. Environmental Protection Agency Region 5, Letter to
17 Duke Energy
- 18 • Attachment BI-5: Joint Testimony of Scott M. Payne & Ian Magruder, *In re:*
19 *Standard for the Disposal of Coal Combustion Residuals in Surface*
20 *Impoundments: Proposed New 35 Ill. Admin. Code 845*, Docket No. PCB 2020-
21 019 (Ill. Pollution Control Bd. filed Aug. 27, 2020), at 32-33 (“Other states such
22 as Montana (Montana DEQ 2019, Montana DEQ 2020)
- 23 • Attachment BI-6: South Carolina Public Service Commission, Docket No. 2022-
24 254-E, Direct Testimony of Marcia E. Williams for Duke Energy Progress, LLC,
25 September 1, 2022.

26 **Q. What is the purpose of your testimony in this proceeding?**

27 **A.** The purpose of my testimony is to describe CAC’s concerns with Duke’s Coal Ash
28 Compliance Project proposal and make recommendations.

29 **Q. How is your testimony organized?**

30 **A.** My testimony is organized as follows:

- 1 • **Section II** discusses the federal CCR Rule and state implementation in the
2 context of Duke’s Coal Ash Compliance Project.
- 3 • **Section III** summarizes the specific CCR units that are part of Duke’s Coal Ash
4 Compliance Project and additional concerns I have regarding certain CCR
5 units.
- 6 • **Section IV** addresses cost allocation of the Ash Pond Compliance Project and
7 explains why using an energy allocator instead of the 4CP demand allocator is
8 appropriate.
- 9 • **Section V** addresses Duke’s revenue requirement.
- 10 • **Section VI** addresses Duke’s request for accounting deferral and alternative
11 relief.
- 12 • **Section VII** addresses Indiana’s statutory prohibitions on retroactive
13 ratemaking and how that applies to this proceeding.
- 14 • **Section VIII** provides my recommendations.

II. FEDERAL CCR RULE AND STATE IMPLEMENTATION

1 **Q. Please describe the relevant federal CCR standards applicable here.**

2 **A.** Duke's CCR units that are subject to the federal CCR Rule must meet federally required
3 closure performance standards. These federal performance standards directly impact the
4 cost-effectiveness and long-term protectiveness of closing Duke's CCR units with ash
5 remaining in place. Federal CCR regulations require that CCR surface impoundments must
6 close if they are unlined or cannot meet federal location or structural integrity standards.
7 The federal regulation offers two options for closure: (1) closure-in-place or (2) closure by
8 removing CCR and decontamination of areas affected by releases from the CCR unit.
9 Either option can be used as long as the owner/operator can meet the performance standards
10 in the federal rule for the selected closure option.

11 The federal performance standards for closure-in-place require a CCR unit to close
12 in a manner that will control, minimize, or eliminate, *to the maximum extent feasible*,
13 post-closure infiltration of liquids into the waste and releases of CCR, leachate, or
14 contaminated run-off to the ground or surface waters or to the atmosphere.¹ *The EPA has*
15 *interpreted these closure performance standards to prohibit closure-in-place where*
16 *groundwater is in actual or likely contact with the CCR unless effective engineering*
17 *measures can be installed to control, minimize, or eliminate such conditions.*² The
18 closure-in-place performance standards also include structural stability and long-term
19 maintenance requirements.

¹ 40 CFR 257.102(d).

² U.S. Environmental Protection Agency Region 5, Letter to Duke Energy (included as Attachment BI-4).

1 **Q. Please describe your overarching concerns with Duke's Coal Ash Compliance**
2 **Project.**

3 **A.** Duke is proposing significant costs to be recovered from captive ratepayers related to its
4 Coal Ash Compliance Project, yet the coal ash closure plans associated with this project
5 do not fully comply with the federal CCR Rule, nor do they adequately protect human
6 health and the environment, subjecting Duke customers and Hoosiers more broadly to
7 tremendous risk. *In my opinion, based on the specific characteristics of Duke's CCR*
8 *units, closure by removal of all or the vast majority of the CCR is the only closure option*
9 *that can reliably and cost-effectively meet the federal CCR closure performance*
10 *standards.*

11 At a high level, Duke is proposing to leave large quantities of toxic coal ash in place
12 along the shores of the Ohio, Wabash, and White Rivers. Groundwater monitoring
13 conducted by Duke indicates that pollution from these coal ash units is seeping into
14 groundwater, with numerous harmful contaminants such as arsenic exceeding established
15 standards. Duke is only proposing closure by removal at two of the smaller coal ash units,
16 *leaving 94% of the total coal ash that is part of the Coal Ash Compliance Project in place*
17 *in perpetuity.*³ As described further below, IDEM stated in its approval of these closure-
18 by-removal plans that they do not actually meet the federal definition of closure by
19 removal. Furthermore, Duke is undertaking additional measures at CCR units it concedes
20 are regulated under the federal CCR Rule, while holding its other CCR units to a lower
21 standard (e.g., placing a cap over the coal ash, but failing to adopt measures that would
22 prevent coal ash from coming into contact with groundwater). However, many of the

³ Hill Direct Testimony, Tables 1 and 2.

1 proposed measures at the CCR units Duke concedes are subject to the federal CCR Rule
2 are not permanent solutions for coal ash, meaning ratepayers could be asked to pay for
3 additional cleanup costs in the future. Finally, in contradiction to federal law, Duke has
4 failed to identify and begin implementing groundwater corrective measures at many of its
5 CCR units.⁴

6 **Q. How does this approach differ from coal ash remediation in other states and in**
7 **Indiana for other utilities?**

8 **A.** As I detail elsewhere in this testimony, in many cases coal ash impoundments in other
9 states including where Duke operates in other jurisdictions—and even other utilities in
10 Indiana—are being excavated and the ash moved to dry, lined disposal sites or recycled for
11 encapsulated forms of reuse, such as in concrete. There is no meaningful difference in the
12 on-the-ground circumstances between Duke Energy’s coal ash ponds in Indiana and
13 elsewhere where utilities, including Duke affiliate utilities in other jurisdiction, have
14 decided to pursue closure by removal at CCR units.

15 Duke Energy’s approach to closure is markedly different between states in which
16 it has one or more vertically owned utilities. Most of its Indiana ash ponds, including those
17 in the Coal Ash Compliance Project, are slated to be closed in place, leaving the possibility
18 that toxic coal ash could remain in, or come into, contact with groundwater, including if its
19 proposed technological solutions fail, do not perform as anticipated, or are not maintained
20 and continuously operated by Duke after 30 years. The result is that Indiana residents are
21 receiving substantially less protection from the risks posed by Duke’s coal ash than the

⁴ Cause No. 45749, DEI Response to OUCC Data Request 2.10 (included in Attachment BI-3).

1 residents of states like North Carolina, and there is no principled technical, scientific, or
2 policy basis for this unequal outcome.

3 **Q. Is Duke’s Coal Ash Compliance Project consistent with the plain language of the CCR**
4 **Rule standards for closure by removal, for those units which are proposing to close**
5 **by that method?**

6 **A.** No, it is not. The federal CCR Rule’s standard for closure by removal is 40 C.F.R. §
7 257.102(c), which requires that, in addition to removing the ash disposed of in the CCR
8 unit, a utility must also “decontaminat[e] all areas affected by releases from the unit.”
9 Section 257.102(c) further provides that, in order to complete a closure-by-removal, the
10 utility must remove CCR constituents from “any areas affected by releases from the CCR
11 unit” and must further demonstrate that groundwater monitoring does not indicate any
12 exceedance of groundwater protection standards (i.e., the groundwater is no longer
13 contaminated).

14 Duke has characterized its closure plans for the Gibson North Settling Basin and
15 Wabash River Pond B as “closure by removal,” yet IDEM’s approval of these plans
16 expressly states that “removal” as contemplated in the plans “does not mean closure as
17 contemplated by 40 CFR 257.102(c),” which is the section of the federal CCR Rule that
18 identifies the federal closure by removal standard.⁵ In other words, *Duke is claiming it is*
19 *doing closure by removal as required by a federal mandate, yet IDEM’s approvals*
20 *expressly find that the claimed “closure by removal” does not actually comply with all*
21 *of the federal requirements.* In particular, Duke’s proposed closure by removal does not

⁵ Hill Direct Testimony, Attachment 2-G (TSH), p. 5 of 31, footnote 1 and Attachment 2-D (TSH), p. 4 of 30.

1 appear to comply with the requirements of Section 257.102(c) quoted above that Duke
2 must decontaminate and remove CCR constituents from all areas affected by releases from
3 the unit, as well as demonstrate that there are no further exceedances of groundwater
4 protection standards. Duke is not allowed to request cost recovery under the FMCA for
5 expenditures that do not comply with the federal mandate at hand.

6 **Q. Please describe the “federally mandated requirements” that Duke contends are at**
7 **issue.**

8 **A.** Duke testifies that the federal Resource Conservation and Recovery Act (“RCRA”) applies
9 to all of the coal ash units that are part of its Coal Ash Compliance Project, but that EPA
10 regulations of Coal Combustion Residuals (known as the “CCR Rule,” 40 C.F.R. Part 257)
11 only apply to four of the seven CCR units.

12 **Q. Does the CCR Rule require Duke to close its CCR units that are subject to the CCR**
13 **Rule?**

14 **A.** Yes. The CCR Rule requires any of the coal ash ponds that are subject to the CCR Rule to
15 close in accordance with the requirements of 40 C.F.R. § 257.102. Thus, according to
16 Duke’s designations, this would close at least four of the seven CCR units.

17 **Q. For the IDEM-required projects that Duke contends are not subject to the federal**
18 **CCR Rule, is Duke still asking for recovery of the costs associated with these projects**
19 **under the Indiana FMCA?**

20 **A.** Yes. The Commission should deny Duke’s request for recovery as such. As stated herein,
21 CAC strongly believes that this is not a lawful or appropriate use of ratepayer money,
22 especially since it is likely ratepayers will eventually have to pay for additional closure or
23 corrective action projects at these sites in the future.

1 **Q. For these IDEM-required projects that Duke contends are not subject to the federal**
2 **CCR rule but are subject to RCRA requirements, does RCRA require those ponds to**
3 **close?**

4 **A.** No, RCRA does not. Duke’s projects to close units that Duke contends are not subject to
5 the federal CCR Rule (Wabash River North Pond, Gibson South Ash Fill Area, and
6 Edwardsport Ash Management Area) are not being done to comply with any federal
7 mandates. Duke cannot point to any provision of federal law or regulation, or any U.S.
8 EPA order, that requires closure of the units. The closest potentially applicable federal
9 provision is RCRA Section 3004(u), which requires corrective action for any “releases of
10 hazardous waste or constituents from any solid waste management unit,” but neither Duke
11 nor IDEM has found that any releases of hazardous waste or its constituents has occurred.
12 And, Duke has not pointed to any specific provision of RCRA or federal regulations that
13 requires the closure of the CCR units that they contend are not subject to the federal CCR
14 Rule.

15 **Q. Does IDEM’s approval of Duke’s closure plans for some of the CCR units that are**
16 **part of the Coal Ash Compliance Project render it compliant with the federal CCR**
17 **Rule?**

18 **A.** Although I am not an attorney, I have been informed by counsel that IDEM as a state
19 agency does have authority in this area to directly implement or enforce federal regulatory
20 requirements – for example, IDEM has not applied for or obtained from EPA approval to
21 administer a RCRA-compliant CCR permitting program. IDEM does administer a
22 federally approved solid waste management plan under RCRA, but this fact does not in
23 and of itself convert every utility action approved by IDEM into a federally mandated

1 requirement. Where, as here, the projects are not driven by any specific component of the
2 federally required plan, they cannot be said to be federally mandated. Further, it is my
3 understanding that the CCR Rule is enforceable by EPA and citizens (through federal court
4 citizen suits); either the EPA or citizens could challenge the legal validity of Duke's chosen
5 closure method, notwithstanding IDEM's approval of it. Finally, despite IDEM's initial
6 approval of Duke's closure plans for Gallagher North Ash Pond and Primary Pond Ash Fill
7 Area, EPA subsequently determined the CCR units must comply with the federal CCR
8 Rule, necessitating the withdrawal and future re-filing of the plans. One of the key issues
9 for compliance with the CCR Rule for Duke is that ash closed in place cannot be subject
10 to ongoing infiltration by groundwater, per 40 CFR sec. 257.102(d).

11 **Q. Even assuming *arguendo* that IDEM's approval of Duke's closure plan renders it**
12 **compliant with the CCR Rule, would this be sufficient to absolve Duke of**
13 **responsibility for ensuring that the groundwater is cleaned up?**

14 **A.** No. Separate provisions of the CCR Rule, 40 C.F.R. §§ 257.90-257.98, require utilities to
15 monitor groundwater and take corrective action to clean up releases of contaminants from
16 CCR units. These requirements apply independent of the method of closure Duke selects.

17 **Q. Did Duke take into consideration the cost of future groundwater corrective action?**

18 **A.** No. Even after caps are in place, the leaching of coal ash contaminants into groundwater
19 can continue if there is ongoing groundwater infiltration, especially at sites such as Duke's
20 where groundwater levels rise and fall as the water level in neighboring rivers fluctuates
21 (including during flood events). Duke has not comprehensively evaluated cost estimates
22 associated with corrective action measures it will need to undertake in the future that will
23 be significantly more likely under closure in place relative to closure by removal.

1 Notably, Duke provides only a forecast of costs associated with the Coal Ash
2 Compliance Project through 2030. Yet, it will continue to incur costs for at least 30 years
3 at its CCR units where it is pursuing closure in place, with additional costs for corrective
4 action.

5 **Q. What are the cost implications if corrective action for groundwater under the federal**
6 **CCR Rule is ultimately necessary for those ponds where Duke is doing closure in**
7 **place?**

8 **A.** Corrective action for groundwater under the federal CCR Rule could last for decades,
9 potentially resulting in a significant difference in the total closure and post-closure costs
10 for the Coal Ash Compliance Project. If those risks and costs are taken into account, closure
11 in place is not likely to be the most prudent and cost-effective approach. In contrast, clean
12 closure where coal ash is removed and placed into dry, lined storage or recycled into
13 concrete, stops the coal ash contamination from the units, significantly reducing the
14 likelihood that corrective action will be needed (or the extent and cost of the corrective
15 action, if it is needed). This is the most protective closure option for groundwater and the
16 Ohio, Wabash, and White Rivers, and may be the most cost-effective approach in the long
17 run. From this more holistic view, closure in place is a risky and myopic method of
18 addressing toxic coal ash.

19 **Q. Could the CCR Rule be modified in the future?**

20 **A.** Yes. The EPA has already made modifications to the federal CCR Rule and has proposed
21 additional changes. For example, EPA has proposed regulations for inactive surface
22 impoundments at power plant facilities that ceased operation prior to the 2015 effective

1 date of the CCR Rule, pursuant to a court ruling from the DC Circuit Court of Appeals.⁶ In
2 addition to extending federal regulatory requirements to apply to these so-called “legacy”
3 coal ash impoundments, EPA is also proposing to regulate “CCR Management Units” or
4 “CCRMUs,” which include “non-containerized accumulation[s] of CCR . . . include[ing]
5 inactive CCR landfills and CCR units that closed prior to” the 2015 effective date of the
6 CCR Rule, provided that these CCRMUs are located at “active or inactive facilities with
7 one or more CCR units.”⁷ EPA anticipates taking final action on this proposed rule by April
8 2024.⁸ If adopted as proposed, this new EPA rule would include “requirements for
9 groundwater monitoring, corrective action, closure, post-closure care, and recording and
10 recordkeeping”⁹ for these “legacy” coal ash landfill areas, including areas at Duke facilities
11 that Duke refers to as “historic coal ash management units.” To the extent any component
12 of the Coal Ash Compliance Project would fail to comply with Legacy CCR Rule if
13 adopted, Duke should not be granted approval in this proceeding for such components, as
14 it could result in duplicative costs being passed on to ratepayers.

15 Both generally, as well as specifically to CCR, federal environmental regulations
16 have become more stringent across time. In my opinion, this trend is highly likely to
17 continue in the future, including for coal ash, again which would make closure by removal
18 even more appealing from a cost standpoint so ratepayers do not have to pay for an
19 ineffective cleanup solution once, just to pay again later for an effective cleanup solution.

⁶ 88 Federal Register 31,982 (May 18, 2023).

⁷ *Id.* at 32,034.

⁸ Office of Information & Regulatory Affairs, White House Office of Management & Budget, Spring 2023 Unified Regulatory Agenda, RIN 2050-AH14, <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202304&RIN=2050-AH14>.

⁹ 88 Federal Register at 32,019.

1 **Q. Has the Commission acknowledged the benefits of closure by removal?**

2 **A.** Yes. The Commission has previously recognized the significant benefits of closure by
3 removal in a CenterPoint case:

4 We recognize the economic and environmental advantages of the CBR
5 [closure-by-removal] approach to achieving CCR compliance. The record
6 sets forth the many benefits of CBR with Beneficial Reuse in this particular
7 circumstance compared to a CIP [closure-in-place] project, including long-
8 term mitigation of risk to the extent a CIP approach would expose Petitioner
9 to future additional remediation requirements at the pond.¹⁰

10 **Q. Have other jurisdictions recognized the benefits of closure by removal compared to**
11 **closure in place?**

12 **A.** Yes. When other utilities and states have faced the same problem on whether to leave coal
13 ash in place, they have often come to the conclusion that the risk is too large. For example,
14 Virginia passed legislation requiring the removal of coal ash from multiple impoundments
15 in its watersheds.¹¹ North Carolina decided that “excavation [is] the only way to protect
16 public health and the environment” for many coal ash ponds in the state.¹² Subsequently,
17 a North Carolina court approved a Consent Order that provides for closure by removal,
18 spanning thousands of acres and containing more than 85,000,000 tons of coal ash.¹³
19 Finally, Montana’s Department of Environmental Quality has repeatedly made it clear to

¹⁰ Order, Verified Pet. Southern Indiana Gas & Elec. Co. re “Brown County Pond,” IURC, Case No. 45280 (May 13, 2020), p. 17.

¹¹ Senate Bill 1355, 2019 Gen. Assemb. (Va. 2019) and H.R. 443, 2020 Gen. Assemb. (Va. 2020).

¹² NCDEQ, *DEQ Orders Duke Energy to Excavate Coal Ash at Six Remaining Sites* (Apr. 1, 2019) (also stating that, “[a]fter conducting a rigorous scientific review of Duke Energy’s proposals for Allen, Belew’s, Cliffside/Rogers, Marshall, Mayo and Roxboro facilities, and conducting public listening sessions in impacted communities,” the North Carolina Department of Environmental Quality “has determined excavation of all six sites is the only closure option that meets the requirements of [the] Coal Ash Management Act to best protect public health”).

¹³ Consent Order, North Carolina ex rel. North Carolina Dep’t of Env’tl. Div. of Water Resources v. Roanoke River Basin Ass’n, Case No. 13-CVS-11032 (Feb. 5, 2020) at 6-9.

1 owners of coal ash ponds that it “will not accept a remedy that leaves a long-term source
2 in place if it is in contact with groundwater.”¹⁴

3 **Q. What position has Duke Energy Indiana affiliate Duke Energy Progress taken in
4 South Carolina?**

5 **A.** In South Carolina, Duke Energy Progress’s expert witness filed extensive testimony¹⁵
6 demonstrating the prudence of closure by removal rather than closure in place for North
7 Carolina and South Carolina coal ash ponds. In summary, Duke Energy Progress’s expert
8 found that “closure by removal of all or the vast majority of the CCR is the only closure
9 approach that can reliably and cost-effectively meet the federal CCR closure performance
10 standards.”¹⁶

11 **Q. Please elaborate on the recommendations made by Duke Energy Progress’s coal ash
12 expert in South Carolina.**

13 **A.** Duke’s expert summarized the benefits of closure by removal over closure in place as
14 follows:

15 **Even when closure-in-place can be engineered to comply with the**
16 **federal closure performance standards, closure by excavation is often**
17 **prudent and more cost-effective than leaving CCR in place because it**
18 **can reduce future post-closure costs and potential future cleanup**
19 **liability associated with unexpected releases from the closed CCR unit.**
20 Closure by excavation can also be preferable because it allows the land,
21 often a limited commodity at power plants, to be reused for other purposes

¹⁴ Joint Testimony of Scott M. Payne & Ian Magruder, *In re: Standard for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Admin. Code 845*, Docket No. PCB 2020-019 (Ill. Pollution Control Bd. filed Aug. 27, 2020), at 32-33 (“Other states such as Montana (Montana DEQ 2019, Montana DEQ 2020) have required owner/operators to remove CCR that is in contact with groundwater where it is causing exceedances of water quality standards and the owner/operator has not provided an alternative remedy capable of eliminating long-term leaching of the CCR.”). [Attachment BI-5](#).

¹⁵ South Carolina Public Service Commission, Docket No. 2022-254-E, Direct Testimony of Marcia E. Williams for Duke Energy Progress, LLC, September 1, 2022. [Attachment BI-6](#).

¹⁶ *Id.*, pp. 42.

1 or to be sold. Closure-in-place requires long-term access to, as well as long-
 2 term operation and maintenance of, all engineered structures including the
 3 closed unit cap, restricting future use of this land.¹⁷

4 (Emphasis added). The testimony also made compelling points on the need to take into
 5 consideration the general public's concerns about coal ash, as well as the legal risks, when
 6 evaluating closure in place:

7 The public often views leaving CCR in place unfavorably and the public's
 8 input plays an important and defined role in making closure
 9 determinations.... In the preamble to the final rule, EPA discussed the
 10 importance of public participation for regulations promulgated under
 11 RCRA. Also, to the extent citizens do not believe the documentation
 12 provided by regulated CCR owners and operators meet the federal rule
 13 requirements, citizens can participate directly through lawsuits under
 14 RCRA Section 7002. **CCR units that fail to comply with the self-**
 15 **implementing requirements or that result in an imminent and**
 16 **substantial endangerment to public health or the environment face a**
 17 **risk of being subject to successful citizen suits.**¹⁸

18 (Emphasis added).

19 **Q. What are some of the long term land use implications of closure in place that were**
 20 **highlighted by Duke Energy Progress's expert?**

21 **A.** With respect to the negative long-term land-use implications, Duke Energy Progress's
 22 expert went on to point out additional long-term drawbacks of closure in place; ultimately,
 23 these could negatively impact ratepayers:

24 ...[C]losure-in-place may preclude the use of the land for other purposes.
 25 Closure-in-place requires the construction of a final cover system as well as
 26 post-closure requirements (e.g., ensuring the integrity of the final cover
 27 system, maintaining the integrity of leachate collection and removal
 28 systems, if required, and groundwater monitoring) for 30 years after the
 29 closure. This may prohibit the owner or operator of the utility from utilizing
 30 the land for either new waste management units or for expansions to other
 31 plant facilities.¹⁹

¹⁷ *Id.*, pp. 16-17.

¹⁸ *Id.*, p. 38. Footnotes are omitted.

¹⁹ *Id.*, pp. 39-40. Footnotes are omitted.

1 Closure in place can create property restrictions, which can ultimately harm ratepayers by
2 depriving them the benefits of the utility being able to fully utilize land paid for by
3 ratepayers:

4 Additionally, closure-in-place requires the owner/operator to record a
5 notation on the property deed in perpetuity that the land was used for a CCR
6 unit. This affects both the current owner/operator and any future
7 landowners. EPA recognized the burden of the indefinite land restrictions
8 and post-closure care obligations associated with closure-in-place and noted
9 that **this should create a further incentive for closure by removal...**²⁰

10 **Q. What does Duke's witness in South Carolina say about whether closure in place**
11 **methods are sufficient to guarantee there will not be future releases that cause**
12 **contamination?**

13 **A.** Duke's witness in South Carolina points out that closure in place creates substantial
14 uncertainty about future costs the utility may need to incur to address the coal ash, which
15 ultimately could be borne by captive ratepayers:

16 **In addition, leaving the CCR in place, even when meeting the required**
17 **performance standards for closure-in-place at the time of closure, does**
18 **not avoid the possibility of future releases from the surface**
19 **impoundment during the post-closure period that could trigger the**
20 **need to perform additional groundwater investigation and corrective**
21 **action if future releases exceed protective standards.** The cost of
22 corrective action, including extensive groundwater evaluation, is always
23 uncertain and dependent upon site-specific facts such as the hydrogeologic
24 conditions at the site and the types of contaminants. These costs are made
25 even more uncertain by the potential for new, emerging contaminants that
26 can drive unexpected cleanup costs or the possibility that more stringent
27 risk-based contaminant standards can evolve over time. Therefore,
28 companies may factor the uncertainty of future releases into the
29 comparative prudence of their closure choices. Based on site-specific
30 factors, additional upfront costs associated with excavation can be offset by
31 lower post-closure costs and reduced future liability associated with the
32 possibility of future releases requiring corrective action.²¹

²⁰ *Id.*, p. 40 (emphasis added). Footnotes are omitted.

²¹ *Id.*, p. 46.

1 (Emphasis added.)

2 **Q. Did Duke Energy Progress’s expert in South Carolina also conclude there is a risk of**
3 **future federal environmental regulations that make closure-by-removal a more**
4 **attractive approach?**

5 **A.** Yes. As I point out above, environmental regulations are more likely than not to be
6 strengthened in the future based on historical trends and general scientific advancement of
7 the understanding of risk to human health of various coal ash constituents. Duke’s expert
8 summarized the issue as follows:

9 ...[I]t is not uncommon for environmental regulations and requirements to
10 increase in stringency as time passes. There is no guarantee that additional
11 closure or post-closure requirements will not be put in place if a closure is
12 conducted later in time, thereby increasing costs. Delaying closure can also
13 increase the probability of corrective action requirements and costs,
14 depending upon site-specific factors.²²

15 **Q. Do the same concerns you identified from Duke Energy Progress’s expert apply to**
16 **Duke Energy Indiana’s Coal Ash Compliance Project?**

17 **A.** Yes. Many of Duke Energy Indiana’s Coal Ash Compliance Project surface impoundments
18 are in contact with groundwater. Duke Energy Indiana’s plan to close these surface
19 impoundments in place requires extensive and costly engineering controls to prevent
20 contact between ash and groundwater and to eliminate, to the maximum extent feasible,
21 future releases of CCR or leachate. Even with these engineering controls, the cost of
22 continuing to meet the performance standards during the post-closure period will remain
23 uncertain.

²² *Id.*, p. 48.

III. COAL ASH COMPLIANCE PROJECT

1 **Q. Please describe the Coal Ash Compliance Project at issue in this proceeding.**

2 **A.** Duke seeks recovery for two types of CCR costs: (1) CCR closure costs and (2) CCR
 3 management costs. These costs included those which Duke has already incurred 2019-
 4 2022, as well as forecasted costs 2023-2030 for the Coal Ash Compliance Project
 5 consisting of CCR activities at the Gibson Generating Station, as well as at its retired
 6 Edwardsport, Gallagher, and Wabash River generating stations. Altogether, Duke seeks
 7 cost recovery for \$ [REDACTED] million (\$280 million unescalated) in CCR closure costs incurred
 8 and forecasted between 2019-2027, plus \$ [REDACTED] million (\$29 million unescalated) in CCR
 9 management costs incurred and forecasted for 2019-2030, for a grand total of \$ [REDACTED]
 10 million,²³ or about \$309 million unescalated.²⁴ *Compared to Duke's revised case-in-chief*
 11 *in Cause No. 45749, Duke has already increased its estimated CCR closure costs by*
 12 *[REDACTED]%, with total estimated costs for the Coal Ash Compliance Project (inclusive of CCR*
 13 *management costs) increasing by [REDACTED]%.²⁵ This calls into question whether Duke*
 14 *withdrew Cause No. 45749 for the reasons it stated, or whether the skyrocketing CCR*
 15 *closure cost estimates led it to withdraw the case, given that the Federal Mandates statute*
 16 *requires specific justification for costs overruns of 25% or more, which would have led to*
 17 *an elevated risk of Commission disallowance.*

18 Table 1 provides a high-level summary of the closure plans included in the Coal
 19 Ash Compliance Project. Table 2 compares the quantity of coal ash that will be subject to

²³ Confidential Attachment 2-K (TSH). "Escalated" costs are used unless otherwise specified.

²⁴ Hill Direct Testimony, p. 22; Confidential Attachment 2-K (TSK).

²⁵ Compare grand total escalated costs in Cause No. 45749, Revised Confidential Attachment 2-K (TSH), showing \$ [REDACTED], to grand total escalated costs in Cause No. 45940, Confidential Attachment 2-K (TSH), showing \$ [REDACTED].

1 closure by removal and closure in place, showing that only 6% of the total coal ash covered
 2 by the Coal Ash Compliance Project is covered by a plan that Duke characterizes as closure
 3 by removal.

Table 1: Summary of Coal Ash Compliance Project Closure Plans²⁶

Station	Asset Name	Closure Plan Footprint (Acres)	Closure Plan Volume (Cu. Yards)	Closure Method	Impacted Water Body	IDEM / CCR Requirement
Gallagher	Primary Pond	10.1	401,085	Close in Place	Ohio River	CCR & IDEM
Gibson	North Pond	134.7	4,342,450	Close in Place	Wabash River	CCR & IDEM
Gibson	North Settling Basin	24.1	116,770	Close by Removal	Wabash River	CCR & IDEM
Wabash River	Pond B	21.1	738,170	Close by Removal	Wabash River	CCR & IDEM
Wabash River	North Pond	43.1	1,592,470	Close in Place	Wabash River	IDEM Only
Gibson	South Ash Fill Area	188.5	6,855,785	Close in Place	Wabash River	IDEM Only
Edwardsport	Ash Mgmt Area	15	765,000	Close in Place	White River	IDEM Only

Table 2: Summary of Closure Methods in Coal Ash Compliance Project

Closure Method	Closure Plan Volume (Cu. Yards)	Proportion
Close in Place	13,956,790	94%
Close by Removal	854,940	6%
Total	14,811,730	100%

²⁶ Hill Direct Testimony, Tables 1-2.

A. Gallagher

1 **Q. Please describe the Coal Ash Compliance Project with respect to the Gallagher**
2 **Generating Station.**

3 **A.** At the Gallagher Generating Station, Duke proposes closure in place, including installing
4 a slurry wall that will encircle the North Ash Pond, the Primary Pond Ash Fill Area, and
5 the Primary Pond, which are contiguous and were previously operated as a single CCR unit
6 (Figure 1). However, IDEM has only approved the closure plan for the Primary Pond,
7 which is the only pond of the three that is part of the Coal Ash Compliance Project.

8 Although IDEM initially approved Duke's closure plans for the North Ash Pond
9 and the Primary Ash Pond Fill Area, EPA found Duke's closure plans that allowed CCR
10 materials to remain in contact with groundwater at these CCR units were not compliant
11 with the plain language of the federal CCR Rule. Duke therefore filed a revised closure
12 plans for the North Ash Pond and the Primary Ash Pond Fill Area in November 2022.²⁷

²⁷ Schwartz Direct Testimony, p. 10, line 3.

Figure 1: Map of Gallagher Coal Ash Units²⁸

- 1 **Q. Has Duke measured any concentrations above groundwater protection standards for**
 2 **CCR units at this site that are included in the Coal Ash Compliance Project?**
- 3 **A.** Yes. For example, Duke’s groundwater monitoring has detected statistically significant
 4 increased concentrations over groundwater protection standards of lithium, molybdenum,
 5 and arsenic.²⁹ Duke has not factored in the potential additional costs of corrective actions
 6 required by the CCR Rule in evaluating its closure plans, creating a substantial risk for
 7 ratepayers that future costs will be much larger than indicated by Duke for this closure plan
 8 since toxic contaminants have already been observed leaching into groundwater.
- 9 **Q. Do you have any concerns about the proposed slurry wall?**

²⁸ Hill Direct Testimony, Attachment 2-A (TSH).

²⁹ Duke Energy Indiana, CCR Annual Groundwater Monitoring and Corrective Action Report: Primary Ash Pond, January 4, 2023, revised February 17, 2023, <https://www.duke-energy.com/-/media/pdfs/our-company/ash-management/20230425/gal-annl-gmcar-pp-2022-rev-1.pdf?rev=12cf080d784c46e58eba4c4d89e992d6>.

1 A. Yes. The closure-in-place plan for the Primary Pond depends on the effectiveness *in*
2 *perpetuity* of the slurry wall and continued leachate extraction to prevent contaminated
3 groundwater from seeping through the wall and moving away from the Primary Pond
4 footprint and toward the Ohio River. After the 30-year post-closure period established in
5 the federal CCR Rule, it is possible that the slurry wall operation and maintenance and
6 leachate pumping could end. Therefore, Duke's closure in place plan would only provide
7 *temporary* protection of groundwater at best. Finally, the slurry wall system appears to
8 transfer coal ash contamination from groundwater to the surface water, significantly
9 eroding any long-term benefit from the slurry wall.

10 **Q. Do you have any additional concerns about Duke's cost recovery request for the**
11 **slurry wall?**

12 A. Yes. Even though it has not received IDEM approval for its updated North Ash Pond and
13 Primary Ash Pond Fill Area closure plans, Duke is moving ahead with its cost recovery
14 request in this proceeding with respect to the Primary Pond that includes the slurry wall
15 that would encompass all three coal ash units. In Cause No. 45749, Duke stated in response
16 to an OUCC data request that, "Upon approval of the closure plans by IDEM, costs will be
17 apportioned to these basins based on the perimeter coverage of the slurry wall. Duke plans
18 to update the Commission in a future proceeding with additional detail."³⁰ However, Duke
19 also objected to and refused to answer the OUCC's question on how Duke's plans for the
20 slurry wall would be affected if Duke's draft closure plans for the North Pond or Primary
21 Pond Ash Fill Area are not approved or are successfully appealed.³¹

³⁰ CN 45749, Duke Response to OUCC Data Request 3.4(a) (included in [Attachment BI-3](#)).

³¹ CN 45749, Duke Response to OUCC Data Request 3.4(b) (included in [Attachment BI-3](#)).

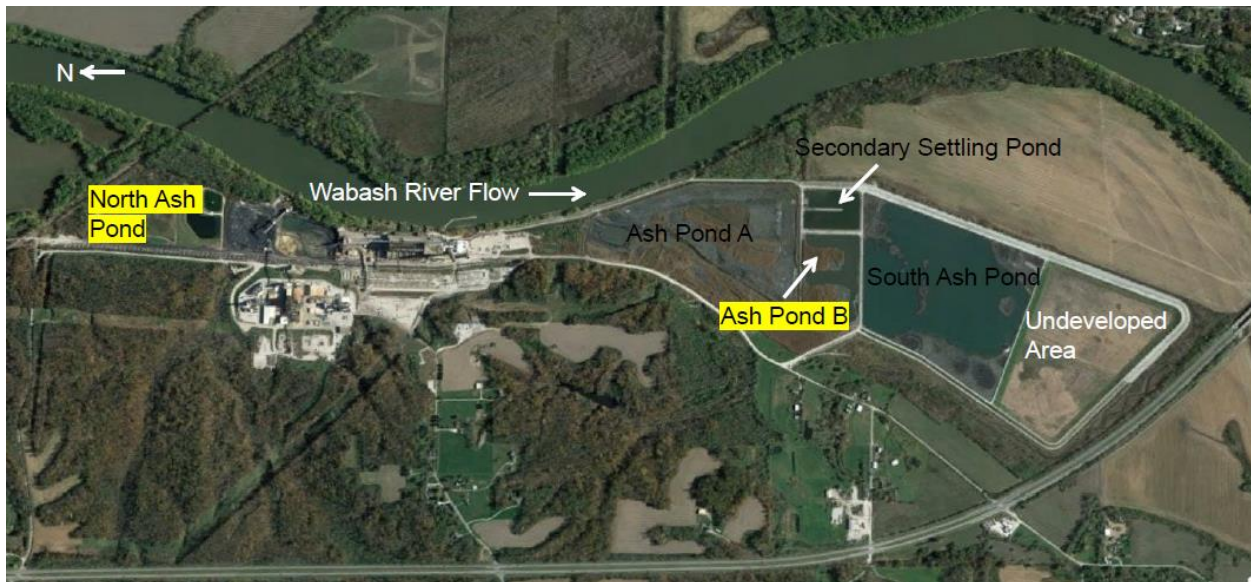
1 *This puts stakeholders and the Commission in the impossible position of*
2 *evaluating the prudence of making ratepayers pay for an expensive slurry wall that*
3 *would only be operated for a limited period of time and before this technology has been*
4 *fully evaluated and approved by IDEM for this location.* Therefore, it is premature for the
5 Commission to consider Duke's proposed closure plan for the Primary Pond as part of the
6 Coal Ash Compliance Project; rather, it should be considered in conjunction with the
7 closure of the North Pond and Primary Pond Ash Fill Area after IDEM has approved a
8 closure plan for these units in a future proceeding. To the extent the Commission approves
9 the slurry wall in this proceeding, it should clarify through its Order in this proceeding that
10 cost recovery is only approved for the portion of the slurry wall associated with the Primary
11 Pond based on its share of the perimeter cover, and that cost recovery for the remaining
12 portion of the slurry wall will be subject to the outcome of a future proceeding in which
13 the closure plans of North Ash Pond and the Primary Ash Pond Fill Area will be addressed.

B. Wabash River

1 **Q. Please describe the Coal Ash Compliance Project with respect to the Wabash River**
 2 **Generating Station.**

3 **A.** Duke is requesting cost recovery for closure projects at Wabash River Ash Pond B and
 4 North Ash Pond (Figure 2). North Ash Pond will be closed in place, and Ash Pond B will
 5 be closed by removal of all CCR materials into lined South Pond.

Figure 2: Map of Wabash River Coal Ash Units³²



6 **Q. Has Duke measured any concentrations above groundwater protection standards for**
 7 **CCR units at this site that are included in the Coal Ash Compliance Project?**

8 **A.** Yes. Duke’s groundwater monitoring has already detected statistically significant
 9 increased concentrations over groundwater protection standards of arsenic, lithium and
 10 molybdenum.³³

³² Hill Direct Testimony, Attachment 2-A (TSH).

³³ Duke Energy Indiana, CCR Annual Groundwater Monitoring and Corrective Action Report: Ash Pond System, January 4, 2022.

1 **Q. Do you have any other concerns with Duke's closure plans at Wabash Valley?**

2 **A.** Yes. Duke plans to remove CCR material and one additional foot of the underlying soil at
3 Ash Pond B does not appear to test for and remediate any contamination that may be
4 present at Ash Pond B after the CCR and one foot of soil are removed. In addition, Duke's
5 plan for closure in place at North Pond B also puts Hoosiers at risk of potential coal ash
6 contamination occurring in the future. For instance, the shifting in the course of the Wabash
7 River over time could erode the North Pond cap causing a release of the ash.

C. Gibson

1 **Q. Please describe the Coal Ash Compliance Project with respect to the Gibson**
 2 **Generating Station.**

3 **A.** At Gibson Generating Station, Duke is requesting cost recovery for closure plans at North
 4 Ash Pond, North Settling Basin, and the South Ash Fill Area (Figure 3). The North Ash
 5 Pond will be closed in place using in-situ-stabilization (“ISS”), which will “solidify
 6 portions of the ash that are in contact with groundwater to create an impermeable barrier.”³⁴
 7 A “stability wall” will also be installed using a “deep material mixing” process that
 8 supposedly will ensure stability in the event of a seismic event such as an earthquake.

9 The North Settling Basin will purportedly be closed by removal. The South Ash
 10 Fill Area will be closed in place by grading the top area to promote stormwater drainage
 11 using fixated material from the station.

Figure 3: Map of Gibson Coal Ash Units³⁵



³⁴ Hill Direct Testimony, p. 15, lines 5-6.

³⁵ Hill Direct Testimony, Attachment 2-A (TSH).

1 **Q. Has Duke measured any concentrations above groundwater protection standards for**
2 **CCR units at this site that are included in the Coal Ash Compliance Project?**

3 **A.** Yes. Duke’s groundwater monitoring at the North Ash Pond and North Settling Basin has
4 already detected statistically significant increased concentrations over groundwater
5 protection standards of lithium and molybdenum,³⁶ and at the South Ash Fill it has detected
6 statistically significant increased concentrations over groundwater protection standards of
7 arsenic, lithium, cobalt, and molybdenum.³⁷

8 **Q. Do you have any concerns with the Gibson closure plan?**

9 **A.** The presence and extent of contamination at this site is unsurprising, given that coal ash
10 from the plant has been sitting in groundwater, in unlined lagoons, for decades. However,
11 this is not a justification for failing to take action now that would fully address this source
12 of contamination by conducting clean closure.

13 In addition, the Closure Plan’s provisions related to use of CCR as structural fill to
14 form the subgrade of the final cover fails to comply with the 40 CFR 257. More
15 specifically, this use of CCR constitutes “overfill” as defined by 40 CFR 257.53, which
16 must meet the location restrictions and design requirements for new CCR landfills pursuant
17 to 40 CFR 257.60 and 257.70. The proposed use of CCR as overfill in the Closure Plan
18 does not comply with these requirements.

19 **Q. Do you have any concerns regarding the cost of the Gibson closure plan?**

³⁶ Duke Energy Indiana, CCR Annual Groundwater Monitoring and Corrective Action Report: North Ash Basin System, January 19, 2022; Duke Energy Indiana, CCR Annual Groundwater Monitoring and Corrective Action Report: North Ash Basin System, January 19, 2022.

³⁷ Duke Energy Indiana, CCR Annual Groundwater Monitoring and Corrective Action Report: North Ash Basin System, January 19, 2022; Duke Energy Indiana, CCR Annual Groundwater Monitoring and Corrective Action Report: RWS TYPE I SOUTH LANDFILL FP# 26-06, January 19, 2022.

1 A. Yes. The Gibson Generating Station closure is estimated to cost about \$198 million
2 (unescalated), representing approximately 71% of total CCR closure costs included in the
3 Coal Ash Compliance Project. Furthermore, *the costs of the Gibson closure plan have*
4 *significantly increased since Duke Energy Indiana filed its case-in-chief in Cause No.*
5 *45749, rising by a staggering 58%.*³⁸ Duke Energy Indiana did not discuss the reasons for
6 this dramatic cost increase in testimony.

7 Q. Where you able to ascertain the reasons for the large cost increase for the Gibson
8 closure?

9 A. I compared Duke's Confidential Attachment 2-K (TSH) from the instant proceeding with
10 the same attachment filed by Duke in its case-in-chief in Cause No. 45749. This analysis
11 identified that the primary reason for the large estimated cost increase is because Duke's
12 estimate for the ██████████ increased by ██████%, going from approximately \$ ██████
13 million to \$ ██████ million. In contrast, there were not significant changes in estimated
14 closure costs for the ██████████ and the ██████████
15 ██████████, with variances for both at plus or minus ~\$████ million relative to Cause No. 45749.

16 I reviewed Duke's workpapers supporting its cost estimates for ██████████ to
17 determine recent changes. A comparison of Duke's Project EMV [Expected Monetary
18 Value] Risk and Contingency Monthly Summary for July 28, 2023³⁹ and July 31, 2021⁴⁰
19 show several critical variables have changed in the past two years. Duke did not provide
20 any context or information for interpreting this analysis, but my understanding is that

³⁸ Compare Hill Direct Testimony, p. 21, in Cause No. 45749 to Hill Direct Testimony, p. 21, in Cause No. 45940.

³⁹ Confidential Workpaper 4-TSH.

⁴⁰ Cause No. 45749, Confidential Workpaper 8-TSH.

1 expected monetary value is a quantitative risk management technique that determines the
2 risk contingency (also called the expected monetary value, or “EMV”) amount by
3 multiplying the probability of an event by its cost impact. For example, an event that has a
4 10% probability of occurring and a \$1 million cost impact if it does occur would have a
5 risk contingency or EMV of \$100,000. EMV is included as a line item for each CCR
6 closure project, meaning these risks are part of the overall estimated costs requested by
7 Duke. As of July 31, 2021, there were █ risks identified by Duke with a risk contingency
8 above \$1 million for █ : █
9 █ However, two years later, there are now █ risk
10 factors⁴¹ that would result in a cost impact above \$1 million, of which █ risk factors
11 (shown in Confidential Table 3) have a risk contingency or EMV above \$1 million. The
12 cumulative risk EMV for all open risks for █ has increased from █
13 million in 2021 to \$█ million in 2023, a █% increase over the past two years.

Confidential Table 3. Gibson █ Risk Quantification



14 **Q. What issues does this raise?**

15 **A.** First, Duke has not provided any testimony explaining these changing risks and the
16 potentially significant cost impact to ratepayers associated with these risks. It is unclear
17 why these risks have become more probable, how the cost impact was estimated, how the

⁴¹ Confidential Workpaper 4-TSH only identifies the top █ risks.

1 probability was determined, and whether the closure plan for the [REDACTED] remains
2 reasonable given these risks and cost impacts.

3 Second, based on the information provided, a number of risks identified by Duke
4 do not appear to be a reasonable basis for inclusion in the cost impact of the Coal Ash
5 Compliance Project. For example, the largest risk in terms of cost impact is [REDACTED]
6 [REDACTED]. It is unclear why ratepayers should be on
7 the hook for Duke's [REDACTED], and why the potential cost impact
8 associated with this is so large. In addition, the next two largest risks are related to [REDACTED]
9 [REDACTED] (1) [REDACTED] and (2) [REDACTED]
10 [REDACTED] [REDACTED] [REDACTED] This further calls into question the prudence and
11 reasonableness of Duke's plan to use this risky closure method. Finally, [REDACTED]
12 [REDACTED] should not be included because it is the responsibility of Duke to efficiently
13 manage this project. Any [REDACTED] to any of Duke's closure plans that are related to
14 Duke's decision to voluntarily withdraw Cause No. 45749 and refile its petition through
15 the instant case should not be recovered from ratepayers.

16 **Q. What other factors are behind the extraordinary increase to the cost estimate of the**
17 **[REDACTED] closure?**

18 **A.** Based on my review of Duke's confidential workpapers and other filed information, I was
19 able to identify changes in estimated costs for broad cost categories, but it is not clear what
20 factors are at root of these changes, i.e., why these major changes have occurred since Duke
21 withdrew Cause No. 45749. [REDACTED]
22 [REDACTED]
23 [REDACTED]

1 [REDACTED]
2 [REDACTED].⁴² It is concerning that Duke has not provided detailed
3 information describing these major changes and explaining whether its project remains
4 prudent and reasonable given these changes.

5 **Q. What do you recommend?**

6 **A.** I recommend that the [REDACTED] closure and management costs be removed from this
7 proceeding because Duke has not provided testimony justifying the extraordinary increase
8 to its cost estimate or explained why this project remains prudent and reasonable in light
9 of the growing cost and risk.

⁴² See Workpaper BI-1, analyzing Current Period cost estimates in Confidential Workpaper 3-TSH (Cause No. 45940) and Confidential Workpaper 5-TSH (Cause No. 45749).

D. Edwardsport

1 **Q. Please describe the Coal Ash Compliance Project with respect to the Edwardsport**
 2 **Generating Station.**

3 **A.** At Edwardsport, Duke is proposing to merely excavate a portion of the coal ash at the site
 4 and consolidate it into one, unlined pile at the site, and to cover it up with some dirt and
 5 vegetation (Figure 4).⁴³

Figure 4: Map of Edwardsport Coal Ash Fill Area⁴⁴



6 **Q. Has the Edwardsport closure plan been approved by IDEM?**

7 **A.** No. The Edwardsport plan has not been approved by IDEM.

8 **Q. Is it reasonable for the Commission to approve cost recovery for a CCR closure plan**
 9 **that has not been approved by IDEM?**

⁴³ Hill Direct Testimony, pp. 17-18.

⁴⁴ Hill Direct Testimony, Attachment 2-A (TSH).

1 A. No. Closure plans that have not been approved by IDEM are still subject to significant
2 changes in the future that could materially alter the costs of completing the plan. In my
3 opinion, given this, the Edwardsport component of the Coal Ash Compliance Project is not
4 ripe for the Commission to make a determination. Even if the plan were to be approved in
5 the future during the pendency of this proceeding, parties would have been deprived the
6 opportunity to review and comment on IDEM’s determination in the context of the issues
7 in this case. Essentially, the Commission is being asked to approve cost recovery for a
8 project that is not yet certain to move forward and whose costs could materially change.

9 **Q. Do you have any other concerns with the Edwardsport closure plan?**

10 A. Yes. Of the 765,000 cubic yards of coal ash at the site identified by Duke, its closure plan
11 states that only 53,500 cubic yards will be removed from the West Historic Ash Placement
12 Area (“HAPA”) and placed in the Consolidated Ash Management Area (“CMA”), and
13 110,000 cubic yards of coal ash will be removed from the East HAPA and placed in the
14 CMA.⁴⁵ This means only 163,500 cubic yards total, or 21.4% of the coal ash on site, will
15 be removed from its current disposal area, leaving the vast majority of coal ash in place.
16 Furthermore, the modest quantity of coal ash that Duke proposes to remove will not be
17 properly disposed, as it would be consolidated into a pile that has no liner to protect
18 groundwater from coming into contact with the coal ash or prevent contamination from the
19 coal ash from migrating into groundwater.⁴⁶

20 The Edwardsport site is located directly adjacent to the White River, creating a
21 significant risk of future contamination. The eastern portion of the site is located within the

⁴⁵ Hill Direct Testimony, Attachment 2-J (TSH).

⁴⁶ Cause No. 45749, Duke Response to CAC Data Request 1.05(k)(iv) (included in Attachment BI-3).

1 floodplain and floodway of the West Fork of the White River.⁴⁷ Duke has proposed a flood
2 protection berm with a crest elevation that is 3 feet above the 100-year flood elevation.⁴⁸
3 A berm is an insufficient method to protect human health and environment, as it would not
4 provide long-term protection against significant changes in the course of the White River,
5 extreme weather events that could damage the berm, or the potential for flooding from the
6 sides.

7 Furthermore, portions of the site are above an abandoned coal mine, with the
8 closure plan stating that “all areas above the underground mine are at high risk for sag-type
9 subsidence,”⁴⁹ including the southwestern portion of the CMA.⁵⁰ This further exacerbates
10 the risks and challenges of the draft closure plan.

11 In addition, coal ash contamination at the site includes coal ash fill in areas that
12 currently have infrastructure that is pertinent to the operations of the Edwardsport IGCC
13 facility, and Duke Energy does not plan to close this area until plant decommissioning,⁵¹
14 which could be decades in the future. It is unreasonable to delay the full cleanup of this site
15 especially given the ash that has been accumulating there from the retired coal plant.

16 Finally, the Edwardsport closure plan is potentially implicated by EPA’s proposed
17 Legacy CCR Rule described above,⁵² because the ash management areas at the site likely
18 meet the definition of CCRMUs for which EPA is proposing to require corrective action
19 and closure pursuant to federal performance standards, among other protections. Duke’s

⁴⁷ Hill Direct Testimony, Attachment 2-J (TSH), p. 11 of 1119.

⁴⁸ Hill Direct Testimony, Attachment 2-J (TSH), p. 26 of 1119.

⁴⁹ Hill Direct Testimony, Attachment 2-J (TSH), p. 17 of 1119.

⁵⁰ Hill Direct Testimony, Attachment 2-J (TSH), p. 26 of 1119

⁵¹ Hill Direct Testimony, Attachment 2-J (TSH), p. 24 of 1119.

⁵² 88 Federal Register 31,982 (May 18, 2023).

1 proposed closure plan for Edwardsport plainly does not contemplate corrective actions at
2 the site to clean up contaminated groundwater, nor does it meet federal closure
3 performance standards. This only underscores the unreasonableness of Duke's request for
4 recovery of the Edwardsport closure plan under the Federal Mandate Statute, given the
5 potential that new federal regulations will be established in the near future that will render
6 Duke's plan expressly unlawful.

IV. COST ALLOCATION

1 **Q. What is Duke’s proposal for allocating the costs of its Coal Ash Compliance Project?**

2 **A.** Duke is proposing to allocate costs associated with its Coal Ash Compliance Project using
3 the four coincident peak demand (“4CP”) demand allocation method adopted for
4 production plant-related costs in its 2019 rate case.⁵³ Duke’s 4CP methodology is based on
5 the months of June, August, September, and January (i.e., three summer months and one
6 winter month).⁵⁴

7 **Q. Do you have any concerns with Duke’s proposed allocation of cost recovery among**
8 **ratepayers?**

9 **A.** Yes. CAC is extremely concerned about Duke’s proposed cost allocation for its Coal Ash
10 Compliance Project, in which costs would be allocated based on demand allocators despite
11 these clearly being energy-related costs that should be allocated using Duke’s energy
12 allocators.

13 **Q. Why is it more appropriate to use energy allocators than demand allocators when**
14 **allocating the costs of cleaning up coal ash ponds and landfills?**

15 **A.** Coal ash is produced from burning coal to generate electricity. In other words, coal ash is
16 generated as a function of energy generation: the more coal that is burned to generate
17 electricity, the more coal ash that is created, which in turn results in incremental coal ash
18 disposal costs. In contrast, the quantity of coal ash generated, and therefore the costs
19 associated with its disposal, is neither related to capacity nor for meeting Duke’s resource
20 adequacy obligations. The use of demand allocators is appropriate for costs that vary by

⁵³ Davey Direct Testimony, p. 13.

⁵⁴ Cause No. 45253, Petitioner’s Exhibit No. 7, p. 27.

1 demand, such as distribution system costs, and not the cleanup of coal ash that was created
2 as a function of burning coal to generate electricity.

3 To illustrate this concept in another way, consider the simple scenario of a utility
4 that has two customers, “Customer 1” and “Customer 2.” Customer 1 and 2 each purchase
5 exactly the same amount of electricity each year, and thus each have an energy allocator of
6 50% in this example. However, assume that Customer 2 uses relatively more electricity
7 during on-peak periods, resulting in a demand allocation of 75% for Customer 2 compared
8 to only 25% for Customer 1. Even though both Customer 1 and 2 use the same amount of
9 electricity and “cause” the same amount of coal ash costs to the utility, under a demand
10 allocator, Customer 2 would be assigned *three times* the amount of coal ash costs as
11 Customer 1, whereas the two customers would receive identical cost allocations if energy
12 allocators were used instead. As can be understood intuitively from this example, it is more
13 appropriate to allocate the coal ash costs in proportion to the amount of electricity used by
14 the rate class.

15 **Q. Are other energy-related costs allocated using energy allocators?**

16 **A.** Yes. For example, the purchase of coal to fuel a power plant are correctly based on energy
17 allocators, as the more coal that is burned, the more electricity that is generated. Likewise,
18 consumables such as those that are utilized as components to operating environmental
19 pollution control technologies are also typically allocated on the basis of energy, not
20 demand, because these costs are related to the amount of electricity generation, and not to
21 meet a utility’s capacity obligations. Finally, the cost of pollution allowances, such as NOx
22 allowances, that vary in relation to electricity generation and not to coincident peak demand

1 are allocated using energy allocators. *Coal ash cleanup costs should be allocated in the*
2 *same manner as these other energy-related costs.*

3 Arguments that attempt to connect coal ash costs to the fact that it is stored in ponds
4 or landfills at a production plant site, and therefore should be subject to the same cost
5 allocation as the production plant (coal plant facility) itself, are not compelling. The
6 principle of cost causation means costs are recognized as being caused by a service if the
7 costs are brought into existence as a direct result of providing the service or the costs are
8 avoided if the service is not provided. *Simply put, there is no rational basis for allocating*
9 *coal ash disposal costs—produced as a byproduct of electricity generation—using*
10 *demand allocators.*

11 The 4CP methodology is particularly egregious and inappropriate in this instance
12 because coal ash is generated in all months of the year in proportion to the amount of
13 electricity that is generated by the plant. The 4CP methodology, however, only considers
14 a customer class's contribution to the peak demand in four months when allocating costs
15 to customer classes. So in addition to allocating costs based on the wrong metric
16 (contribution to peak demand), the 4CP methodology completely ignores which customer
17 class "caused" coal ash costs in eight months in the year.

18 **Q. What is the impact to customer classes of using demand allocators instead of energy**
19 **allocators?**

20 **A.** As quantified below, the use of demand allocators instead of energy allocators would create
21 a large, undesirable cross-subsidy in rates primarily benefitting HLF industrial customers
22 and resulting in higher rates to certain other customer classes, including residential

1 customers who are already struggling to afford high bills. The 4CP methodology for this
2 proposal therefore produces unjust and unreasonable rates.

3 **Q. Please describe how you calculated the customer class impacts of using demand**
4 **allocators compared to using energy allocators.**

5 **A.** To calculate the impact to customer classes of allocating Coal Ash Compliance Project
6 costs based on Duke's proposed cost allocation (demand allocators) compared to CAC's
7 proposed cost allocation (energy allocators), I used Duke's estimated total revenue
8 requirement of the Coal Ash Compliance Project costs for 2025-2030 (\$224,682,086) and
9 allocated these costs to each customer class based on the demand and energy allocators,
10 respectively, provided by Duke.⁵⁵ I note that my results based on these figures are
11 estimates, as the final Ash Pond Compliance Project costs incurred could vary from the
12 initial estimate provided by Duke.

13 **Q. What are the results of your analysis?**

14 **A.** Figure 5 presents the results of my analysis, with detailed information on the cost allocator
15 and associated revenue requirement presented in Table 4. *Under Duke's proposal to use*
16 *demand allocators, HLF customers would receive a windfall cross-subsidy of*
17 *approximately \$17.3 million in reduced revenue requirements over 2025-2030.*

18 Residential customers (rate class RS) would have a revenue requirement that is \$18.6
19 million higher under demand allocators relative to CAC's proposal to allocate costs to
20 customer classes in proportion to their electricity usage. To state the results in another way,
21 Duke's cost proposal would unfairly allocate an estimated \$94.6 million (42.1%) of the

⁵⁵ Cause No. 45749, Duke Response to CAC Data Request 1-06(f)(i) and (ii) (included in Attachment BI-3).

1 estimated total \$224.7 million in costs to residential customers, when these customers
 2 should only be allocated approximately \$76.0 million (33.8%) of the estimated costs based
 3 on the proportion of electricity used by the residential customer class (and, by extension,
 4 the proportion of coal ash costs “caused” by the residential class to serve those customers).

**Figure 5: Cost Allocation of Coal Ash Compliance Project
 Estimated Revenue Requirement, 2025-2030⁵⁶**

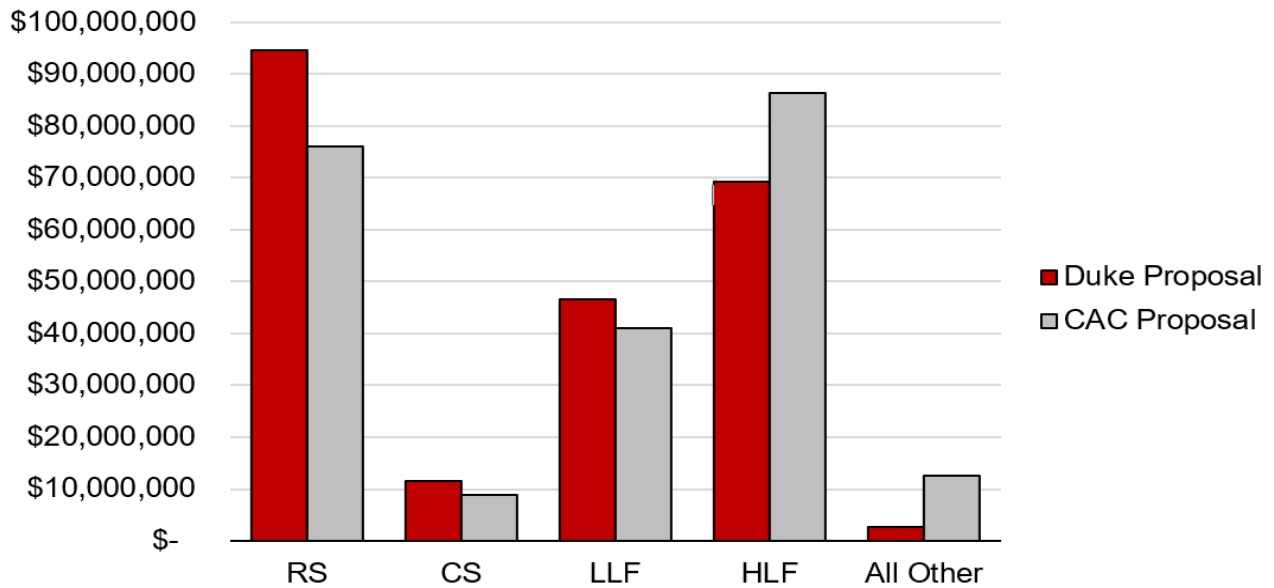


Table 4: Cost Allocation of Coal Ash Compliance Project Estimated Revenue Requirement, 2025-2030

Rate Class	Duke Energy Indiana Proposal		CAC Proposal		Difference
	Demand Allocator	Revenue Requirement	Energy Allocator	Revenue Requirement	
RS	42.13%	\$ 94,658,563	33.84%	\$ 76,032,418	\$ (18,626,145)
CS	5.17%	\$ 11,616,063	3.91%	\$ 8,780,576	\$ (2,835,487)
LLF	20.72%	\$ 46,554,129	18.24%	\$ 40,975,272	\$ (5,578,857)
HLF	30.77%	\$ 69,134,677	38.45%	\$ 86,394,756	\$ 17,260,079
All Other	1.21%	\$ 2,718,654	5.56%	\$ 12,499,064	\$ 9,780,410
Total	100.00%	\$ 224,682,086	100.00%	\$ 224,682,086	\$ -

⁵⁶ Duke Energy Indiana, Attachment 3-A (BPD).

1 As I discuss further below, the Coal Ash Compliance Project costs are not the only
2 coal ash cleanup costs Duke plans to pass on to its customers. If Duke allocates the costs
3 from these future anticipated projects in the same manner as it proposes to allocate costs
4 for its Coal Ash Compliance Project, then the negative impact of its 4CP demand allocator
5 to residential customers and other customers classes relative to HLF customers will be
6 further magnified.

7 **Q. How does Duke plan for resource adequacy?**

8 **A.** Duke Energy Indiana is a load-serving entity (“LSE”) member of the Midcontinent
9 Independent System Operator (“MISO”) and must therefore demonstrate compliance with
10 its Planning Reserve Margin Requirement. Historically, these requirements have been
11 based on meeting the system-wide peak that occurred during the summer. Arguably, there
12 previously was some basis for utilizing the 4CP methodology based primarily on demand
13 in summer months for determining demand allocators. For example, in the Commission’s
14 order approving the 4CP cost allocation methodology in Duke’s 2019 rate case, it noted
15 that:

16 At the time DEI received an order in its last rate case, MISO [Midcontinent
17 Independent System Operator] had only recently been formed and approved
18 by FERC [Federal Energy Regulatory Commission] as an RTO [Regional
19 Transmission Operator]. Currently, MISO establishes capacity
20 requirements for its member utilities based on peak demand and reserve
21 criteria. Consequently, DEI’s capacity needs are now determined by its
22 contribution to the MISO system’s peak, which occurs consistently in the
23 summer period.⁵⁷

24 In 2021, however, MISO proposed significant changes to its resource adequacy
25 construct. MISO stated that generation resource retirements, increased reliance on

⁵⁷ Order, p. 119.

1 intermittent resources, significant weather events with correlated generator outages, and
2 declining excess reserve margins will profoundly impact future grid reliability, and that *all*
3 *industry participants have a shared responsibility to plan for these impacts and*
4 *implement new policies and practices to ensure the continued reliability of the grid,”*
5 (emphasis added).⁵⁸ MISO stated that its current resource adequacy construct, which
6 focuses on the procurement of capacity for an entire 12-month Planning Year to meet
7 demand during one peak day of the Summer Season, was not designed to address the trends
8 currently facing the MISO Region. MISO explained that reliability risks associated with
9 resource adequacy have shifted from “Summer only” to a year-round concern.
10 Accordingly, in August 2022, FERC approved MISO’s proposal to replace its single annual
11 resource adequacy requirement based on meeting summer peak demand with four seasonal
12 resource adequacy requirements.⁵⁹

13 In other words, as a result of this significant change in how capacity requirements
14 are determined, LSEs like Duke are no longer planning for capacity resources to meet just
15 the summer system peak demand, or just the summer and winter peaks, as implied by
16 Duke’s 4CP methodology. MISO utilities including Duke now must plan to have sufficient
17 resources in all four seasons, seriously calling into question the relevance of the 4CP
18 methodology for allocating production plant under current conditions. Indeed, Duke has

⁵⁸ Order Accepting Proposed Tariff Revisions Subject to Revision re Midcontinent Independent System Operator, Inc. under ER22-495, FERC Docket No. ER22-495, August 31, 2022.

⁵⁹ Order Accepting Proposed Tariff Revisions Subject to Revision re Midcontinent Independent System Operator, Inc. under ER22-495, pp. 3-5.

1 already incorporated the MISO seasonal accreditation and construct into its refreshed IRP
2 modeling that it plans to use to justify resource planning decisions going forward.⁶⁰

3 **Q. Shouldn't this issue be addressed in Duke's next rate case instead of this proceeding?**

4 **A.** Duke went approximately 17 years – from 2002⁶¹ to 2019 – in between its last base rate
5 case filings, hardly setting a precedent for rate cases being a regular forum where such
6 issues could be addressed in a timely manner. Currently, Duke does not have to file a new
7 rate case until 2028.⁶² Using a known fatally flawed cost allocation methodology for years
8 – forcing residential customers to subsidize industrial and other classes – as we wait for
9 Duke to file its next rate case and the Commission to adjudicate the issue would not produce
10 just and reasonable rates for customers for the Coal Ash Compliance Project.

11 **Q. What do you recommend?**

12 **A.** I recommend that, to the extent the Commission grants cost recovery for all or a portion of
13 the requested Coal Ash Compliance Project, these costs be allocated using Duke's energy
14 allocator. The Commission should reject the use of the 4CP methodology for allocating
15 costs of the Coal Ash Compliance Project.

⁶⁰ Duke Energy Indiana 2022 CPCN Information Sharing Session 2, December 1, 2022, available at <https://www.duke-energy.com/-/media/pdfs/for-your-home/dei-irp-2021/dei-info-session-miso-changes.pdf?rev=dd2e99d2468b46068a09b6ed64651ea5>.

⁶¹ Cause No. 42359.

⁶² Duke Supplemental Response 10-3-2022 to CAC Data Request 1.06(c)(iii) (included in Attachment BI-3).

V. REVENUE REQUIREMENTS

1 **Q. What is the overall annual revenue requirement requested by Duke for its Coal Ash**
2 **Compliance Project?**

3 **A.** Duke is estimating that the annual revenue requirement for the Coal Ash Compliance
4 Project will total \$45.0 million in 2025, with an overall revenue requirement for the years
5 2025-2030 totaling \$224.6 million.⁶³ Duke proposes to amortize Coal Ash Compliance
6 Project costs through 2035.⁶⁴

7 **Q. Do you have concerns about the affordability and environmental sustainability of**
8 **Duke's request?**

9 **A.** Yes. Like other utilities in Indiana, the cost of electric service has increased significantly
10 for Duke customers. Duke's Coal Ash Compliance Project is not only extraordinarily
11 expensive – and the costs have increased substantially since Duke withdrew Cause No.
12 45749 earlier this year – but it also fails to adequately clean up Duke's toxic coal messes,
13 meaning they are not environmentally sustainable and create large risks to ratepayers of
14 future, additional compliance costs.

15 The Indiana General Assembly has consistently recognized the importance of
16 affordability in utility rates. In 2016, the General Assembly enacted I.C. § 8-1-2-0.5, which
17 provides:

18 that it is the continuing policy of the state...to *use all practicable means*
19 *and measures*, including financial and technical assistance, in a manner
20 calculated to create and maintain conditions under which utilities plan for
21 and invest in infrastructure necessary for operation and maintenance while
22 *protecting the affordability of utility services for present and future*
23 *generations of Indiana citizens.*

⁶³ Duke Energy Indiana, Attachment 3-A (BPD).

⁶⁴ Davey Direct Testimony, p. 15.

1 (Emphasis added). Most recently, the General Assembly enacted I.C. § 8-1-2-0.6, requiring
2 that decisions concerning Indiana’s electric generation resource mix, energy infrastructure,
3 and electric service ratemaking constructs must consider certain attributes, referred to as
4 the “Five Pillars of Electric Utility Service.” One of the Pillars is affordability, “including
5 ratemaking constructs that result in retail electric utility service that is affordable and
6 competitive across residential, commercial, and industrial customer classes.”

7 In addition, another Pillar is “environmental sustainability,” which includes “the
8 impact of environmental regulations on the cost of providing electric utility service.” It is
9 imperative that the Commission keep these Pillars in mind in reviewing Duke’s requests
10 here.

11 **Q. What is the residential bill impact?**

12 **A.** That is unclear. Duke did not present such information in its case-in-chief. Duke only
13 provided a comparison between the revenue requirement allocated to each customer class
14 and each customer class’s 2022 bill revenues, using that information to estimate an increase
15 for total revenue requirement. This is one of Duke’s several critical omissions.

16 **Q. What other information do you believe was omitted that Duke should have provided?**

17 **A.** Duke did not provide a forecast of estimated revenue requirements for years after 2030.
18 Therefore, it is not possible to estimate what the total cost of the Coal Ash Compliance
19 Project actually is for which ratepayers would be on the hook, and what the bill impact
20 would be for residential customers now and decades into the future. *The Coal Ash
21 Compliance Project will result in costs for decades, if not in perpetuity, for Duke’s
22 captive customers, likely requiring more expensive clean-up in the future to address the
23 coal ash problems it is quite literally trying to cover up today.*

1 Duke has proposed to amortize all Coal Ash Compliance Project costs through
2 2035. Yet, the Coal Ash Compliance Project covers both management and closure costs
3 for the 2019-2030 period. If costs are being amortized through 2035, it would make more
4 sense to include all coal ash compliance costs through 2035. Failing to do so can create an
5 intergenerational equity issue. For example, in 2031, customers will presumably be
6 expected to pay for any 2031 coal ash management costs associated with the Coal Ash
7 Compliance Project, as well as a portion of the unamortized Coal Ash Compliance Project
8 costs (including coal ash management costs) incurred in 2019-2030. These issues call into
9 question whether the Commission can make a decision approving Duke's plans that will
10 impact ratepayers for decades to come based only on a presentation of the impacts for an
11 initial six-year period, when the course of action selected by Duke will directly impact
12 costs to ratepayers and intergenerational equity for decades to come.

13 It should be noted that the Coal Ash Compliance Project is only a fraction of the
14 anticipated coal ash compliance projects and costs Duke plans to incur. The Commission
15 has previously approved other Duke coal ash closure-related projects. In addition, there are
16 future closure projects not covered in this proceeding, including 30 years post closure
17 maintenance.

18 **Q. Is Duke requesting to earn a return on its Coal Ash Compliance Project?**

19 **A.** Yes, Duke is requesting a return on closure costs and accrued financing that totals \$57.3
20 million out of \$224.7 million total revenue requirement over the 2025-2030 period. *In*
21 *other words, more than 25.5% of the total amount Duke estimates it would recover from*
22 *ratepayers between 2025-2030 is for the purpose of providing a return "on" investment*
23 *to shareholders*. Duke would not only be recovering actual costs of coal ash closure and

1 management, but would also be earning a massive profit on its Coal Ash Compliance
2 Project, with these costs comprising a substantial portion of Duke’s total revenue
3 requirement for 2025-2030.

4 **Q. Is it reasonable for Duke to charge ratepayers higher rates specifically so that it can**
5 **earn a profit on its Coal Ash Compliance Project?**

6 **A.** No. Coal ash closure and management costs that are prudently incurred to protect public
7 health and the environment pursuant to environmental regulations are more appropriately
8 treated as operations and management (“O&M”) costs—allowing a return “of” but not a
9 return “on” costs—for the purposes of ratemaking. Given the growing affordability
10 challenges faced by Hoosiers, it is necessary and appropriate for the Commission to take
11 action to mitigate the rate increase associated with the Coal Ash Compliance Project.
12 Eliminating or significantly reducing the return “on” investment is one way to do so.

13 **Q. What do you recommend with respect to Duke’s ability to earn a profit on the Coal**
14 **Ash Compliance Project?**

15 **A.** I recommend that the Commission disallow Duke’s ability to earn a return “on” Coal Ash
16 Compliance Project costs.

17 **Q. Should ratepayers be responsible for all of the costs associated with cleaning up**
18 **Duke’s coal ash?**

19 **A.** In my opinion, *Duke shareholders should bear at least some of the financial burden of*
20 *addressing the utility’s toxic coal ash that it has failed to dispose of safely and properly*
21 *in a manner that protects human health and the environment.* As a result of the utility’s
22 failure to operate in a safe and reliable manner, it now must undertake costly clean-up and
23 remediation actions to address the harms of its imprudent plant operations.

1 CAC urges the Commission to ensure all coal ash is cleaned up the right way and
2 to leverage every tool at their disposal to mitigate the bill impacts to ratepayers, many of
3 whom are already under enormous financial strain both due to rising energy bills and
4 inflationary pressures that have resulted in significant price increases for many consumer
5 goods and services.

6 **Q. Do the costs that Duke is seeking to recover in this proceeding include any dues for**
7 **membership in lobbying or advocacy organizations?**

8 **A.** I believe so. In Cause No. 45749, Duke acknowledged in response to CAC’s discovery that
9 the Company was seeking \$16,651.31 to cover the cost of membership in the Utility Solid
10 Waste Activities Group (“USWAG”).⁶⁵ USWAG is a membership organization that
11 lobbies and advocates for the interests of utility shareholders for less stringent and less
12 costly EPA regulations of coal ash and other solid wastes, primarily by hiring attorneys to
13 advocate before EPA and litigate legal challenges to EPA rules. USWAG also provides
14 information to utilities on less costly (which typically means, less protective of human
15 health and the environment) ways to comply with EPA regulations.

16 **Q. Does Duke’s membership in USWAG benefit Duke’s ratepayers?**

17 **A.** No. USWAG engages in legislative lobbying, advocates for regulatory policy changes,
18 and provides utilities with “strategic advice” on how to take advantage of regulatory
19 loopholes that do not align with ratepayers’ interests. First and foremost, any legislative
20 lobbying engaged in by USWAG is not an appropriate expenditure of ratepayer funds.
21 Second, even for USWAG’s regulatory advocacy that does not constitute lobbying,
22 USWAG is still seeking regulatory changes and interpretations that would be good for

⁶⁵ Cause No. 45749, Duke Response to CAC Data Request 2.06 (included in Attachment BI-3).

1 short-term utility bottom lines (and thus, beneficial to utility shareholders) without
2 necessarily benefitting the long-term interests of ratepayers in cost-effective compliance
3 strategies that are protective of human health and the environment and minimize costs and
4 risks over the long term.

5 **Q. Did Duke provide any evidence in its case-in-chief that its payment of USWAG**
6 **membership dues serves the public convenience and necessity and is in the best**
7 **interest of Duke's ratepayers?**

8 **A.** No. Presuming that these costs are still included in Duke's request, Duke did not provide
9 any evidence of this in its case-in-chief. Duke did not discuss in its case-in-chief any
10 supposed benefits of USWAG membership dues, let alone explain why these costs should
11 be approved by the Commission in this proceeding. To the extent these costs continue to
12 be part of Duke's Coal Ash Compliance Project, Duke has not carried its burden of proof
13 to demonstrate that its payments to a legislative lobbying and regulatory advocacy
14 organization are appropriate and serve the public convenience and necessity. It is unclear
15 if there are membership dues to other organizations engaged in legislative lobbying or
16 regulatory advocacy that are included in Duke's cost recovery request.

17 **Q. Do you have a recommendation concerning Duke's request for recovery of its**
18 **USWAG membership dues?**

19 **A.** Yes, I recommend that the Commission deny Duke cost recovery of USWAG membership
20 dues, because Duke has not demonstrated that its payment of these dues serves the public
21 convenience and necessity. To the extent there are any other membership dues included in
22 Duke's request to other similar organizations, the Commission should also deny cost
23 recovery for those as well.

VI. ACCOUNTING DEFERRAL AND ALTERNATIVE RELIEF

1 **Q. Has Duke requested the ability to defer costs that exceed its estimate?**

2 **A.** Yes. Duke has requested authority to defer with financing costs Coal Ash Compliance
3 Project costs that exceed 25% of its estimated costs.⁶⁶

4 **Q. What concerns do you have regarding this request?**

5 **A.** As Duke notes:

6 In order for the Company to defer the requested future expenses as a
7 regulatory asset, it must be probable that such costs will be recovered
8 through rates in future periods. To satisfy the probability standard, the
9 Commission's Order in this proceeding should specifically approve the
10 accounting and ratemaking treatment proposed by Duke Energy Indiana.

11 Yet, there is no basis for the Commission to determine here that it is probable that massive
12 cost overruns in the future should be recovered by ratepayers. Indeed, the Indiana Code §
13 8-1-8 8.4-7(c)(3) provides that:

14 Actual costs that exceed the projected federally mandated costs of the
15 approved compliance project by more than twenty-five percent (25%) shall
16 require specific justification by the energy utility and specific approval by
17 the commission before being authorized in the next general rate case filed
18 by the energy utility with the commission.

19 Accordingly, this request is premature. Duke should have to demonstrate specific
20 justification for such a large cost overrun prior to the Commission granting approval of a
21 deferral. Absent specific justification, such a large cost overrun should be presumed to be
22 unreasonable to recover from ratepayers.

23 **Q. What alternative relief has Duke requested?**

24 **A.** To the extent its costs are found ineligible under Ind. Code ch. 8-1-8.4, Duke requests the
25 Commission approve the expenditures for the Coal Ash Compliance Project as an

⁶⁶ Davey Direct Testimony, p. 7.

1 improvement to Duke Energy’s plant and equipment pursuant to Ind. Code Section 8-1-2-
2 23.

3 **Q. What are your concerns with this request?**

4 **A.** If the Commission determines that the Coal Ash Compliance Project are not federally
5 mandated costs, it is unclear why Duke should be given permission to proceed with the
6 project, particularly given the serious concerns identified above with many components of
7 the proposal that fail to adequately protect human health and the environment, are
8 inconsistent with the current CCR Rule and / or proposed Legacy CCR Rule, and create
9 large risks of significant corrective action costs borne by ratepayers. Furthermore, I
10 disagree that Duke’s CCR management costs, which are ongoing operating expenses,
11 should be treated as an improvement to Duke’s plant and equipment, which could allow
12 Duke to inappropriately earn a return “of” and “on” such expenses. Operating expenses are
13 not an improvement to plant or equipment. Finally, a rate case would be a more appropriate
14 regulatory venue to address improvements to plant and equipment. To the extent Duke’s
15 revenues under current rates are insufficient, it should file a rate case where these issues
16 can be comprehensively considered.

17 **Q. What do you recommend?**

18 **A.** I recommend that the Commission deny Duke’s request to defer large cost overruns. I also
19 recommend that the Commission deny Duke’s alternative requested relief.

VII. RETROACTIVE RATEMAKING

1 **Q. What is Indiana’s statutory prohibition against retroactive ratemaking?**

2 **A.** Ind. Code § 8-1-2-68 provides that, “Whenever ... the commission shall find any rates ... to
3 be unjust, unreasonable, [or] insufficient ..., the commission shall determine and by order
4 fix just and reasonable rates ... to be imposed, observed, and followed **in the future**”
5 (emphasis added).

6 Likewise, other applicable statutes pertaining to utility ratemaking, such as the
7 Federal Mandates Statute at issue in the instant proceeding, used future-tense phrasing prior
8 to the enactment of Senate Enrolled Act (“SEA”) 9 in 2023, the plain language of which
9 suggested that cost recovery under that statute pertained to future costs incurred by the
10 utility and that retroactive ratemaking is not allowed.

11 **Q. Please identify which provisions of the Federal Mandates Statute included future
12 tense phrasing prior to SEA 9.**

13 **A.** Indiana Code Sections 8-1-8.4-6(a), 6(b), 6(b)(1), 7(b)(1), and 7(b)(2) all use future-tense
14 phrasing. For instance, I.C. § 8-1-8.4-6(a) provides that:

15 Except as provided in subsection (c), or unless an energy utility has elected
16 to file for: (1) a certificate of public convenience and necessity; or (2) the
17 recovery of costs; under another statute, an energy utility that seeks to
18 recover federally mandated costs under section 7(c) of this chapter must
19 obtain from the commission a certificate that states that public convenience
20 and necessity **will be served** by a compliance project proposed by the
21 energy utility.

22 (Emphasis added.) Although I am not an attorney, the plain language of the future-tense
23 usage indicates to me that the federally mandated projects are to provide future benefits.

24 In addition, I.C. § 8-1-8.4-6(b) says, in pertinent part, that, “The commission shall
25 issue a certificate of public convenience and necessity under section 7(b) of this chapter if

1 the commission finds that the proposed compliance project **will allow** the energy utility to
2 comply directly or indirectly with one (1) or more federally mandated requirements,”
3 (emphasis added). The statute does not say “has allowed.”

4 Finally, I.C. § 8-1-8.4-6(b)(1)(B) requires that the Commission examine “[a]
5 description of the **projected** federally mandated costs associated with the proposed
6 compliance project, including costs that are allocated to the energy utility...” (emphasis
7 added). Projected costs are the estimated or forecasted costs in the future. In contrast, past
8 costs incurred would be known, actual amounts that would not need to be “projected.”

9 **Q. Prior to SEA 9, was there any language in the Federal Mandates Statute that**
10 **authorized a utility to recover past costs incurred that were not previously approved**
11 **by the Commission?**

12 **A.** No.

13 **Q. Please summarize the Supreme Court of Indiana’s recent decision on retroactive**
14 **ratemaking.**

15 **A.** In a recent case, the Indiana Supreme Court issued an opinion addressing Duke Energy
16 Indiana’s coal ash cost recovery.⁶⁷ In its 2019 rate case, Duke Energy Indiana requested
17 cost recovery for \$212 million for coal ash closure, remediation, and financing costs that it
18 had incurred during the 2010-2018 period and expected to incur during 2019 and 2020.
19 The Court held that the Commission’s order that granted Duke Energy Indiana permission
20 to recover past costs violated the statutory prohibition against retroactive ratemaking. The

⁶⁷ *Indiana Office of Utility Consumer Counselor v. Duke Energy Indiana, LLC, et al.*, 183 N.E.3d 266 (2022).

1 Court's order pertained only to coal ash costs incurred prior to the Commission's June 2020
2 order.

3 **Q. Did the Indiana Supreme Court interpret the Federal Mandates Statute?**

4 **A.** While the Court did not interpret the Federal Mandates Statute in the case, it did expressly
5 suggest that the Federal Mandates Statute's use of future tense also likely implied that it
6 barred retroactive ratemaking:

7 For instance, had Duke properly sought recourse under Indiana's federal
8 mandate statute, I.C. ch. 8-1-8.4, the result may have been different, at least
9 for the costs Duke incurred to comply with the EPA's 2015 rulemaking.
10 This statute permits utilities to recover costs incurred due to changes in
11 federal regulations. Although we have not yet interpreted the statute, we
12 note it is framed in the future tense and speaks of "projected" costs for
13 "proposed" projects, see id. §§ 8-1-8.4-6(a), 6(b), 6(b)(1), 7(b)(1), 7(b)(2),
14 which would seem to require commission approval **before** a utility incurs
15 the cost. [emphasis original]

16 **Q. What provisions were included in SEA 9 (2023)?**

17 **A.** SEA 9 modified several provisions in the Federal Mandates Statute. Among them, it
18 modified future tense phrasing and allows a utility to recover certain costs incurred prior
19 to a Commission order if the Commission finds the costs are just and reasonable.

20 **Q. Did Duke file this case "within a reasonable time with respect to...any federally
21 mandated compliance date" as required under SEA 9 (IC 8-1-8.4-7(b)(2))?**

22 **A.** No. Duke has consistently failed to act within a reasonable time, including failing to file
23 this case within a reasonable time of the federal mandate compliance date.

24 By the early 1980s, if not well before, utilities were aware, or should have been
25 aware, of the harmful impacts of coal ash on human health and the environment, including
26 the potential for coal ash when in contact with water to leach toxic chemicals into
27 groundwater. Large toxic spills of coal ash occurred in Kingston, Tennessee in 2008, and

1 into the Dan River, North Carolina in 2014, demonstrating the enormous risk posed by
2 legacy coal ash was real and substantial, and further putting utilities on notice that existing
3 methods of storing coal ash were not adequately protective. The federal CCR Rules were
4 promulgated more than *eight years ago* in 2015. While Duke has acted far too slowly to
5 clean up these messes, it has already incurred significant costs in 2019-2023 on some
6 components of the Coal Ash Compliance Project.

7 Yet, Duke created further regulatory delay by withdrawing Cause No. 45749 and
8 waiting months to refile this case. The motivation of Duke's withdrawal is clear: it did not
9 wish to abide by an Indiana Supreme Court opinion upholding decades of precedent on
10 utility cost recovery, so it, acting through its trade association Indiana Energy Association,
11 lobbied the General Assembly to change the law. Duke then withdrew Cause No. 45749
12 because it preferred the new law to the prior law and saw risks that it would not be
13 successful in its large cost recovery request under the prior law. Duke's perceived litigation
14 risks are a result of its own failures, and consumer parties that took a position to uphold the
15 rule of law cannot be at fault for Duke's actions that have delayed adjudicating this matter
16 and wasted considerable Commission and intervenor time and resources.

17 **Q. Does Senate Enrolled Act 9 contain a provision on retroactivity?**

18 **A.** No. I have reviewed the text of SEA 9, and I do not see in the plain language any provision
19 that states that the law is retroactive or should apply prior to its effective date. SEA 9 states
20 that it is effective upon passage, which is March 22, 2023.

21 **Q. What is the significance of a lack of retroactivity provision in SEA 9?**

22 **A.** The General Assembly is extremely well versed in retroactivity provisions and is
23 intentional in what bills include and exclude such provisions. *When the General Assembly*

1 *chooses to exclude a retroactivity provision in enacted legislation, my understanding is*
2 *that the new law will typically only be applied prospectively.* In other words, retroactivity
3 provisions are necessary to ensure a bill is applied retroactively, of which SEA 9 has none.

4 **Q. What are the implications of the effective date of SEA 9 on this proceeding?**

5 **A.** Duke continues to be bound by the prior version of the statute for all costs incurred prior
6 to March 22, 2023. Duke never received approval for this spending, and under the prior
7 version of the statute and the statutory interpretation of the Indiana Supreme Court
8 regarding retroactive ratemaking that applies to this period, Duke is precluded from cost
9 recovery for all costs incurred related to the Coal Ash Compliance Project that have not
10 otherwise been previously expressly authorized by the Commission.

11 **Q. Did SEA 9 require that the Commission approve all federally mandated project costs**
12 **incurred before the utility submits an application to the Commission requesting**
13 **approval of the compliance costs?**

14 **A.** No. IC Section 8-1-8.4-4, as amended by SEA 9, provides for Commission approval of
15 federally mandated costs related to a compliance project and incurred by a utility before
16 the date of its application or a Commission order only “if the commission finds the costs
17 are just and reasonable.”

18 **Q. Were costs incurred by Duke prior to filing the instant petition “just and**
19 **reasonable”?**

20 **A.** No. Duke’s costs related to Cause No. 45749, which it voluntarily requested be dismissed
21 by the Commission without prejudice, are not just and reasonable costs to include in rates.
22 Duke’s decision to withdraw the case wasted a significant amount of time and resources,
23 including those of the Commission and intervenors in that Cause. It should not be allowed

1 to earn recovery of its costs for both Cause No. 45749 and this proceeding (Cause No.
2 45940), as these are duplicative cases that would essentially amount to double recovery.

3 Furthermore, given that Duke has now had more than eight years since the final
4 promulgation of the federal CCR Rule, Duke has unreasonably delayed this cost recovery
5 request. These delays can result in mounting financing costs for ratepayers.

6 **Q. What do you recommend?**

7 **A.** I recommend that the Commission deny cost recovery for:

- 8 • All costs incurred prior to March 22, 2023 related to the Coal Ash Compliance
9 Project to avoid contravening Indiana’s statutory prohibition on retroactive
10 ratemaking, as SEA 9 was not effective prior to this date.
- 11 • All expenses related to the filing of Cause No. 45749, as Duke voluntarily had the
12 case dismissed after it had been fully briefed.
- 13 • All costs incurred prior to a final order in this proceeding, as Duke has unreasonably
14 delayed filing this petition, and including these costs in rates would not be just and
15 reasonable.

VIII. CONCLUSION

1 **Q. What are your recommendations?**

2 **A.** I recommend that the Commission:

- 3 • Deny cost recovery through the FMCA for Coal Ash Compliance Project costs that
4 are either not required by a federal mandate or not compliant with all provisions of
5 the relevant federal mandate.
- 6 • Deny cost recovery for any component of the Coal Ash Compliance Project that is
7 inconsistent with the EPA’s proposed Legacy CCR Rule.
- 8 • Deny cost recovery on Coal Ash Compliance Project costs associated with coal ash
9 closure plans that have not been approved by IDEM, as they are not yet ripe for
10 consideration at this time.
- 11 • Remove the [REDACTED] closure and management costs from this proceeding
12 because Duke has not provided testimony justifying the extraordinary increase to
13 its cost estimate or explained why this project remains prudent and reasonable in
14 light of the growing cost and risk.
- 15 • Deny Duke’s request to earn a return on Coal Ash Compliance Project costs,
16 especially given that it makes up over 25% of the proposed cost recovery from
17 ratepayers between 2025-2030.
- 18 • Disallow cost recovery on any Coal Ash Compliance Project costs that were
19 incurred prior to March 22, 2023 to avoid contravening Indiana’s statutory
20 prohibition on retroactive ratemaking, as SEA 9 was not effective prior to this date.

- 1 • Disallow cost recovery for all expenses related to the filing of Cause No. 45749, as
2 Duke voluntarily had the case dismissed and is incurring duplicative costs in this
3 proceeding.
- 4 • Disallow all costs incurred prior to a final order in this proceeding, as Duke has
5 unreasonably delayed filing this petition, and including these costs in rates would
6 not be just and reasonable.
- 7 • Reject the use of demand allocators and direct Duke to allocate any Coal Ash
8 Compliance Project costs approved in this proceeding using energy allocators.
- 9 • Allocate some of the financial burden of the Coal Ash Compliance Project to
10 Duke's shareholders.
- 11 • Deny Duke's request for cost recovery of USWAG membership dues (and any
12 other membership dues embedded in this case).
- 13 • Deny Duke's request to defer large (25% or greater) cost overruns.
- 14 • Deny Duke's alternative requested relief.

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

16 **A.** Yes.

VERIFICATION

I, Ben Inskeep, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Ben Inskeep
Ben Inskeep

November 30, 2023

ATTACHMENT BI-1

Benjamin Inskeep

EDUCATION

O'Neill School of Public and Environmental Affairs (SPEA), Indiana University, Bloomington, Indiana

Three semesters of Ph.D. coursework, 2012-2013, Public Affairs (Environmental Policy & Policy Analysis)

Master of Public Affairs (Concentration: Environmental Policy), 2012, *Top GPA Award*

Master of Science in Environmental Science, 2012, *Top GPA Award*

University of Oxford, Summer 2012, "IU at Oxford" program on climate change and environmental regulation

Indiana University, Bloomington, Indiana

B.S., Psychology, 2009, with *Highest Distinction*, Honors Notation, and Phi Beta Kappa honors

Certificate, Liberal Arts and Management Program

EXPERIENCE

Program Director, March 2022 – *Present*

Citizens Action Coalition (CAC), Indianapolis, Indiana

- Testify before the Indiana Utility Regulatory Commission, the General Assembly, and other policy forums on utility and energy matters as a subject matter expert.
- Conduct research and analysis on energy and utility issues to support CAC programs and priorities.
- Raise awareness and public education of CAC priority issues through social media engagement, presenting at events, responding to inquiries, authoring letters to the editor of local media, and creating website content.

Principal Energy Policy Analyst, March 2020 – March 2022

Senior Energy Policy Analyst, January 2019 – February 2020

Energy Policy Analyst / Independent Contractor, March 2016 – December 2018

EQ Research, Cary, North Carolina and Indianapolis, Indiana

- Led customized research projects, including reports, memos, and analyses, on clean energy policy issues and presented results to stakeholders and clients.
- Managed regulatory and compliance consulting services for Community Choice Aggregation (CCA) programs in California, including regulatory monitoring, research and analysis, and compliance reporting for six CCAs.
- Authored or significantly contributed to compiling key regulatory and compliance filings on behalf of clients (e.g., regulatory comments, expert witness testimony, compliance reports).
- Coordinated EQ Research's services tracking U.S. electric utility rate cases, which included reviewing and analyzing hundreds of electric utility rate cases and managing a client-facing subscription database.
- Researched, tracked, and summarized regulatory and legislative energy policy developments in California and Midwest states for EQ Research's policy tracking services.

Researcher, August 2017 – January 2018

Earth Island Institute, Indianapolis, Indiana

- Wrote and edited more than 100 wiki pages on existing and planned coal plants, LNG terminals and oil and gas pipelines for a clearinghouse resource that provides information on the global impacts of fossil fuel infrastructure.

Policy Analyst, June 2014 – March 2016

North Carolina Clean Energy Technology Center, N.C. State University, Raleigh, North Carolina

- Co-created and served as lead author and editor of five editions of [The 50 States of Solar](#) report.
- Tracked and updated summaries of more than 500 utility, local, state, and federal policies and incentives for the Database of State Incentives for Renewables and Efficiency (DSIRE).

- Led solar workshops and provided technical assistance on solar policy to local governments under a grant award under the U.S. Department of Energy's SunShot Initiative.

Research Assistant and Ph.D. Student, August 2012 – December 2013

SPEA, Indiana University, Bloomington, Indiana

- Researched people's judgments and decisions about energy and water use and conservation and how to motivate individual action on resource conservation and efficiency with Dr. Shahzeen Attari.

Climate Corps Fellow, June 2012 – August 2012

Environmental Defense Fund, Cary, North Carolina

Sustainability Intern, October 2011 – April 2012

Office of Sustainability, Indiana University, Bloomington, Indiana

Research Intern, February 2010 – May 2010

The Nature Conservancy, Indianapolis, Indiana

Intern, Student Conservation Association, June-September 2009

Yosemite National Park, California

SELECT PUBLICATIONS, PRESENTATIONS, AND EXPERT WITNESS TESTIMONY

- Filed expert witness testimony in Indiana Utility Regulatory Commission Cause Nos. 45504, 45505, 45506, 45508, 45700, 45749, 45701, 45722, 45775, and 45740, and Kentucky Public Service Commission Case Nos. 2020-00174, 2020-00349, and 2020-00350.
- Inskeep, B. and J. Barnes, "Memo on California's Proposed Decision in NEM 3.0 Proceeding: How the Proposed Decision in R.20-08-020 Compares to Current Policy and Recent Net Energy Metering Decisions in Other States." December 23, 2021. Published by EQ Research.
- Inskeep, B. "Energy Storage 201: Survey of Energy Storage Policies." Panelist at Energy Storage Association's 2021 annual conference on April 21, 2021.
- Inskeep, B. *Pollinator-Friendly Solar in Indiana*. May 2020. Published by EQ Research in collaboration with Fresh Energy.
- Inskeep, B. "Planning for the Solar Revolution." Poster presentation on integrated resource planning and RPS policies at Solar Power International, Salt Lake City, Utah. September 2019.
- Inskeep, B. "States Charting Paths to 100% Targets." March 15, 2019. Published by EQ Research.
- Argetsinger, B. and B. Inskeep. *Standards and Requirements for Solar Equipment, Installation, and Licensing and Certification*. January 2017. Published by the Clean Energy States Alliance.
- Barnes, J., B. Inskeep, C. Barnes and Synapse Energy Economics, "Envisioning Pennsylvania's Energy Future," October 13, 2016. Prepared for Delaware Riverkeeper Network.
- Inskeep, B., et al. *The 50 States of Solar*. Lead author: February 2015, April 2015, August 2015, November 2015, February 2016. Published by NC Clean Energy Technology Center.
- Inskeep, B. and A. Proudlove. "Homeowner's Guide to the Federal Investment Tax Credit for Solar PV." March 2015.
- Inskeep, B. and S. Attari. *The Water Short List: The Most Effective Actions U.S. Households Can Take to Curb Water Use*. Environment: Science and Policy for Sustainable Development, 56, No. 4, 2014: 4-15.

VOLUNTEER SERVICE

Environmental Justice Researcher, 2011

Volunteer with Dr. Evan Ringquist on an academic research project quantitatively analyzing the relationship between race, socioeconomic status, and exposure to harmful toxic emissions releases.

ATTACHMENT BI-2

Attachment B-2: Benjamin Inskeep's Expert Witness Experience**Indiana Utility Regulatory Commission**

Cause No.	Case Description
45933	I&M 2023 Rate Case
45911	AES Indiana 2023 Rate Case
45903	CenterPoint Culley East Coal Ash Compliance Project (Re-filed)
45894	CenterPoint 2024-28 TDSIC
45870	Indiana-American Water 2023 Rate Case
45849/45850	NIPSCO Electric/Gas 2024-26 DSM
45816	IURC Investigation regarding the Infrastructure Investment and Jobs Act
45868	I&M 4 Solar Projects
38703 FAC 133-S1	AES Indiana Eagle Valley Outage
45504	AES Indiana Excess Distributed Generation Tariff
45505	NIPSCO Excess Distributed Generation Tariff
45506	I&M Excess Distributed Generation Tariff
45508	Duke Energy Indiana Excess Distributed Generation Tariff
45700	NIPSCO Michigan City Coal Ash Compliance Project
45701	I&M Demand-Side Management Plan 2023-2025
45722	CenterPoint Securitization of AB Brown
45740	Duke Energy Indiana and International Paper Special Contract
45749	Duke Energy Indiana Coal Ash Compliance Project
45772	NIPSCO Electric Rate Case
45775	Duke Energy Indiana Low-Income Consumer Protections
45795	CenterPoint Culley East Coal Ash Compliance Project
45797	NIPSCO Schahfer Coal Ash Compliance Project
45803	Duke Energy Indiana Demand-Side Management Plan 2024-2026
45836	CenterPoint Wind Project CPCN
45843	AES Indiana EV Portfolio

Kentucky Public Service Commission

Case No.	Case Description
2020-00174	Kentucky Power's 2020 Rate Case
2020-00349	Kentucky Utilities' 2020 Rate Case
2020-00350	Louisville Gas & Electric's 2020 Rate Case

ATTACHMENT BI-3

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 45749
Data Request Set No. 1
Received: September 7, 2022

CAC 1.05

Request:

Refer to Petitioner's Exhibit 2.

- a. Refer to p. 3, line 20, through p. 4, line 2. Please provide a copy of each closure plan that Duke Energy Indiana has submitted to IDEM and each IDEM approval letter received by Duke Energy Indiana associated with its CCR units to the extent such a plan or approval has not already been provided in this proceeding.
- b. Refer to Tables 1 and 2. For the CCR units that Duke Energy Indiana identified as "Close in Place," has Duke Energy Indiana estimated the cost of alternatively selecting "Close by Removal"? If so, please provide the cost estimates for selecting "Close by Removal."
- c. Refer to p. 9, lines 7-9. Please provide a copy of the June 3, 2021 HEC Petition Seeking Judicial Review.
- d. Refer to p. 9, lines 10-13 and the January 11, 2022 EPA Letter cited therein. Does Duke Energy Indiana have any other units storing coal ash, such as impoundments or landfills, beyond Gallagher Station North Ash Pond and Primary Pond Ash Fill, where groundwater is in contact with CCR materials but that Duke Energy Indiana and/or IDEM determined were exempt from Closure by Removal or Closure in Place requirements under the CCR Rule? Please explain.
- e. Refer to p. 9, lines 17-21. Are Duke Energy Indiana, its parent company, and/or any of its affiliates members of USWAG? If so, is Duke Energy Indiana recovering any costs related to being a member of Utility Solid Waste Activities Group ("USWAG"), or related to the USWAG Petition cited therein, through customer rates? Please explain.
- f. Refer to p. 10, lines 13-14. Please confirm or deny with detailed explanation that Duke Energy Indiana is proposing in this proceeding to recover costs associated with the North Ash Pond and Primary Pond Ash Fill at the Gallagher site despite neither having filed its revised closure plans with IDEM, nor receiving IDEM approval for the revised plan. If confirmed, please explain how the prudence of such a revised plan and the reasonableness of the associated costs can be evaluated in this proceeding.
- g. Refer to p. 12, lines 11-13. Why did IDEM only grant Duke Energy Indiana "partial" approval for Ash Pond B and North Ash Pond? What, if any, changes did Duke Energy Indiana make to its closure plans in response to not receiving full IDEM approval? Please explain.
- h. Refer to p. 15, line 1, through p. 16, line 7, which includes descriptions of closure costs that have already been incurred by Duke Energy Indiana.
 - i. Did Duke Energy Indiana previously receive approval from the Commission to incur any of the closure costs described? Please explain.

- ii. How much in closure costs have been incurred for these items to date? Please provide a detailed breakdown of closure costs that have been incurred to date and closure costs that will be incurred in the future.
- i. Refer to p. 16, line 5. Will the cover system be compliant with all federal CCR rules in addition to being IDEM-approved? Please explain.
- j. Refer to p. 16, line 18, identifying coal-ash related obligations under Indiana's Solid Waste Regulations. Does Duke Energy Indiana believe costs related to these obligations are "federally mandated" notwithstanding its citation to state regulations? Please explain and identify any federal statutes or regulations that Duke Energy Indiana is relying on to determine that these costs are "federally mandated."
- k. Refer to p. 17, line 21, through p. 18, line 7.
 - i. Is Duke Energy Indiana proposing to excavate all coal ash at the Edwardsport site for consolidation into one pile? Please explain.
 - ii. Where will the consolidated pile be located?
 - iii. Would the new consolidated pile of coal ash be subject to regulation under the federal CCR Rule? Please explain.
 - iv. Is Duke Energy Indiana proposing to install a liner underneath the consolidated coal ash pile at the site? If so, would such a liner system meet the standards required for liner systems that are applicable for new CCR landfills under the federal CCR Rule? Please explain.
 - v. Do any federal regulations or laws require Duke Energy Indiana to excavate and consolidate coal ash at this site, as proposed by Duke Energy Indiana? Please explain and identify any such federal regulations or laws.
- l. Refer to p. 21, line 4 and line 9. What are "unescalated" costs? Please explain.
- m. Refer to p. 23, lines 8-9. Aren't Duke Energy Indiana's costs related to environmental compliance planning and evaluation already the type of costs that are included in its base rates? Please explain.

Objection:

Duke Energy Indiana objects to subpart a of this request as overly broad and unduly burdensome and to the extent it seeks information regarding basins and ash management areas not included in this proceeding, Duke Energy Indiana also objects as not reasonably calculated to lead to admissible evidence in this proceeding. Duke Energy Indiana objects to subpart c of this request on the grounds that it seeks information that is publicly available. Duke Energy Indiana objects to subparts d, e and m as not reasonably calculated to lead to admissible evidence in this proceeding. Duke Energy Indiana objects to subpart f of this request as argumentative and assuming facts not in evidence, namely that the Gallagher North Ash Pond and Primary Ash Fill Area are included in this proceeding.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows:

- a. Please refer to Petitioner's Public Attachments 2-B, 2-D, 2-E, 2-G, 2-H (TSH). These are the respective IDEM approval letters for all basins and ash management areas included in this proceeding. These letters reference all related documents via virtual file cabinet hyperlinks, including the original submitted closure plans and subsequent revisions. For Edwardsport, refer to Petitioner's Public Attachment 2-J (TSH).
- b. Duke Energy Indiana used ATC Group Services to perform an option analysis for each site. These reports outlined options considered, factors included in the analysis including the estimated cost, as well as a score for each. Please also see Duke Energy Indiana's response to OUCC 1.3. Edwardsport's options analysis report did not contain a Closure by Removal option.
- c. See objection. In the spirit of cooperation, please see Attachment CAC 1.5-A. The exhibits to the Petition are publicly available at mycase.IN.gov.
- d. See objection.
- e. See objection. Answering further, Mr. Hill's testimony specifically states that Duke Energy Indiana is a member of USWAG.
- f. Deny. Duke Energy Indiana has not proposed to recover costs associated with the Gallagher North Ash Pond or Primary Pond Ash Fill.
- g. For Ash Pond B, IDEM granted partial approval based on the additional requirements outlined in the approval letter. These also state the changes Duke Energy Indiana is required to make to the plan.

For the North Ash Pond, approval was conditional based on the plan not addressing the closure of Pet Coke Pile Area or the Wabash Valley Resources gray water (process water) pond contained within the former limits of the decommissioned North Ash Pond. These will be addressed at a later date.

- h. (i) Duke Energy Indiana first sought recovery of these expenses in Cause No. 45253, but the Commission removed future expenses from the rate case – leading to Cause No. 45253 S1 and this proceeding. Duke Energy Indiana began engineering, planning, and select field activities for these basins / ash management areas, to ensure that regulatory deadlines could be met while leveraging the cost savings associated with bundling multiple work scopes and leveraging on-site contractors to avoid mobilization and other costs.
(ii) See Confidential Workpaper 15-TSH, tabs “GIB-AAGBNAP”, “GIB-AAGNSB”, and “GIB-AAGBSAFA-1”
- i. Yes, Duke Energy Indiana expects that the final cover system complies with current state and federal regulations.
- j. Yes. Please refer to Petitioner's Exhibit 1, page 11, lines 3-5.

- k. (i) No. Some CCR material will remain that is underneath infrastructure that supports the IGCC plant. Reference Petitioner's Attachment 2-J (TSH) page 133.
(ii) South of the switchyard and immediately north of the IGCC plant's final settling pond. Reference Petitioner's Attachment 2-J (TSH) page 133.
(iii) No. The ash management areas at Edwardsport are not subject to the requirements of the CCR Rule.
(iv) The submitted closure plan does not include a liner underneath the consolidated pile.
(v) See direct testimony of witness Schwartz, Petitioner's Exhibit 1, page 11, lines 3 - 17.
- l. "Unescalated" costs is a reference to estimates in today's dollars – not escalated for inflation.
- m. To the extent there are future environmental rules or regulations, the Company is seeking approval to defer planning costs specific to those rules or regulations while project(s) are being developed before such project(s) are presented to the Commission for recovery. These planning costs are separate and distinct from general environmental planning costs that are in the Company's base rates.

Witness: Tim Hill (parts a,b,f,h) / Owen Schwartz (parts d,e,g,i-k) / Brian Davey (e,l,m)

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 45749
Data Request Set No. 1
Received: September 7, 2022

CAC 1.06

Request:

Refer to Petitioner's Exhibit 3.

- a. Refer to p. 5, line 18, through p. 6, line 5.
 - i. Please identify the "closure projects incurred" to date that are part of the Coal Ash Compliance Project. Which costs have already been incurred, and for what components of the Coal Ash Compliance Project?
 - ii. Please identify the closure projects "to be incurred" in the future that are part of the Coal Ash Compliance Project. Which costs have not already been incurred, and for what components of the Coal Ash Compliance Project?
 - iii. What are "non-basin closure costs" (p. 6, line 4)? Please explain.
- b. Refer to p. 6, lines 8-10.
 - i. Are all of the Coal Ash Compliance Project costs required by EPA's CCR Rule or Resource Conservation and Recovery Act ("RCRA")? Please explain.
 - ii. Are there any elements of the Coal Ash Compliance Project for the purpose of complying with a state law or regulation that are not also an express requirement of a federal law or regulation?
 - iii. If there are any costs associated with the Coal Ash Compliance Project that are not explicitly required by the EPA's CCR Rule or RCRA, but are required under IDEM's solid waste management rules, please explain and identify those costs.
 - iv. Is it Duke Energy Indiana's position that compliance with a state regulation constitutes a "federally mandated requirement" if the federal law or regulations merely "authorize[s]" the state regulations as opposed to requiring them? Please explain.
- c. Refer to p. 7, lines 11-13.
 - i. Please identify Duke Energy's most recently approved weighted average cost of capital ("WACC") and the proceeding in which it was approved by the Commission.
 - ii. Does Duke Energy Indiana make adjustments to its WACC approved in its base rate case in any proceedings outside of its base rate cases? Please explain.
 - iii. When does Duke Energy Indiana anticipate filing its next base rate case?
 - iv. Is Duke Energy Indiana required to file its next base rate case by a date certain? If so, please identify that date.
- d. Refer to p. 8, line 22, through p. 10, line 12.
 - i. Please identify the projected total dollar amount of the financing costs for the Coal Ash Compliance Project through 2030.
 - ii. Please identify the projected annual revenue requirement associated with financing costs for each year of the Coal Ash Project through 2030.

- e. Refer to p. 11, line 20, through p. 12, line 2. Please also refer to Duke Energy Indiana's most recent Integrated Resource Plan ("IRP").
 - i. Confirm or deny with complete explanation that Duke Energy Indiana is committed to retiring all of its Indiana coal generation by 2035, as reflected in its IRP.
 - ii. Confirm or deny with complete explanation that Duke Energy Indiana's most recent IRP shows all of its coal units retiring by 2035 but that Duke Energy Indiana's depreciation study from its most recent rate case uses a 2038 retirement date for Gibson.
 - iii. Does Duke Energy Indiana intend on updating its depreciation study for its next rate case to reflect a 2035 retirement date for Gibson? If so, would Duke Energy Indiana also change the Coal Ash Compliance Project amortization period from 2038, as proposed in this case, to 2035? Please explain how the 2038 / 2035 difference will be reconciled and what impact, if any, it would have on the timing of recovery of Coal Ash Compliance Project costs.
- f. Please refer to p. 12, lines 5-10.
 - i. Please provide an executable file (e.g., Excel file) that identifies the demand allocator for each customer class that will be used to allocate Coal Ash Compliance Project costs.
 - ii. Please provide an executable file (e.g., Excel file) that identifies Duke Energy Indiana's current energy allocator for each customer class that is used to allocate energy-related costs.
 - iii. Confirm or deny with complete explanation that coal ash that is part of the Coal Ash Compliance Project was only generated to meet peak demand during summer months.
 - iv. Confirm or deny with complete explanation that coal ash that is being addressed through the Coal Ash Compliance Project is and was created as a function of the amount of coal that is burned in Duke Energy Indiana's coal plants.
 - v. Confirm or deny with complete explanation that Coal Ash Compliance Project costs would be more appropriately allocated based on energy allocators than demand allocators.
 - vi. Does Duke Energy Indiana allocate fuel costs using demand allocators or energy allocators? Please explain why such allocation method is appropriate.
- g. Refer to p. 17, line 19, through p. 18, line 6.
 - i. Please provide Duke Energy Indiana's estimate for the total costs associated with each of the following:
 - 1. Plan development
 - 2. Engineering
 - 3. Financing
 - 4. Other expected future environmental compliance and retirement-related obligations
 - ii. Are these costs part of the \$150 million identified on p. 16, line 15? Please explain.
- h. Refer to Attachment 3-A (BPD).
 - i. Please provide the same information out through 2038 (the amortization period identified by Duke Energy Indiana as applying to Coal Ash Compliance Project costs).
 - ii. What is the estimated total revenue requirement associated with the Coal Ash Compliance Project for the 2031-2038 period?

- i. Refer to Duke Energy Indiana's workpaper "45749_DEI_Workpaper 1-BPD_071922.xlsx".
 - i. Please provide this same workpaper, but with all underlying formulas intact.
 - ii. Refer to tab "ROR." Please explain the difference between the "Financial Concept" (Column label (B)) with "Regulatory Concept" (Column label (C)).
 - iii. Please explain what the purpose of the "Revenue Requirement Conversion Factor" is and why Duke Energy Indiana is applying it in this case.

Objection:

Duke Energy Indiana objects to subparts c.iii, c.iv, e and f.vi, of this request as not reasonably calculated to lead to admissible evidence in this proceeding. Duke Energy Indiana also objects to subpart e of this request as calling for speculation. Duke Energy Indiana further objects to subpart h as seeking a study or compilation the Company has not performed and to which it objects performing.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows:

- a.
 - i. Please see Petitioner's Confidential Workpaper 15-TSH, tab "2-K (TSH)," which lists the specific basin and ash management projects in this proceeding. Costs incurred are 2019-2021, and components can be seen on the basin specific tab which can be traced using the Excel formula in that cell. Use the upper section of this tab "Closure Costs."
 - ii. Please see Petitioner's Confidential Workpaper 15-TSH, tab "2-K (TSH)," which lists the specific basin and ash management projects in this proceeding. Costs to be incurred are 2022-2028, and components can be seen on the basin specific tab which can be traced using the Excel formula in that cell. Use the upper section of this tab "Closure Costs."
 - iii. "Non-basin closure costs" refer to costs that cover activities such as groundwater sampling and reporting, monitoring well installations, vegetation management and minor maintenance on the area or basin.
- b.
 - i. As stated in the prefiled testimony in this proceeding, the Coal Ash Compliance Project is proposed in order to ensure direct or indirect compliance with federally mandated requirements.
 - ii. No.
 - iii. N/A.
 - iv. Please see the direct testimony of Mr. Schwartz, as filed in this proceeding.

- c.
 - i. The most recently approved weighted average cost of capital (WACC) of 5.79%, which reflects the WACC as of September 30, 2021, was approved by the Commission in Cause No. 44932 REP 4 on May 25, 2022.
 - ii. In rider filings, Duke Energy Indiana's WACC is updated to reflect current balances of equity, long-term debt, accumulated deferred income taxes, unamortized investment tax credits, and customer deposits. The WACC is also updated to reflect the current cost rate for long-term debt. The equity cost rate remains the 9.70% approved in Cause No. 45253.
 - iii. See objection.
 - iv. See objection.

- d.
 - i. Please see Petitioner's Workpaper 1-BPD, the tab titled "Carrying Cost-Close" and the tab titled "Carrying Cost-Mgt."
 - ii. Please see Petitioner's Attachment 3-A (BPD), lines 4 and 5 for the annual Revenue Requirement for carrying costs.

- e.
 - i. See objection.
 - ii. See objection.
 - iii. See objection.

- f.
 - i. Please see Attachment CAC 1.6-A.
 - ii. Please see Attachment CAC 1.6-A.
 - iii. Deny. Coal ash is created from all generation, not just generation to meet peak demand.
 - iv. Confirm. Coal ash created is a function of the amount of coal burned and is a function of the percent of ash in the coal.
 - v. – Deny. The Coal Ash Compliance Project costs are associated with the compliance of federal environmental requirements related to the closure of coal ash ponds. Residual end of life costs typically and logically follow the cost of the plant, which is allocated based on demand. This is supported by the fact that end of life costs (removal costs) and salvage values are factored into depreciation rates, and depreciation expenses are also allocated based on demand. Further, if not for ARO accounting requirements, these costs would be included in FERC account 108, which is allocated based on demand.
 - vi. See objection.

- g.
 - i. These costs are not part of the \$150 million identified on p. 16 line 15. Those costs are associated with the ash closure projects listed in Petitioner's Exhibit 2 page 22.

The costs referred to here are discussed in more detail, including the basis for the request, in Petitioner's Exhibit 2, page 23 lines 1 - 20. Since these costs relate to future projects associated with closure of generating stations and environmental requirements, Duke

Energy Indiana cannot provide a detailed estimate, but will do so as they are presented to the Commission in a future proceeding.

ii. Please see the Company's response to subpart g.i above.

h. See objection.

i.

i. Please see Attachment CAC 1.6-B.

ii. The financial concept is the view for financing purposes and includes long-term debt and equity. The regulatory concept includes long-term debt and equity in addition to traditional Indiana regulatory components for accumulated deferred income taxes, unamortized investment tax credits, and customer deposits.

iii. The revenue conversion factor is used to gross up the amount requested for recovery to include the related costs for uncollectible accounts, public utility fee, and state and federal income taxes that the Company will incur.

Witness: Tim Hill / Brian Davey

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 45749
Data Request Set No. 1
Received: September 7, 2022

SUPPLEMENTAL RESPONSE 10-3-22
SUPPLEMENTAL INFORMATION IS IN BOLD
CAC 1.06

Request:

Refer to Petitioner's Exhibit 3.

- a. Refer to p. 5, line 18, through p. 6, line 5.
 - i. Please identify the "closure projects incurred" to date that are part of the Coal Ash Compliance Project. Which costs have already been incurred, and for what components of the Coal Ash Compliance Project?
 - ii. Please identify the closure projects "to be incurred" in the future that are part of the Coal Ash Compliance Project. Which costs have not already been incurred, and for what components of the Coal Ash Compliance Project?
 - iii. What are "non-basin closure costs" (p. 6, line 4)? Please explain.
- b. Refer to p. 6, lines 8-10.
 - i. Are all of the Coal Ash Compliance Project costs required by EPA's CCR Rule or Resource Conservation and Recovery Act ("RCRA")? Please explain.
 - ii. Are there any elements of the Coal Ash Compliance Project for the purpose of complying with a state law or regulation that are not also an express requirement of a federal law or regulation?
 - iii. If there are any costs associated with the Coal Ash Compliance Project that are not explicitly required by the EPA's CCR Rule or RCRA, but are required under IDEM's solid waste management rules, please explain and identify those costs.
 - iv. Is it Duke Energy Indiana's position that compliance with a state regulation constitutes a "federally mandated requirement" if the federal law or regulations merely "authorize[s]" the state regulations as opposed to requiring them? Please explain.
- c. Refer to p. 7, lines 11-13.
 - i. Please identify Duke Energy's most recently approved weighted average cost of capital ("WACC") and the proceeding in which it was approved by the Commission.
 - ii. Does Duke Energy Indiana make adjustments to its WACC approved in its base rate case in any proceedings outside of its base rate cases? Please explain.
 - iii. When does Duke Energy Indiana anticipate filing its next base rate case?
 - iv. Is Duke Energy Indiana required to file its next base rate case by a date certain? If so, please identify that date.
- d. Refer to p. 8, line 22, through p. 10, line 12.
 - i. Please identify the projected total dollar amount of the financing costs for the Coal Ash Compliance Project through 2030.
 - ii. Please identify the projected annual revenue requirement associated with financing costs for each year of the Coal Ash Project through 2030.

- e. Refer to p. 11, line 20, through p. 12, line 2. Please also refer to Duke Energy Indiana's most recent Integrated Resource Plan ("IRP").
 - i. Confirm or deny with complete explanation that Duke Energy Indiana is committed to retiring all of its Indiana coal generation by 2035, as reflected in its IRP.
 - ii. Confirm or deny with complete explanation that Duke Energy Indiana's most recent IRP shows all of its coal units retiring by 2035 but that Duke Energy Indiana's depreciation study from its most recent rate case uses a 2038 retirement date for Gibson.
 - iii. Does Duke Energy Indiana intend on updating its depreciation study for its next rate case to reflect a 2035 retirement date for Gibson? If so, would Duke Energy Indiana also change the Coal Ash Compliance Project amortization period from 2038, as proposed in this case, to 2035? Please explain how the 2038 / 2035 difference will be reconciled and what impact, if any, it would have on the timing of recovery of Coal Ash Compliance Project costs.
- f. Please refer to p. 12, lines 5-10.
 - i. Please provide an executable file (e.g., Excel file) that identifies the demand allocator for each customer class that will be used to allocate Coal Ash Compliance Project costs.
 - ii. Please provide an executable file (e.g., Excel file) that identifies Duke Energy Indiana's current energy allocator for each customer class that is used to allocate energy-related costs.
 - iii. Confirm or deny with complete explanation that coal ash that is part of the Coal Ash Compliance Project was only generated to meet peak demand during summer months.
 - iv. Confirm or deny with complete explanation that coal ash that is being addressed through the Coal Ash Compliance Project is and was created as a function of the amount of coal that is burned in Duke Energy Indiana's coal plants.
 - v. Confirm or deny with complete explanation that Coal Ash Compliance Project costs would be more appropriately allocated based on energy allocators than demand allocators.
 - vi. Does Duke Energy Indiana allocate fuel costs using demand allocators or energy allocators? Please explain why such allocation method is appropriate.
- g. Refer to p. 17, line 19, through p. 18, line 6.
 - i. Please provide Duke Energy Indiana's estimate for the total costs associated with each of the following:
 - 1. Plan development
 - 2. Engineering
 - 3. Financing
 - 4. Other expected future environmental compliance and retirement-related obligations
 - ii. Are these costs part of the \$150 million identified on p. 16, line 15? Please explain.
- h. Refer to Attachment 3-A (BPD).
 - i. Please provide the same information out through 2038 (the amortization period identified by Duke Energy Indiana as applying to Coal Ash Compliance Project costs).
 - ii. What is the estimated total revenue requirement associated with the Coal Ash Compliance Project for the 2031-2038 period?

- i. Refer to Duke Energy Indiana's workpaper "45749_DEI_Workpaper 1-BPD_071922.xlsx".
 - i. Please provide this same workpaper, but with all underlying formulas intact.
 - ii. Refer to tab "ROR." Please explain the difference between the "Financial Concept" (Column label (B)) with "Regulatory Concept" (Column label (C)).
 - iii. Please explain what the purpose of the "Revenue Requirement Conversion Factor" is and why Duke Energy Indiana is applying it in this case.

Objection:

Duke Energy Indiana objects to subparts c.iii, c.iv, e and f.vi, of this request as not reasonably calculated to lead to admissible evidence in this proceeding. Duke Energy Indiana also objects to subpart e of this request as calling for speculation. Duke Energy Indiana further objects to subpart h as seeking a study or compilation the Company has not performed and to which it objects performing.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows:

- a.
 - i. Please see Petitioner's Confidential Workpaper 15-TSH, tab "2-K (TSH)," which lists the specific basin and ash management projects in this proceeding. Costs incurred are 2019-2021, and components can be seen on the basin specific tab which can be traced using the Excel formula in that cell. Use the upper section of this tab "Closure Costs."
 - ii. Please see Petitioner's Confidential Workpaper 15-TSH, tab "2-K (TSH)," which lists the specific basin and ash management projects in this proceeding. Costs to be incurred are 2022-2028, and components can be seen on the basin specific tab which can be traced using the Excel formula in that cell. Use the upper section of this tab "Closure Costs."
 - iii. "Non-basin closure costs" refer to costs that cover activities such as groundwater sampling and reporting, monitoring well installations, vegetation management and minor maintenance on the area or basin.
- b.
 - i. As stated in the prefiled testimony in this proceeding, the Coal Ash Compliance Project is proposed in order to ensure direct or indirect compliance with federally mandated requirements.
 - ii. No.
 - iii. N/A.
 - iv. Please see the direct testimony of Mr. Schwartz, as filed in this proceeding.

- c.
 - i. The most recently approved weighted average cost of capital (WACC) of 5.79%, which reflects the WACC as of September 30, 2021, was approved by the Commission in Cause No. 44932 REP 4 on May 25, 2022.
 - ii. In rider filings, Duke Energy Indiana's WACC is updated to reflect current balances of equity, long-term debt, accumulated deferred income taxes, unamortized investment tax credits, and customer deposits. The WACC is also updated to reflect the current cost rate for long-term debt. The equity cost rate remains the 9.70% approved in Cause No. 45253.
 - iii. See objection.
 - iv. See objection.

- d.
 - i. Please see Petitioner's Workpaper 1-BPD, the tab titled "Carrying Cost-Close" and the tab titled "Carrying Cost-Mgt."
 - ii. Please see Petitioner's Attachment 3-A (BPD), lines 4 and 5 for the annual Revenue Requirement for carrying costs.

- e.
 - i. See objection.
 - ii. See objection.
 - iii. See objection.

- f.
 - i. Please see Attachment CAC 1.6-A.
 - ii. Please see Attachment CAC 1.6-A.
 - iii. Deny. Coal ash is created from all generation, not just generation to meet peak demand.
 - iv. Confirm. Coal ash created is a function of the amount of coal burned and is a function of the percent of ash in the coal.
 - v. – Deny. The Coal Ash Compliance Project costs are associated with the compliance of federal environmental requirements related to the closure of coal ash ponds. Residual end of life costs typically and logically follow the cost of the plant, which is allocated based on demand. This is supported by the fact that end of life costs (removal costs) and salvage values are factored into depreciation rates, and depreciation expenses are also allocated based on demand. Further, if not for ARO accounting requirements, these costs would be included in FERC account 108, which is allocated based on demand.
 - vi. See objection.

- g.
 - i. These costs are not part of the \$150 million identified on p. 16 line 15. Those costs are associated with the ash closure projects listed in Petitioner's Exhibit 2 page 22.

The costs referred to here are discussed in more detail, including the basis for the request, in Petitioner's Exhibit 2, page 23 lines 1 - 20. Since these costs relate to future projects associated with closure of generating stations and environmental requirements, Duke

Energy Indiana cannot provide a detailed estimate, but will do so as they are presented to the Commission in a future proceeding.

ii. Please see the Company's response to subpart g.i above.

h. See objection.

i.

i. Please see Attachment CAC 1.6-B.

ii. The financial concept is the view for financing purposes and includes long-term debt and equity. The regulatory concept includes long-term debt and equity in addition to traditional Indiana regulatory components for accumulated deferred income taxes, unamortized investment tax credits, and customer deposits.

iii. The revenue conversion factor is used to gross up the amount requested for recovery to include the related costs for uncollectible accounts, public utility fee, and state and federal income taxes that the Company will incur.

SUPPLEMENTAL RESPONSE 10-3-22:

After communication with counsel for CAC, the Company is providing the following supplemental information:

c.iii. Pursuant to Indiana Code 8-1-39-9(e), Duke Energy Indiana must "petition the commission for review and approval of the public utility's basic rates and charges" "before the expiration of the public utility's approved TDSIC plan." Therefore, Duke Energy Indiana must file a petition for a base rate case no later than 2028, the last year of its TDSIC 2.0 plan.

c.iv. See the Company's supplemental response to c.iii. above.

e.i. As described in the Commission's IRP rules, the Company's 2021 Integrated Resource Plan includes the then-expected retirements on its system. Duke Energy Indiana will be performing another Integrated Resource Plan in 2024 and the retirements expected in 2021 will be re-evaluated at that time.

e.ii. The depreciation study from Cause No. 45253 included estimated retirement dates for the Gibson Station units of between 2026-2038. The Company's 2021 Integrated Resource Plan included estimated retirement dates for the Gibson Station units of between 2025-2035.

e.iii. See objection. Duke Energy Indiana cannot at this time speculate on what changes, if any, it may make to its most recent depreciation study, as approved in Cause No. 45253.

Witness: Tim Hill / Brian Davey

**ALLOCATED SHARE OF SYSTEM PEAK DEMAND FOR RETAIL CUSTOMERS
BY RATE GROUP EXPRESSED AS A PERCENTAGE OF THE COMPANY'S
TOTAL RETAIL SYSTEM PEAK DEMAND AS DEVELOPED FOR COST OF
SERVICE PURPOSES IN CAUSE NO. 45253**

<u>Line No.</u>	<u>Rate Groups</u>	KW Share of System Peak (4CP) Per <u>Cause No. 45253</u> (A)	Percent Share Of <u>System Peak</u> (B)	<u>Line No.</u>
1	Rate RS	2,102,591	42.114%	1
2	Rates CS and FOC	258,053	5.169%	2
3	Rate LLF	1,034,546	20.722%	3
4	Rate HLF	1,536,449	30.774%	4
5	Customer L	14,800	0.296%	5
6	Customer O	18,584	0.372%	6
7	Rate WP	20,717	0.415%	7
8	Rate SL	79	0.002%	8
9	Rate MHLS	15	0.000%	9
10	Rates MOLS and UOLS	5,633	0.113%	10
11	Rates TS, FS and MS	1,141	0.023%	11
12	TOTAL RETAIL	4,992,608	100.000%	12

**ALLOCATED SHARE OF MWH PLANT OUTPUT FOR RETAIL CUSTOMERS
BY RATE GROUP EXPRESSED AS A PERCENTAGE OF THE COMPANY'S
TOTAL RETAIL AS DEVELOPED FOR COST OF
SERVICE PURPOSES IN CAUSE NO. 45253**

<u>Line No.</u>	<u>Rate Groups</u>	<u>MWH Plant Output Cause No. 45253 (A)</u>	<u>Percent Share Of System Peak (B)</u>	<u>Line No.</u>
1	Rate RS	10,075,608	33.840%	1
2	Rates CS and FOC	1,163,496	3.908%	2
3	Rate LLF	5,429,725	18.237%	3
4	Rate HLF	11,448,504	38.452%	4
5	Customer L	119,082	0.400%	5
6	Customer O	1,197,276	4.021%	6
7	Rate WP	162,351	0.545%	7
8	Rate SL	42,814	0.144%	8
9	Rate MHLS	6,095	0.020%	9
10	Rates MOLS and UOLS	118,444	0.398%	10
11	Rates TS, FS and MS	10,457	0.035%	11
12	TOTAL RETAIL	29,773,852	100.000%	12

Citizens Action Coalition of Indiana, Inc.
IURC Cause No. 45749
Data Request Set No. 2
Received: September 30, 2022

CAC 2.06

Request:

Refer to Petitioner's Exhibit No. 2, p. 9. Do Duke Energy Indiana's ratepayers pay for the cost of Duke Energy Indiana's membership in the Utilities Solid Waste Activities Group? If yes, please identify the annual revenue requirement associated with this membership.

Response:

Yes, membership fees are allocated across all Duke Energy Indiana closure projects. USWAG represents over 130 utilities, supporting industry efforts to comply with federal environmental regulations related to waste, byproduct and chemical management and transportation issues on behalf of the utility industry; protect the environment; and serve their customers. As part of that effort, USWAG engages in regulatory advocacy, regulatory analysis, compliance assistance, and information exchange pertaining to CERCLA, RCRA, TSCA, and HMTA. For the CCR units in this proceeding, the membership fee for 2022 is \$16,651.31.

Witness: Timothy S. Hill / Owen Schwartz

Office of Utility Consumer Counselor
IURC Cause No. 45749
Data Request Set No. 2
Received: September 6, 2022

OUC 2.10

Request:

Please identify each project contained in the Coal Ash Compliance Plan DEI seeks approval for in this Cause that result from or is associated with corrective action required under the Resource Conservation and Recovery Act (RCRA).

Objection:

Duke Energy Indiana objects to this request as vague and ambiguous, particularly the reference to projects “associated with corrective action required under” RCRA without additional explanation or definition.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows: The Coal Ash Compliance Projects are closure related. The purpose of closure is to minimize future issues from the waste, including releases of the waste itself and impact to groundwater from the waste. Whether through excavation or consolidation and capping with a final cover system, the Coal Ash Compliance Projects accomplish this objective. Corrective action is often associated with groundwater impacts and the closure projects will reduce the release of constituents to groundwater. The federal CCR rule has groundwater corrective measure requirements that are separate from closure requirements. The method of groundwater corrective measures continue to be evaluated.

Witness: Owen Schwartz

OUCG
IURC Cause No. 45749
Data Request Set No. 3
Received: September 16, 2022

OUCG 3.4

Request:

Please refer to the Gallagher Primary Pond Closure Plan.

- a. DEI's current closure plan for the Primary Pond includes a slurry wall that will also encircle the North Ash Pond and Primary Pond Ash Fill Area. Since DEI is only seeking recovery of costs for the Primary Pond, has DEI apportioned the costs for the slurry wall among the three ponds in any way? If so, please explain DEI's methodology for allocating these costs.
- b. How will DEI's plans for the slurry wall be affected if DEI's draft closure plans for the North Pond or Primary Pond Ash Fill Area are not approved or are successfully appealed?

Objection:

Duke Energy Indiana objects to subpart b of this request as calling for speculation.

Response:

Subject to and without waiving or limiting its objections, Duke Energy Indiana responds as follows:

- a) Upon approval of the closure plans by IDEM, costs will be apportioned to these basins based on the perimeter coverage of the slurry wall. Duke Energy Indiana plans to update the Commission in a future proceeding with additional detail.
- b) See objection.

Witness: Tim Hill

ATTACHMENT BI-4



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
L-17J

Mr. Owen R. Schwartz
Duke Energy
1000 East Main Street
Plainfield, Indiana 46168

Dear Mr. Schwartz,

This letter provides written confirmation of the discussion between the Environmental Protection Agency (EPA) and Duke Energy Gallagher staff during our conference calls on August 27 and September 17, 2021 regarding the history of the site and the closure of Coal Combustion Residuals (CCR) surface impoundments at Duke Energy's Gallagher Generating Station in New Albany, Indiana. This letter also serves to notify you that, based on the information provided in those telephone conversations, EPA has concluded that the North Ash Pond and the Primary Pond Ash Fill Area are subject to the requirements of 40 C.F.R. Part 257 Subpart D ("the CCR Regulations").

On the August 27 conference call, Duke Energy stated that two impoundments (i.e., North Ash Pond, Primary Pond Ash Fill Area) were removed from service, drained of ponded surface water, and subsequently covered with soil and grass in 1989. Further, EPA's understanding is that Duke has taken no engineering measures to remove any of the groundwater from either unit and both of these unlined units are sitting in approximately 20 feet of groundwater.

As an initial matter, we disagree with Duke Energy's argument that neither of these units are CCR surface impoundments within the meaning of the CCR Regulations. We understand that you interpret the definition of a CCR surface impoundment to exclude units such as the North Ash Pond, where liquid remains in the unit because the base of the unit intersects with groundwater. You argue that such units do not "hold" liquid because groundwater flows through the unit (instead of staying within the unit). EPA disagrees with your interpretation. The definition of a CCR surface impoundment does not require that the unit prevent groundwater from flowing through the unit, but merely requires that the unit be "designed to hold an accumulation of CCR and liquid." 40 C.F.R. § 257.53. Following your interpretation would lead to the incongruous result that impoundments where contaminants can migrate out in the groundwater would not be regulated by the CCR Regulations, while those that prevent that type of migration would be regulated.

Primary Pond Ash Fill Area

The Primary Pond Ash Fill Area is not an existing CCR surface impoundment because (to EPA’s knowledge) it has not received CCR after October 19, 2015. However, because it still contains CCR and liquids, it meets the definition of an inactive CCR surface impoundment. An inactive CCR surface impoundment is one “that no longer receives CCR on or after October 19, 2015 and still contains both CCR and liquids on or after October 19, 2015.” EPA interprets the word “contains” to mean “to have or hold (someone or something) within” based on the ordinary meaning of the word. (e.g., Oxford English Dictionary, Merriam-Webster). Accordingly, an impoundment “contains” liquid if there is liquid in the impoundment, even if the impoundment does not prevent the liquid from migrating out of the impoundment. This means that if a CCR surface impoundment contains liquid because its base (or any part of its base) is in contact with groundwater, it would meet the definition of an inactive CCR surface impoundment. Under both the regulatory and dictionary definitions of the term, groundwater (or water) falls within the plain meaning of a “liquid.” See 40 C.F.R. 257.53. Therefore, because the Primary Pond Ash Fill Area is sitting in approximately 20 feet of groundwater, it holds or contains liquids and is an inactive surface impoundment.

As an inactive CCR surface impoundment, the Primary Pond Ash Fill Area is regulated pursuant to 40 C.F.R. § 257.50(c), which specifies that “[t]his subpart also applies to inactive CCR surface impoundments at active electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity.”

North Ash Pond

On the September call, Duke Energy confirmed that the North Ash Pond has received CCR after the October 19, 2015 effective date of the CCR Rule. Therefore, that pond meets the definition of an existing CCR surface impoundment. An existing CCR surface impoundment is one that “receives CCR both before and after October 19, 2015.” 40 C.F.R. § 257.53. Accordingly, the North Ash Pond falls within the ambit of 40 C.F.R. § 257.50(b), which specifies that “[t]his subpart applies to owners and operators of...existing CCR surface impoundments...that dispose or otherwise engage in solid waste management of CCR.” Even if the North Ash Pond had not received CCR after October 19, 2015, it would be an inactive CCR surface impoundment for the same reasons that the Primary Pond Ash Fill Area is an inactive CCR surface impoundment and would fall within the ambit of 40 C.F.R. § 257.50(c).

Applicability of the Closure Requirements to these Impoundments

For the reasons set out in the discussion above, the North Ash Pond and Primary Pond Ash Fill Area are regulated under 40 C.F.R. Part 257 Subpart D and Duke Energy will need to take action to bring these ponds into compliance by meeting all the requirements of the regulations. Significant among these is the requirement to close, because the North Ash Pond and the Primary Pond Ash Fill Area are unlined CCR surface impoundments. See, 40 C.F.R. § 257.101(a).

The applicable closure regulations are those that address closing with waste in place (assuming EPA’s understanding is correct that Duke Energy’s plan is to close both impoundments with waste in place). The Part 257 requirements applicable to impoundments closing with waste in place include general performance standards and specific technical standards that set forth individual engineering requirements related to the drainage and stabilization of the waste and to the final cover system. The general performance standards and the technical standards complement each other, and both must be met at every site. The general performance standards

under 40 C.F.R. § 257.102(d)(1) require that the owner or operator of a CCR unit “ensure that, at a minimum, the CCR unit is closed in a manner that will: (i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere; and (ii) Preclude the probability of future impoundment of water, sediment, or slurry.” The specific technical standards related to the drainage of the waste in the unit require that “free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues” prior to installing the final cover system. 40 C.F.R. § 257.102(d)(2)(i).

If Duke Energy plans to close with waste in place and the base of the impoundment does, in fact, intersect with groundwater, Duke Energy will need to implement engineering measures to remove groundwater from the unit prior to the start of installing the final cover system, as required by 40 C.F.R. § 257.102(d)(2)(i). This provision applies both to the free-standing liquid in the impoundment and to all separable porewater in the impoundment, whether the porewater was derived from sluiced water or groundwater that intersects the impoundment. The definition of free liquids in 40 C.F.R. § 257.53 encompasses all “liquids that readily separate from the solid portion of a waste under ambient temperature and pressure,” regardless of whether the source of the liquids is from sluiced water or groundwater. The regulation does not differentiate between the sources of the liquid in the impoundment (e.g., surface water infiltration, sluice water intentionally added, groundwater intrusion). Furthermore, the performance standard at 40 C.F.R. § 257.102(d)(2)(i) was modeled on the regulations that apply to interim status hazardous waste surface impoundments, which are codified at 40 C.F.R. § 265.228(a)(2)(i). Guidance on these interim status regulations clarifies that these regulations require both the removal of free-standing liquids in the impoundment as well as sediment dewatering. See US EPA publication titled “Closure of Hazardous Waste Surface Impoundments,” publication number SW-873, September 1982.

Similarly, Duke Energy will need to ensure that the impoundments are closed in a manner that will “control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere.” 40 C.F.R. § 257.102(d)(1). EPA views the word “infiltration” as a general term that refers to any kind of movement of liquids into a CCR unit. That would include, for example, any liquid passing into or through the CCR unit by filtering or permeating from any direction, including the sides and bottom of the unit. This is consistent with the plain meaning of the term. For example, Merriam-Webster defines infiltration to mean “to pass into or through (a substance) by filtering or permeating” or “to cause (something, such as a liquid) to permeate something by penetrating its pores or interstices.” Neither definition limits the source or direction by which the infiltration occurs. In situations where the groundwater intersects the CCR unit, water may infiltrate into the unit from the sides and/or bottom of the unit because the base of the unit is below the water table. This contact between the waste and groundwater provides a potential for waste constituents to be dissolved and to migrate out of (or away from) the closed unit that is similar to infiltration from above. In this case, the performance standard requires the facility to take measures, such as engineering controls that will “control, minimize, or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste” as well as “post-closure releases to the groundwater” from the sides and bottom of the unit.

Finally, because the North Ash Pond and the Primary Pond Ash Fill Area must close pursuant to 40 C.F.R. § 257.101(a), any further receipt of CCR into those units is prohibited. EPA also made this clear in the preamble to the March 15, 2018 proposed rule (83 FR 11605) where EPA stated:

The current CCR rules require that certain units must close for cause, as laid forth in § 257.101(a)–(c). As written, the regulation expressly prohibits “placing CCR” in any units required to close for-cause pursuant to § 257.101....Note that the rule does not distinguish between placement that might be considered beneficial use and placement that might be considered disposal. All further placement of CCR into the unit is prohibited once the provisions of § 257.101 are triggered.

If you have any questions about the information provided in this letter or if you have additional information that you would like EPA to consider, you may contact Angela Mullins at mullins.angela@epa.gov. Alternatively, Duke Energy counsel can contact Laurel Celeste at celeste.laurel@epa.gov in EPA’s Office of General Counsel for any questions on the Agency’s position set forth in the letter.

Sincerely,

EDWARD
NAM

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EDWARD NAM
Date: 2022.01.11
09:58:54 -06'00'

Edward Nam
Director
Land, Chemicals and Redevelopment Division

cc: Peggy Dorsey,
Assistant Commissioner
Office of Land Quality
Indiana Department of Environmental Management

ATTACHMENT BI-5

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)	
)	
)	
STANDARD FOR THE DISPOSAL OF)	
COAL COMBUSTION RESIDUALS)	PCB 2020-019
IN SURFACE IMPOUNDMENTS:)	(Rulemaking - Water)
PROPOSED NEW 35 ILL. ADMIN.)	
CODE 845)	
)	
)	
)	

JOINT TESTIMONY OF SCOTT M. PAYNE, PhD, PG and IAN MAGRUDER, M.S.

August 24, 2020

1. Introduction

The Illinois Environmental Protection Agency (IEPA) is proposing comprehensive rules regarding the design, construction, operation, corrective action, closure and post-closure care of surface impoundments containing coal combustion residuals (CCR). In this testimony we present recommended rule language based on our professional experience preparing and reviewing groundwater flow and transport models and our experience reviewing past groundwater modeling practices prepared for IEPA in support of Closure Plans for CCR facilities in Illinois.

Section 2 presents our qualifications. Section 3 provides a problem statement describing deficiencies in past groundwater modeling practices prepared for IEPA in support of Closure Plans for CCR facilities in Illinois. Section 4 provides recommended rule language aimed at ensuring that groundwater models prepared in support of corrective action and closure plans for Illinois CCR facilities are properly developed and documented and to address the deficiencies in the models we have reviewed which were used to support past closure planning. The goal of our recommendations is to ensure that future groundwater modeling follows acceptable practices and will result in models that accurately represent current conditions and are capable of making reliable predictions of the long-term effects of closure and corrective actions.



Scott M. Payne, PhD, PG
Principal Scientist
KirK Engineering & Natural Resources, Inc.

A handwritten signature in black ink, appearing to read 'I. Magruder', is positioned above the printed name.

Ian Magruder, M.S.
Senior Hydrogeologist
KirK Engineering & Natural Resources, Inc.

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soil, geology/seismic, and climatic conditions which are relevant to site characterization and modeling. It is our professional experience that state natural resource agencies and geologic surveys and researchers at nearby colleges and universities often have the most accurate and in-depth knowledge of these site-specific conditions. Consultants who work for coal plant owner/operators may be from out-of-state and lack this site-specific knowledge. Public review and comment is needed for IEPA to have all available relevant information to ensure local site-specific knowledge is included in model development, sensitive receptors are identified, and models are thoroughly reviewed. Our review supports the need for a regulatory requirement that model documentation provide a complete description of the model development, parameter arrays, boundary attributes, and quantitative calibration assessment. All of this information should be included in the model report. We also recommend that IPCB require IEPA to develop model review guidance such as Reilly and Harbaugh (2004), or at a minimum, a model review checklist specific to modeling Illinois CCR facilities to ensure that models are appropriately developed and include the required elements in the proposed rule language in section 4.

Comment I. Plans which leave CCR in contact with groundwater are likely to result in long-term exceedance of water quality standards and require perpetual plume monitoring and institutional controls

The closure plans for the Hennepin (CEC 2018), Meredosia (Geotechnology 2016b), and Wood River (AECOM, 2016) all propose to leave CCR in place with cover systems designed to limit the infiltration of precipitation into the CCR impoundment. In each case, CCR in unlined impoundments at the facility is inundated by groundwater during some portion of a typical year (see Comment h for further discussion). In each case, the owner/operator of the facility has prepared a closure plan with supporting models that ignore, and descriptive analysis which seeks to discount, the fact that the CCR is periodically inundated with groundwater. In none of these instances have the owner/operators quantitatively evaluated the contribution to the contaminant plume from reoccurring inundation of the CCR by groundwater, nor have they predicted the effects of this into the future. It is our opinion that periodic inundation of the CCR will rewet the CCR leading to perpetual water quality impacts.

The water quality impacts will likely include long-term exceedance of water quality standards in groundwater. Long-term water quality exceedances will require institutional controls such as regular water quality monitoring, groundwater control zones, or other water use restrictions to avoid human consumption of the impacted water. The potential need for long-term institutional controls is not accounted for in the closure plans because they fail to adequately model and predict the periodic inundation of the CCR by groundwater. It is our opinion that the water quality monitoring and institutional control needs will likely long surpass the 30-year post closure timeframe which is planned for. The safest method available to avoid long-term water quality exceedances, risks to human health, and institutional control requirements for CCR impoundments which are regularly in contact with groundwater is to excavate and remove the CCR to a landfill compliant with current federal regulations (40 CFR Subpart D). Other states such as Montana (Montana DEQ 2019, Montana DEQ 2020) have required owner/operators to remove CCR that is in contact with groundwater where it is causing exceedances of water quality

standards and the owner/operator has not provided an alternative remedy capable of eliminating long-term leaching of the CCR.

In the absence of adequate analysis and modeling demonstrating that inundation of CCR by groundwater will not cause water quality exceedances and that no alternative remedy exists to protect CCR left in place from groundwater contact, we recommend that CCR impoundments which have the potential to be regularly in contact with groundwater be excavated and removed to a federal compliant CCR landfill.

Comment m. The State of Illinois would benefit from a specific guidance document for groundwater flow and contaminant transport model development and review.

Illinois is developing new comprehensive rules for design, construction, operation, corrective action, closure and post-closure care of surface impoundments with CCR which include requirements for groundwater modeling. State and Federal agencies generally provide guidance or policy documentation to support work on complex technical requirements, such as groundwater flow and contaminant transport modeling. Rules alone may be insufficient to clearly define acceptable modeling practices. Currently, multiple states, USGS, U.S. EPA, and professional trade groups provide guidance or policy documentation on some or all aspects of groundwater flow and contaminant transport modeling, depending on their technical needs, regulatory requirements, and data quality objectives. There are also other textbooks and guidance useful to support meeting the requirements of the proposed rules which detail best practices. We found that most states and federal agencies opt for developing specific guidance or policy documentation that focuses on the specific technical needs or regulatory frameworks to which the guidance or policy applies versus requiring the use of textbook guidance that is germane to all modeling. Example modeling and policy guidance includes that offered by Georgia's Environmental Protection Division (GEPD 2016). Example model review guidance includes that offered by USGS (Reilly and Harbaugh 2004).

The State of Illinois would benefit from adopting an official groundwater and transport modeling guidance document under the proposed rule. The goal of the guidance would be to more clearly define best practices as they relate to the proposed rule and clarify the Agency's requirements for modelers attempting to meet requirements set by the Agency. The document should also include the procedures by which the Agency will review models developed under the proposed rule. States typically form a committee or authorize the state environmental regulatory agency to develop modeling guidance. IPCB should include in this rulemaking a requirement that a groundwater flow and transport modeling guidance document and model review document be developed that addresses the specific modeling needs relevant to CCR contaminated sites.

ATTACHMENT BI-6

**BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA**

DOCKET NO. 2022-254-E

In the Matter of:)	
)	DIRECT TESTIMONY OF
Application of Duke Energy Progress, LLC)	MARCIA E. WILLIAMS
for Authority to Adjust and Increase its Electric)	FOR DUKE ENERGY
Rates and Charges)	PROGRESS, LLC

1 **Q. PLEASE STATE YOUR NAME, AFFILIATION, AND BUSINESS**
2 **ADDRESS.**

3 A. My name is Marcia E. Williams. I am a Principal at Gnarus Advisors LLC, a
4 nationwide consulting firm, where I specialize in environmental, health, and
5 safety matters. My business address is 2029 Century Park East, Suite 400, Los
6 Angeles, California 90067.

7 **Q. ON WHOSE BEHALF ARE YOU SUBMITTING YOUR TESTIMONY?**

8 A. I am submitting this testimony before the South Carolina Public Service
9 Commission (“Commission”) on behalf of Duke Energy Progress, LLC (the
10 “Company” or “DEP”).

11 **Q. ARE YOU PROVIDING ANY EXHIBITS WITH YOUR TESTIMONY?**

12 A. Yes. I have included Williams Exhibit 1, which summarizes my professional
13 and educational background, including a list of my expert testimony.

14 **Q. WAS WILLIAMS EXHIBIT 1 PREPARED BY YOU OR UNDER YOUR**
15 **DIRECTION AND SUPERVISION?**

16 A. Yes.

17 **Q. PLEASE SUMMARIZE YOUR EDUCATION QUALIFICATIONS.**

18 A. I graduated from Dickinson College, Carlisle, Pennsylvania with a B.S. in Math
19 and Physics in 1968. I graduated summa cum laude and was a member of Phi
20 Beta Kappa. I subsequently performed graduate work in physics at the
21 University of Maryland.

1 **Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.**

2 A. I have had a 50-year career centered on environmental protection and
3 regulation, spanning government service with the United States Environmental
4 Protection Agency (“EPA,” or the “Agency”) (over 17 years), a senior
5 management position in the waste management industry (approximately 3
6 years), and consulting work (over 30 years) in which I have been a consultant
7 to both private industry and government agencies on a wide range of
8 environmental matters, with a particular focus on compliance with the Resource
9 Conservation and Recovery Act (“RCRA”), the Comprehensive Environmental
10 Response, Compensation, and Liability Act (“CERCLA,” commonly known
11 as Superfund), the Clean Water Act, and the Toxic Substances Control Act
12 (“TSCA”), as well as their state equivalents. I have also served on the Board
13 of Directors of a Fortune 500 recycling company.

14 **Q. PLEASE SUMMARIZE RELEVANT ASPECTS OF YOUR EPA**
15 **EXPERIENCE.**

16 A. My EPA service began from the Agency’s inception in 1970 and continued
17 through February 1988. I held numerous positions at EPA and was a charter
18 member of the Senior Executive Service, beginning in 1979. Senior
19 management positions, in reverse chronological order, were Director, Office of
20 Solid Waste (“OSW”) with national responsibility for EPA’s solid and
21 hazardous waste program; Deputy Assistant Administrator, Office of Pesticides
22 and Toxic Substances (“OPTS”); Acting Director and Deputy Director, Office
23 of Toxic Substances (“OTS”); and Division Director, Office of Special

1 Pesticide Review, Office of Pesticide Programs (“OPP”). Earlier positions
2 included Chief, Statistical Evaluation Staff; Special Assignment to the Senate
3 Public Works Committee; and various management and technical positions
4 within the Office of Mobile Source Air Pollution Control and the Office of
5 Research and Development. The following paragraphs describe some of my
6 EPA experience that is relevant for this matter in more detail.

7 In my position as Chief, Statistical Evaluation Staff, Office of Planning
8 and Evaluation, which I held from March 1978 through April 1979, I developed
9 and led a new EPA office responsible for reviewing all major EPA regulations
10 to ensure these regulations were adequately supported with data. My office
11 played a core role in EPA’s implementation of Executive Order 12044,
12 *Improving Government Regulations*. The office also provided statistical
13 consulting support to other EPA program offices, including consulting support
14 on developing Clean Water Act water quality criteria, consulting support on the
15 design of PCB enforcement strategies, and participation in the early
16 development of EPA’s risk assessment and risk management methodologies.

17 From May 1979 through September 1985, I held senior management
18 positions in the Office of Pesticides and Toxic Substances. This office evaluated
19 whether the risks associated with the uses of individual pesticides and toxic
20 substances exceeded the benefits of use. Where information was inadequate to
21 make necessary determinations, EPA collected additional data. Where data
22 demonstrated that risks of use exceeded benefits of use, EPA took actions to
23 control the risks. During my tenure in these positions, I participated in the

1 development of EPA's first groundwater protection strategy. EPA used its full
2 range of available statutory authorities to develop and implement a national
3 groundwater protection strategy.

4 Starting in September 1985, I served as OSW Director, a position I held
5 until I left the Agency in February 1988. As OSW Director, I led EPA's 250-
6 person, \$40 million annual program to implement RCRA and the 1984
7 amendments to RCRA, also known as the Hazardous and Solid Waste
8 Amendments ("HSWA"). These Amendments fundamentally restructured and
9 strengthened the federal hazardous and solid waste management programs.

10 During this period, my office developed and issued over 40 proposed
11 and final rules relating to solid and hazardous waste. These regulations
12 included the "land disposal restrictions," a set of new requirements that
13 significantly curtailed the amount and types of untreated hazardous waste which
14 could be disposed of in land-based management units such as landfills, waste
15 piles, and surface impoundments. These regulations also expanded the
16 definition of hazardous waste and addressed waste management requirements
17 for waste generators, transporters, certain recyclers, and entities that managed
18 waste in treatment, storage, or disposal facilities ("TSDFs"). These new
19 regulations enhanced controls for various hazardous waste management units
20 including surface impoundment, landfills, and tanks. The new regulations also
21 strengthened solid waste management standards for certain types of units
22 including municipal landfills.

1 OSW provided national leadership and oversight for the RCRA
2 permitting program (both operating and post-closure permits) at over 5,000
3 individual hazardous waste facilities nationwide as well as the facility-wide
4 corrective action cleanup program at those facilities, a Superfund-like remedial
5 program that was imposed under the 1984 HSWA amendments to RCRA and
6 developed under my leadership. We also oversaw the delegation of the RCRA
7 program to state agencies and oversaw state agency performance.

8 As the national program manager for RCRA, my office developed
9 detailed guidance documents on many of the complex issues covered by the
10 RCRA regulations including groundwater monitoring, permitting, and technical
11 design issues associated with operating and closing hazardous waste units. The
12 guidance documents provided EPA regions, states, regulated entities, and other
13 interested parties with further detail as to how EPA intended that affected parties
14 implement EPA's waste regulations.

15 Also, during my tenure as its Director, OSW worked on completing the
16 various reports to Congress on "special wastes" required by amendments to
17 RCRA that were enacted in 1980, including the Bevill Amendment. Among
18 other things, the Bevill Amendment exempted fossil fuel combustion waste
19 from the "hazardous waste" category pending further study by the Agency and
20 required EPA to submit a formal report to Congress regarding its findings. The
21 1988 Report to Congress entitled Wastes from the Combustion of Coal by
22 Electric Utility Power Plants was finalized and published by EPA at the end of
23 my tenure as OSW Director. During my tenure we were also completing a multi-

1 year effort to characterize the almost 200,000 non-hazardous waste surface
2 impoundments and over 15,000 landfills in the U.S. from the perspective of
3 environmental design and operational controls. This 1988 Report on Solid
4 Waste Disposal in the United States, which summarized the work performed by
5 the Agency over the previous four years, was issued shortly after I left EPA.
6 During this time my office also worked on federal procurement policies, as
7 required by RCRA, which strongly encouraged the use of byproduct materials
8 such as coal ash.

9 While at EPA, I had considerable direct interaction with Congress. In
10 1976, while employed with EPA, I undertook a special assignment to the Senate
11 Public Works Committee during a time when several major environmental laws,
12 including RCRA, were being debated and finalized. In my senior management
13 positions at EPA, I was generally responsible for tracking legislative
14 developments within Congress and monitoring how new legislation might
15 affect existing EPA programs I was managing. I also routinely provided EPA
16 input to Congress on specific legislative issues. In my senior management
17 capacity, I was also responsible for meeting with congressional aides to inform
18 them of the status of the implementation of congressional mandates and
19 addressing congressional concerns. These meetings often involved discussions
20 of congressional intent. I testified on numerous occasions before House and
21 Senate committees and subcommittees. After leaving EPA, I continued to
22 provide testimony at congressional hearings at the invitation of congressional
23 subcommittees, including testimony on RCRA and CERCLA.

1 **Q. PLEASE SUMMARIZE ASPECTS OF YOUR EXPERIENCE AFTER**
2 **YOUR TENURE WITH EPA.**

3 A. In March 1988, I became the Divisional Vice President - Environmental Policy
4 and Planning for Browning-Ferris Industries (“BFI”), a position I held until I
5 left BFI in August 1991. In that role, I established an environmental regulatory
6 and legislative program for the company on issues such as waste compliance,
7 interstate movement of waste, rate regulation of the waste industry, state solid
8 waste planning, recycling programs and legislation, and disposal fees. I was
9 responsible for analyzing and forecasting environmental trends affecting the
10 commercial waste industry and for assisting operating managers in resolving
11 environmental issues in relation to permit hearings, siting decisions, regulatory
12 interpretations, and enforcement actions.

13 During 1988 and 1989, I also held the position of Vice President of
14 Environmental Compliance for CECOS, BFI’s hazardous waste subsidiary. In
15 that capacity, I addressed numerous issues associated with the proper
16 characterization of solid and hazardous waste, the proper management of these
17 wastes, the permitting of hazardous waste and TSCA PCB waste facilities,
18 groundwater monitoring at hazardous waste sites, and the closure and
19 remediation of waste sites. My staff was responsible for auditing the company’s
20 existing hazardous waste facilities, performing due diligence on new business
21 acquisitions, obtaining needed facility RCRA and non-RCRA environmental
22 permits, and managing facility cleanups and closures.

1 Following my tenure at BFI I started my own consulting company,
2 assisting both private sector and governmental clients¹ on a wide range of
3 environmental matters. After six years, I integrated my consulting firm into a
4 larger firm. I have helped entities evaluate and strengthen their compliance and
5 risk management programs. I have also helped regulated entities resolve
6 ongoing compliance issues and incorporate environmental considerations into
7 future business planning.

8 As a consultant I have advised on numerous projects related to remedial
9 actions under both RCRA and CERCLA and state-equivalent statutes, including
10 engagements where I was asked to consult on the application of federal and
11 state waste regulations and both voluntary and mandatory state remedial
12 programs. I have also been engaged to consult on the historical evolution of
13 environmental information and regulations in order to evaluate the
14 environmental performance and compliance of regulated entities in a historical
15 context.

16 In addition to consulting work, I have been engaged to provide expert
17 opinions and testimony related to the evolving knowledge and regulations
18 applicable to waste, chemical management, and environmental remediation
19 across a range of industrial sectors. I have provided expert testimony at

¹ Government clients have included U.S. Department of Energy, Bonneville Power Administration, State of Illinois, City of Los Angeles, City of Phoenix, King County Washington, government of Mexico, and government of Canada. Private sector clients have covered a wide range of industries including the aerospace industry, the petroleum industry, the aluminum industry, the automotive industry, the tanning industry, the semi-conductor and electronics industry, the telecommunications industry, the paper products industry, the chemical industry, the electric utility industry, the waste industry, and the general manufacturing industry.

1 deposition and at trial. Areas of testimony include – the federal regulatory
2 development process, risk assessment and risk management frameworks
3 applied to environmental decision-making, standard of care applied to various
4 environmental practices and remedial activities over different time frames,
5 evolution of knowledge with regard to chemical and waste handling practices,
6 evolution and role of environmental management systems, application of
7 federal waste and chemical regulations to fact-specific situations, and
8 consistency of remedial actions when compared against the federal National
9 Contingency Plan.

10 A recap of my professional and educational background, including a list
11 of my testimony in prior cases, is included as Exhibit 1 to my testimony.

12 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION**
13 **OR OTHER STATE PUBLIC UTILITY COMMISSIONS?**

14 A. I have not previously testified before this Commission. However, I did testify
15 before the North Carolina Utilities Commission on behalf of Duke Energy
16 Progress, LLC (Docket No. E-2, Sub 1219) and Duke Energy Carolinas, LLC
17 (Docket No. E-7, Sub 1214).

18 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
19 **PROCEEDING?**

20 A. The purpose of my testimony is to provide important regulatory context that
21 supports the Company's recovery of costs associated with the closure of its coal

1 ash basins² in South Carolina and North Carolina. The Company either
2 currently operates, or in the past did operate, a number of coal-fired electric
3 generating plants, each of which has one or more units constructed to manage
4 coal ash, or coal combustion residuals (“CCR”), a by-product of burning coal
5 to produce electricity. A number of these CCR management units are coal ash
6 basins, constructed during the past decades to handle coal ash in a “wet”
7 environment, which was standard industry practice at the time.

8 The Company is seeking in this rate case (and sought in its previous rate
9 case, Docket No. 2018-318-E) costs associated with the closure of certain of its
10 CCR management units. It is my understanding that in the previous case the
11 Commission disallowed a portion of ash basin closure costs incurred by the
12 Company, finding that those costs were incurred pursuant to a North Carolina
13 statute (the Coal Ash Management Act, as amended (“CAMA”)); by contrast,
14 the Commission allowed recovery of closure costs incurred pursuant to the
15 federal CCR rule, originally promulgated by EPA in 2015.³ As further detailed
16 in my testimony, I conclude that even in the absence of state-specific regulation,
17 such as CAMA, closure of the Company’s federally regulated ash basins must
18 meet closure performance standards mandated by the CCR Rule. Given the
19 fact-specific locations of the Company’s South Carolina and North Carolina
20 coal ash basins, those federal performance standards directly impact the cost-

² Throughout this report, I use the terms ash or coal ash ponds, ash basins, and surface impoundments interchangeably.

³ 80 Federal Register 21302 (April 17, 2015). EPA has amended this rule since its 2015 promulgation, as discussed in my testimony, and, as amended it is referred to in my testimony as the CCR Rule.

1 effectiveness and long-term protectiveness of closing these CCR units with ash
2 remaining in place.

3 The coal ash basins I have been asked to address in this matter are
4 located at the following current and former coal-fired power plants: Robinson
5 Steam Station (“Robinson”), located in South Carolina; and Roxboro Steam
6 Station (“Roxboro”), Mayo Steam Station (“Mayo”), Weatherspoon Steam
7 Station, (“Weatherspoon”), H.F. Lee Steam Station (“H.F. Lee”) – specifically,
8 what is known as the “Active Ash Basin”⁴ at that plant, Asheville Steam Station
9 (“Asheville”), and Sutton Steam Station (“Sutton”), all of which are located in
10 North Carolina.⁵

11 My testimony complements the testimony of Company witness Jessica
12 L. Bednarcik, who provides site-specific information concerning the CCR units
13 for which the Company is seeking cost recovery. My testimony approaches the
14 issues in this case from a more global perspective, concentrating on applicable
15 federal regulation and discussing the relationship between federal and state
16 CCR regulation as it applies to the CCR surface impoundments I reviewed for
17 this matter. My testimony highlights the importance of considering site-specific

⁴ Although called “the Active Ash Basin,” this ash pond is not currently receiving waste streams and is in the process of being closed.

⁵ The Company also is in the process of closing CCR units at its Cape Fear Steam Station and taking additional actions at several closed units that are known in the Company as the Inactive Ash Basins at the H.F. Lee Steam Station. I understand that these units are not currently covered under the federal CCR Rule and that the Company is not seeking cost recovery for those historical CCR units in this case. As a result, my testimony does not address those units. My testimony also does not address non-constructed historical ash disposal areas at Robinson, H.F. Lee, and Sutton, used decades ago but not after October 2015, each of which is known as a lay of land area (“LOLA”). The LOLAs are not CCR surface impoundments and are not regulated under the federal CCR Rule or under CAMA.

1 facts when implementing federal performance standards that are applicable
2 during CCR unit closure.⁶ My testimony also explains the federal government's
3 view as to the environmental benefits associated with beneficial reuse of CCR,
4 including during CCR unit closure activities.

5 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

6 A. My testimony is organized into five primary sections. In Section I, I provide
7 an overview of federal regulation of CCR. In Section II, I provide additional
8 explanation concerning the federal/state relationship in implementing
9 environmental laws generally and the federal CCR regulation in particular. In
10 Section III, I provide a detailed description of CCR unit closure under the
11 federal CCR regulation.

12 These three sections of my testimony provide the background
13 information necessary to understand the principal opinion I present in this case,
14 in Section IV – that even in the absence of state-specific regulation, closure of
15 the Company's ash basins that are subject to the CCR Rule must meet *federally*
16 *required* closure performance standards. Given the fact-specific locations of the
17 Company's South Carolina and North Carolina CCR units, those federal
18 performance standards directly impact the cost-effectiveness and long-term
19 protectiveness of closing these CCR units with ash remaining in place.

⁶ As EPA explains in guidance regarding the performance standards for closure of units under the CCR Rule: "Whether any particular unit or facility can meet the performance standards is a fact and site-specific determination that will depend on a number of factual and engineering considerations, such as the hydrogeology of the site, the engineering of the unit, and the kinds of engineering measures available." See Closure Requirements at <https://www.epa.gov/coalash/relationship-between-resource-conservation-and-recovery-acts-coal-combustion-residuals-rule> (last accessed on August 2, 2022).

1 Finally, in Section V, I discuss EPA's position on the beneficial reuse of
2 CCR. As part of the federal CCR rulemaking process, EPA spent considerable
3 time defining the types of activities that qualify as beneficial reuse and the
4 environmental and economic benefits of that CCR management approach. EPA
5 continues to strongly encourage states and coal-fired power producers to engage
6 in CCR beneficial reuse.

7 **Q. PLEASE PROVIDE AN OVERVIEW OF YOUR TESTIMONY.**

8 A. With the CCR Rule, EPA finalized a comprehensive federal framework
9 establishing minimum requirements to ensure CCR units were protectively
10 managed throughout the United States. Prior to the CCR Rule's promulgation
11 in 2015, states took the lead in evaluating the protectiveness of individual CCR
12 management units. States relied upon a range of available state authorities.
13 Today, EPA has established a broad set of minimum federal requirements
14 applicable to facilities managing CCR. While states continue to regulate CCR
15 units under existing state authorities, owners and operators of these units must
16 now comply with both state and federal requirements.

17 Currently, the federal CCR regulations are self-implementing, but EPA
18 has established requirements to promote the meaningful participation of states
19 and citizens in the effective implementation of these self-implementing federal
20 CCR requirements. EPA also allows interested states to receive federal
21 approval to implement the federal CCR requirements in lieu of the self-
22 implementing federal regulations. Interested states apply to EPA for such
23 approval and demonstrate they meet the required EPA approval conditions.

1 States can only receive EPA approval if they demonstrate their state program is
2 at least as protective as the federal CCR regulations and that the state has a CCR
3 permit program meeting EPA-specified requirements.

4 Until such time that a state receives federal approval to administer a
5 CCR program in lieu of the federal CCR requirements, owners and operators of
6 CCR units must meet state CCR requirements as well as federal CCR
7 regulations. At the present time, only a few states have received federal
8 approval for their CCR programs and South Carolina and North Carolina are
9 not yet approved to implement the federal CCR program. Therefore, owners
10 and operators of CCR units, including DEP, must meet both the federal
11 requirements and the state requirements imposed in South Carolina and North
12 Carolina respectively.

13 The federal regulations require that CCR surface impoundments must
14 close if they are unlined or cannot meet federal location or structural integrity
15 standards. The federal regulation offers two options for closure: (1) closure-in-
16 place or (2) closure by removing CCR and decontamination of areas affected
17 by releases from the CCR unit.⁷ The federal regulation does not promote one
18 closure option over the other. Either option can be used as long as the
19 owner/operator can meet the performance standards in the federal rule for the
20 selected closure option.

⁷ In certain cases, a hybrid approach can also be utilized. Throughout my testimony, I use the terms “closure by removal” and “closure by excavation” interchangeably.

1 Each of the DEP surface impoundments I have reviewed, whether
2 located in South Carolina or North Carolina, are required to close under the
3 federal CCR regulation because the units are unlined and/or fail to meet one or
4 more federal location standards. To comply with federal regulations, DEP must
5 ensure that each of these CCR units closes in a manner that meets the federal
6 closure performance standards set out in the regulations.

7 The federal performance standards for closure-in-place require a CCR
8 unit to close in a manner that will control, minimize, or eliminate, to the
9 maximum extent feasible, post-closure infiltration of liquids into the waste and
10 releases of CCR, leachate, or contaminated run-off to the ground or surface
11 waters or to the atmosphere. Effectively, these closure performance standards
12 prohibit closure-in-place where groundwater is in actual or likely contact with
13 the CCR unless effective engineering measures can be installed to control,
14 minimize, or eliminate such conditions. Additionally, the closure-in-place
15 performance standards include structural stability and long-term maintenance
16 requirements that can be difficult to meet cost-effectively for CCR units located
17 in floodplains, wetlands, and seismic or unstable areas. Based on the site-
18 specific conditions outlined in the testimony of Witness Bednarcik, closure by
19 removal of all or the vast majority of the CCR is the only closure option that
20 can reliably and cost-effectively meet the federal CCR closure performance
21 standards.

22 Even when closure-in-place can be engineered to comply with the
23 federal closure performance standards, closure by excavation is often prudent

1 and more cost-effective than leaving CCR in place because it can reduce future
2 post-closure costs and potential future cleanup liability associated with
3 unexpected releases from the closed CCR unit. Closure by excavation can also
4 be preferable because it allows the land, often a limited commodity at power
5 plants, to be reused for other purposes or to be sold. Closure-in-place requires
6 long-term access to, as well as long-term operation and maintenance of, all
7 engineered structures including the closed unit cap, restricting future use of this
8 land.

9 Finally, while the EPA regulations do not explicitly require beneficial
10 use of CCR, EPA has long been a proponent of beneficial use and has structured
11 the CCR regulatory program to encourage it. Congress also continuously
12 emphasized the importance of resource conservation as one of the fundamental
13 tenets of the 1976 RCRA statute.

14 **SECTION I – BACKGROUND ON FEDERAL CCR REGULATION**

15 **Q. PLEASE PROVIDE AN OVERVIEW OF THE FEDERAL**
16 **REGULATION OF CCR PRIOR TO THE PASSAGE OF THE 1976**
17 **FEDERAL RCRA STATUTE.**

18 **A.** Prior to the passage of RCRA, there was no federal regulatory program for
19 CCR. States, not the federal government, were the primary regulators of CCR
20 ponds and landfills, as well as other types of industrial waste disposal. Many
21 states, including South Carolina and North Carolina, regulated CCR ash ponds
22 under water quality laws, with a particular focus on discharges from the ponds
23 to surface water, such as streams, rivers, and lakes. States typically regulated

1 CCR landfills under state solid waste laws. State solid waste laws became
2 common by the 1960s.

3 **Q. CAN YOU PROVIDE AN OVERVIEW OF THE FEDERAL**
4 **REGULATION OF CCR PRIOR TO THE PROMULGATION OF THE**
5 **CCR RULE IN 2015?**

6 A. Yes. Congress passed RCRA in 1976. Congress defined the objectives for
7 RCRA as promoting “the protection of health and the environment and to
8 conserve valuable material and energy resources . . .”⁸ The law required EPA
9 to establish a comprehensive “cradle-to-grave” federal regulatory program for
10 the management of wastes designated as hazardous. Once those detailed
11 requirements were completed, EPA authorized individual states to administer
12 the hazardous waste program in lieu of the federal hazardous waste program as
13 long as the state permit and enforcement programs were at least as stringent as
14 the detailed federal requirements. While the original RCRA statute did not
15 exempt CCR from classification as a hazardous waste if it otherwise met EPA’s
16 hazardous waste classification, Congress promulgated RCRA amendments in
17 1980 that prohibited such an outcome until EPA completed a detailed study and
18 presented the study results to Congress. EPA completed this detailed study on
19 coal combustion residuals from electric utilities and independent power

⁸ 42 U.S.C. §6902.

1 producers in 1988 and in 1993, EPA made a formal determination not to
2 regulate these wastes as RCRA hazardous waste.⁹

3 Congress, in RCRA, also directed EPA to develop minimum national
4 criteria for the protective management of non-hazardous, “solid wastes.” EPA
5 finalized minimum protective criteria for solid non-hazardous waste facilities
6 in 1979.¹⁰ These criteria were applicable to both municipal and non-municipal
7 non-hazardous waste disposal units, including all types of units that accepted
8 CCR. Any solid waste management unit that failed to meet these criteria was
9 classified as an “open dump” and prohibited under the 1976 RCRA statute.
10 These criteria were relatively general and their application and enforcement was
11 left to the states and to private citizens.

12 In 2000, EPA decided to reconsider the need for national regulations
13 applicable to CCR and associated low-volume waste co-managed with the CCR
14 when these wastes were generated by the electric utility industry and
15 independent power producers. At this time, EPA began the process of
16 developing such regulations.¹¹ EPA issued a proposed rule in 2010 that
17 included several options for regulating CCR units.¹² EPA published its final
18 CCR rule on April 17, 2015.¹³ The rule’s effective date was October 19, 2015.

⁹ 58 Federal Register 42466 (August 9, 1993); *See also* U.S. Environmental Protection Agency, Report to Congress: Wastes from the Combustion of Coal by Electric Utility Power Plants (February 1988), which provided the basis for EPA’s decision.

¹⁰ 44 Federal Register 53438 (September 13, 1979).

¹¹ 65 Federal Register 32214, 32216 (May 22, 2000).

¹² 75 Federal Register 35128, 35223 (June 21, 2010).

¹³ 80 Federal Register 21302 (April 17, 2015).

1 **Q. HAS EPA MADE CHANGES TO THE 2015 FEDERAL CCR RULE?**

2 A. Yes. Both environmental groups and industry groups filed litigation after EPA
3 issued its 2015 final CCR rule.¹⁴ As a result of court decisions and EPA actions,
4 there have been a number of important modifications to the rule and EPA
5 continues to consider additional changes to the rule.¹⁵ One such important
6 change that remains in progress is how EPA will regulate inactive surface
7 impoundments at power plant facilities that ceased operation prior to the 2015
8 effective date of the CCR Rule, such as the surface impoundments at DEP's
9 Cape Fear facility. Pursuant to a court ruling from the DC Circuit Court of
10 Appeals, EPA has initiated a regulatory process to address these "legacy"
11 impoundments.¹⁶ EPA also continues to work on finalizing regulations that
12 will implement a federal permit program for CCR units, as authorized by the
13 2016 WIIN Act, discussed in more detail later in my testimony.

14 **Q. PLEASE PROVIDE AN OVERVIEW OF THE CURRENT FEDERAL**
15 **CCR RULE.**

16 A. The rule establishes national requirements that are implemented under the non-
17 hazardous RCRA Subtitle D program. It requires all new surface impoundments
18 and landfills to have composite liners, meet specified location criteria, and

¹⁴ Utility Solid Waste Activities Group, et. al. v. Environmental Protection Agency (No. 15-1219).

¹⁵ 81 Federal Register 51802 (August 5, 2016); 83 Federal Register 11584 (March 15, 2018); 83 Federal Register 36435 (July 30, 2018); 84 Federal Register 40353 (August 14, 2019); 84 Federal Register 65941 (December 2, 2019); 85 Federal Register 53516 (August 28, 2020); 85 Federal Register 12456 (March 3, 2020); 85 Federal Register 65015 (October 14, 2020); 85 Federal Register 72506 (November 12, 2020).

¹⁶ See 85 Federal Register 65015 (October 14, 2020). This advanced notice of proposed rulemaking provided different potential definitions for legacy CCR surface impoundments.

1 comply with other design and operating requirements. The rule includes closure
2 and post-closure requirements specifying the steps, time frames, and options for
3 completing the closure of a surface impoundment, or other CCR unit, and for
4 post-closure activities, including monitoring.

5 The final rule also requires the installation of groundwater monitoring
6 systems that meet specified performance standards¹⁷ and mandates
7 groundwater assessment and corrective action to clean up contamination above
8 groundwater protection standards unless the contamination can be shown to be
9 caused by an alternate source and not by the CCR unit.

10 The rule also requires existing CCR ponds to close in compliance with
11 regulatory timelines and closure performance standards if the unit is unlined or
12 clay-lined, cannot meet the location criteria, or cannot meet the structural
13 integrity standards.¹⁸ The federal rule also applies the rule's closure and post-
14 closure requirements to inactive surface impoundments (i.e., impoundments not

¹⁷ The set of constituents covered by the groundwater monitoring requirement are listed in Appendix III and Appendix IV of 40 CFR Part 257. The groundwater protection standard is the federal maximum contaminant level ("MCL") or a risk-based standard defined by EPA.

¹⁸ The 2015 final CCR rule allowed existing surface impoundments to continue to operate without a composite liner if they met certain location standards, groundwater monitoring requirements and standards, and structural stability requirements. Therefore, initially, the final rule allowed a subset of surface impoundments without liners, or with only clay liners, to continue to operate. This was subsequently challenged during litigation and vacated by the DC Circuit Court of Appeals in 2018. Thus, the current federal CCR Rule no longer allows unlined or clay-lined surface impoundments to continue to operate past closure dates specified in the current federal rule, regardless of the whether groundwater has or has not been adversely impacted by the CCR unit. In a November 12, 2020 modification to the CCR Rule, EPA did establish a procedure that allowed certain regulated ash ponds and landfills to request approval to operate an existing surface impoundment if they could meet protectiveness requirements utilizing an alternative liner design. Very few facilities submitted an alternative liner demonstration package. EPA continues to review those submissions. *See* CCR Part B Implementation, EPA's Review of Submitted Demonstrations at <https://www.epa.gov/coalash/coal-combustion-residuals-ccr-part-b-implementation> (last accessed on August 2, 2022).

1 receiving CCR after the effective date of the CCR Rule but still containing
2 liquids) at active electric power generation facilities (i.e., facilities that are
3 actively generating electricity irrespective of the fuel used).

4 **Q. YOU MENTIONED THE WIIN ACT. WHAT IS THE WIIN ACT?**

5 A. The WIIN Act is the Water Infrastructure Improvements for the Nation Act. It
6 was passed by Congress in December 2016 after EPA finalized its 2015 CCR
7 Rule. The law included provisions that modified the Solid Waste Disposal Act
8 and RCRA, requiring that the federal coal ash regulations be implemented
9 through a permit program.¹⁹ In those states that apply to EPA to implement the
10 federal CCR program in lieu of federal rule implementation, this provision
11 requires state applicants to demonstrate to EPA that they have a CCR regulatory
12 program that is at least as protective as the federal CCR Rule as well as a permit
13 program to implement the rule provisions at individual facilities. The law also
14 requires EPA, if appropriations are available, to implement a federal permit
15 program in those states that do not apply to EPA for approval to implement their
16 own state CCR permit programs.

17 In August 2017, EPA issued an interim final guidance document to
18 provide details on the process and procedures EPA will use to review and
19 approve state CCR programs.²⁰ The guidance document notes that:

¹⁹ Public Law 114-322 (December 16, 2016).

²⁰ U.S. Environmental Protection Agency, Coal Combustion Residuals State Permit Program Guidance Document; Interim Final (August 2017). Importantly, the guidance makes clear that even in states with approved permit programs, citizens may file suit under RCRA Section 7002 to enforce compliance with the federal regulations. In addition, the guidance confirms that enforcement under RCRA Sections 3007 and 3008 against “open dumping” can also be pursued and that any CCR unit that is not in compliance

1 EPA intends to provide as much flexibility to the State
2 programs as possible, consistent with the WIIN Act's standard
3 for approval of State programs; that State programs require
4 each coal combustion residuals unit located in the State to
5 achieve compliance with either: (1) the Federal CCR
6 requirements at 40 CFR part 257; or (2) other State criteria that
7 the Administrator, after consultation with the State, determines
8 to be at least as protective as the Federal requirements.

9 EPA also issued a proposed rule in February 2020 to establish a federal
10 CCR permitting program in accordance with the WIIN Act for states that have
11 not received EPA approval for their CCR programs.²¹ In drafting this proposal,
12 EPA relied on elements of existing permitting programs (i.e., RCRA hazardous
13 waste permitting and permitting under the Clean Water Act, Safe Drinking
14 Water Act, and Clean Air Act). The permit requirements would apply during
15 any stage of operation including units that are actively accepting CCR and units
16 that are closing or are in post-closure care. The proposal also establishes
17 processes for public input that are common in many other federal and state
18 permit programs, including issuing public notices, inviting public comments on
19 draft permits, and holding public hearings.

20 **Q. HOW MANY STATES HAVE RECEIVED EPA APPROVAL TO**
21 **IMPLEMENT THE FEDERAL CCR RULE?**

22 A. Very few. As of April 2022, only three states have received full or partial
23 federal approval to implement the state CCR regulations and permit program in

with the CCR regulations, or with a permit issued by the State or EPA, can be considered an open dump.
(p. 1-14).

²¹ 85 Federal Register 9940 (February 20, 2020).

1 lieu of EPA's federal CCR regulations. Other states are in the process of
2 working with EPA to receive federal approval for their state CCR programs.

3 **Q. HOW IS EPA IMPLEMENTING THE FEDERAL CCR RULE TODAY**
4 **IN UNAPPROVED STATES?**

5 A. The requirements of the federal CCR Rule, at the time it was first effective in
6 October 2015, were designed to be self-implementing. At that time, EPA's
7 authorities under RCRA Subtitle D did not provide EPA with a direct role in
8 implementation of the CCR rule or its enforcement. However, EPA enhanced
9 the protectiveness of individual CCR requirements by requiring owners and
10 operators of covered CCR units to provide compliance certifications by
11 qualified engineers for numerous rule provisions, provide notifications to state
12 regulatory officials and the public, and post key information on a publicly
13 accessible website maintained by each covered facility. EPA summarized its
14 approach in the preamble to the final 2015 CCR Rule as follows:

15 These regulations, promulgated under subtitle D of RCRA,
16 constitute national minimum criteria with which facilities
17 must comply without oversight or intervention by a federal
18 or state authority. To address concerns about the absence of
19 regulatory oversight under a subtitle D regulation, EPA has
20 developed a combination of mechanisms, including
21 recordkeeping, notification, and maintaining a publicly
22 accessible Internet site. The increased transparency resulting
23 from these requirements will minimize the potential for
24 owners or operators to abuse the self-implementing system
25 established in this rule. In addition, these requirements
26 provide interested parties the information necessary to
27 determine whether the owner or operator is operating in
28 compliance with the requirements of the rule and thus will
29 facilitate enforcement by States and private citizens. EPA has
30 consolidated the recordkeeping, notification, and Internet
31 posting requirements into a single section of the regulations

1 in an effort to make these requirements easier to follow. It is
2 important to note that EPA will not be collecting any
3 information under this rule—instead, facilities must keep
4 records, notify the state, and post information on a publicly
5 available Web site.²²

6 EPA further strengthened these requirements in August 2020 by expanding
7 the content of certain information required to be posted to each company's
8 public website. This included additional specificity on the nature and format of
9 annual groundwater monitoring and corrective action report information.²³

10 With the passage of the WIIN Act in late 2016, EPA was given authority
11 to require submission of additional information by regulated CCR entities and
12 utilize certain RCRA enforcement authorities under RCRA Sections 3007 and
13 3008.²⁴ EPA was also given the authority to implement a federal permit
14 program in states that were not approved to implement the federal CCR
15 requirements. EPA proposed the general framework for this permit program in
16 2020 but has not yet finalized it. Thus, at the present time, the federal CCR Rule
17 remains self-implementing, as discussed above, in non-approved states. Once a
18 federal permit program is in place, EPA has stated that federal permits will be
19 required in non-approved states, and a facility generating and managing CCR
20 may no longer operate under the self-implementing regulations in place today.
21 In the recently proposed federal permit rule, EPA said it would consider the

²² 80 Federal Register 21302, 21462 (April 17, 2015).

²³ 85 Federal Register 53516 (August 28, 2020).

²⁴ 85 Federal Register 9940, 9942 (February 20, 2020). Previously, these authorities applied to hazardous waste and hazardous waste facilities but not to CCR waste.

1 views of unapproved states when it moves forward with implementation of a
2 federal CCR permitting process.²⁵

3 **SECTION II: FEDERAL-STATE RELATIONSHIP IN IMPLEMENTING**
4 **THE FEDERAL CCR RULE**

5 **Q. WHAT IS THE STATE ROLE TODAY IN IMPLEMENTING THE**
6 **FEDERAL CCR REGULATIONS IN UNAPPROVED STATES?**

7 A. The federal CCR regulatory program, like many federal environmental
8 regulatory programs, recognizes the benefits of a federal/state partnership,
9 essentially a form of “cooperative federalism.”²⁶ This partnership is inherent
10 in the federal CCR Rule framework as well as the WIIN Act and the guidance
11 and proposed regulations developed to implement the WIIN Act.

12 The preamble to the final CCR rule, issued before the passage of the
13 2016 WIIN Act, describes this relationship as follows:

14 The federal role is to establish the overall regulatory
15 direction, by providing minimum nationwide standards that
16 will protect human health and the environment, and to
17 provide technical assistance to states for planning and
18 developing their own environmentally sound waste
19 management practices. The actual planning and any direct
20 implementation of solid waste programs under RCRA
21 subtitle D, however, remains a state and local function, and

²⁵ For example, states would participate in review of federal permits and major permit modifications.

²⁶ In the cooperative federalism framework, the federal government sets minimum requirements that are protective, but the individual states are the primary implementers of these federal laws and regulations. The framework also enables individual states to implement their own laws and regulations, which must be at least as protective as the minimum federal standards, so as to take into account site- and state-specific considerations. This federal/state cooperation ensures that the states’ own unique ecological conditions (be they wetlands, floodplain zones, seismic zones, or something else altogether) are woven into the nation’s environmental protection standards.

1 [RCRA] envisions that states will devise programs to deal
2 with state-specific conditions and needs.²⁷

3 EPA also stated the following in the 2015 CCR rule preamble:

4 Moreover, EPA recognizes the critical role that our state
5 partners play in implementation and ensuring compliance
6 with environmental regulations. This is particularly
7 important in complex situations, such as presented by CCR
8 landfills and surface impoundments that involve corrective
9 action and requirements and timelines for closure of units.
10 EPA expects that states will be active partners in overseeing
11 the regulation of CCR landfills and CCR surface
12 impoundments, and has adopted a number of provisions to
13 ensure that States have the information necessary to
14 undertake this role.²⁸

15 In most other areas of the RCRA's Subtitle D program, such as the
16 program for municipal solid waste landfills, the federal government has no
17 direct role in the day-to-day implementation of the federal standards and instead
18 provides incentives for states to implement and enforce the requirements.
19 Relatively quickly after EPA's finalization of those Subtitle D regulations, most
20 states received approval from EPA to operate their state programs in lieu of the
21 federal regulations. That ensured that regulated parties were only required to
22 comply with a single set of municipal solid waste regulations, and states were
23 allowed to incorporate certain site-specific flexibility in aspects of the
24 regulatory program providing the federal baseline protectiveness requirements
25 remained in place. Most states already had permit programs in place
26 specifically covering municipal solid waste landfills and those permit programs

²⁷ 80 Federal Register 21310 (April 17, 2015).

²⁸ 80 Federal Register 21430 (April 17, 2015).

1 covered the scope of requirements in EPA’s federal municipal solid waste
2 landfill rule. In contrast, at the time EPA finalized its 2015 CCR Rule, many
3 states did not have CCR-specific permit programs in place for both CCR surface
4 impoundments and CCR landfills and some state permit programs did not cover
5 the full scope of the federal CCR requirements.

6 Under the WIIN Act, a state CCR permit program became a key
7 condition for EPA approval of a state CCR program that would operate in lieu
8 of the federal CCR requirements. For a state permitting program to be approved
9 by EPA, it does not have to be identical to the federal CCR Rule, but it must be
10 “at least as protective as” the federal minimum criteria (i.e., the CCR Rule).²⁹
11 This allows states some flexibility in the design and implementation of their
12 CCR programs while putting EPA in the position of evaluating those programs
13 to ensure that if they do differ from the federal requirements, the approved
14 program provides the equivalent or better environmental protection.³⁰

15 As noted above, if a state does not submit a program for approval, or the
16 state program is determined not to be satisfactory, then the WIIN Act requires
17 EPA to function as the federal implementing agency with development of a
18 federal permit program where funds are available to do so. The WIIN Act also
19 provides EPA with enforcement authority to enforce compliance with the
20 federal CCR regulations under Sections 3007 and 3008 of RCRA. Therefore, in

²⁹ WIIN Act of 2016, Section 2301.

³⁰ To date, three states have received full or partial approval to implement their state program in lieu of the federal CCR Rule: Oklahoma, Georgia, and Texas. Certain other states have adopted the federal CCR regulations but have not yet received federal implementation approval.

1 a state that does not receive EPA approval to administer a state CCR program
2 in lieu of the federal CCR Rule, EPA enforces the federal standards, including
3 the closure and corrective action requirements, in those states.

4 Importantly, whether the federal government implements the federal
5 program in a state without an approved program or a state implements the
6 federal program following EPA approval, site-specific conditions as well as
7 input from the public play an important role in determining how the
8 requirements will be applied, particularly for closure and corrective action
9 decisions. In the preamble to its proposed rule for the development of the
10 federal permitting program, EPA states:

11 An individual permit can be tailored to the site-specific
12 conditions at the facility (i.e., by establishing unique terms
13 and conditions to require compliance with the applicable
14 requirements of subpart D, based on site-specific
15 approaches, which may be proposed in the permit
16 application or otherwise developed in the permit writing
17 process).³¹

18 Therefore, it is the site-specific conditions at a particular electric utility location,
19 combined with public and state input, which will drive most decisions regarding
20 operations, closure, and corrective action as long as those site-specific decisions
21 meet the minimum federal performance standards.

³¹ 85 Federal Register 9940, 9948 (February 20, 2020)

1 **Q. HOW DID THE FEDERAL REGULATIONS ADDRESS THE FACT**
2 **THAT SOME STATES HAD EXISTING CCR PROGRAMS AT THE**
3 **TIME THE FEDERAL RULES WERE ADOPTED?**

4 A. Virtually all states were regulating CCR under their state water and/or solid
5 waste programs. These state programs made site-specific determinations and
6 implemented those determinations through site-specific permits or enforcement
7 actions. EPA also understood that some states, like North Carolina, had existing
8 CCR statutes or regulations in place. But EPA also recognized that other states,
9 like South Carolina, used available permit and enforcement mechanisms, rather
10 than CCR-tailored mechanisms, to ensure individual CCR units were
11 protectively managed.

12 EPA acknowledged the existence of these variable state programs in the
13 preamble to the final federal CCR Rule:

14 EPA has made every effort to ensure that the final rule does
15 not establish any requirements that truly conflict with
16 existing state programs. To clarify, this does not mean that
17 the requirements are necessarily the same, but rather that it
18 is possible to comply with both federal and state
19 requirements simultaneously. Or in other words, compliance
20 with the more stringent standard—whether federal or state—
21 will ensure compliance with the less stringent. Based on the
22 comments received, EPA is aware of no example of a
23 situation in which truly conflicting requirements will exist.³²

24 Thus, EPA did not view existing state programs as conflicting with or
25 supplemental to the federal requirements, but rather as part of an overall

³² 80 [Federal Register](#) 21334 (April 17, 2015).

1 national program establishing protective baseline standards while allowing and
2 encouraging site-specific decisions in each state where appropriate.

3 **SECTION III: POND CLOSURE UNDER THE FEDERAL CCR RULE**

4 **Q. WHEN MUST AN OWNER OR OPERATOR CLOSE A CCR UNIT**
5 **UNDER THE CCR RULE?**

6 A. The CCR Rule includes location restrictions and technical standards for existing
7 CCR surface impoundments and CCR landfills. If existing surface
8 impoundments cannot meet these requirements, they are required to close. The
9 rules require that existing CCR surface impoundments be “constructed with a
10 base that is located no less than 1.52 meters (five feet) above the uppermost
11 aquifer or make a technical demonstration that there will not be a hydraulic
12 connection between the base of the CCR unit and the uppermost aquifer.³³ The
13 rule also includes location restrictions for existing CCR impoundments related
14 to wetlands, fault areas, seismic impact zones, and unstable areas.³⁴ In each
15 case, an existing surface impoundment that cannot satisfy each location
16 standard is required to close.

17 Existing surface impoundments must also meet the liner design criteria
18 in the rule and have either a composite liner or an alternative liner that meets
19 certain technical criteria and these units must meet structural integrity
20 requirements.³⁵ The federal CCR Rule requires that the owner or operator of

³³ 40 CFR 257.60.

³⁴ 40 CFR 257.61 – 257.64.

³⁵ 40 CFR 257.71; 40 CFR 257.74.

1 an existing unlined CCR surface impoundment cease placing CCR in the
2 impoundment by April 11, 2021, and either retrofit the surface impoundment or
3 initiate the closure process.³⁶ The regulations allow a specified time to
4 complete closure although certain extensions can be approved.

5 **Q. WHAT IS REQUIRED UNDER THE RULE FOR CLOSING A CCR**
6 **SURFACE IMPOUNDMENT?**

7 A. The CCR Rule provides two options for closing a CCR surface impoundment.
8 The first option is “closure-in-place” where the CCR is left in place and a final
9 engineered cover system is placed over the unit to prevent liquid infiltration.
10 The second option requires the removal of the CCR from the unit and
11 decontamination of areas affected by releases from the CCR unit. This approach
12 is sometimes referred to as “excavation” or “clean closure” or “closure by
13 removal.”³⁷

³⁶ 40 CFR 257.101. The rules allow owners and operators to continue placing CCR in unlined surface impoundments past the April 11, 2021, deadline (up until EPA-specified maximum time deadlines) if they can demonstrate to EPA that it is technically infeasible to provide alternative disposal capacity for the CCR (40 CFR 257.103(f)(1)). To receive such an extension, the owner or operator was required to submit documentation by November 30, 2021 demonstrating why capacity is not available, the schedule for making capacity available, and that the CCR surface impoundment is in compliance with other provisions of the rule (e.g., groundwater monitoring and corrective action provisions, structural stability, closure plans). EPA allowed ongoing use of the surface impoundment until the Agency determined that the demonstration was not complete or that the required conditions for the demonstration were not met.

Owners and operators could also seek approval to continue operating an unlined CCR surface impoundment beyond the April 11, 2021, deadline if the facility had a date certain when it would cease operation of its coal-fired boiler(s) (40 CFR 257.103(f)(2)).

³⁷ 40 CFR 257.102.

1 **Q. CAN AN OWNER OR OPERATOR CHOOSE EITHER OF THESE**
2 **CLOSURE OPTIONS?**

3 A. Yes, provided the owner or operator can meet EPA's closure-in-place
4 performance standards, an entity can close using closure-in-place or closure by
5 removal. However, when site-specific facts are considered, closure-in-place is
6 not always able to meet the EPA-defined performance standards cost-
7 effectively or with a high degree of certainty. In those cases, closure by removal
8 becomes the most prudent closure option.³⁸ Also, site-specific facts may
9 identify locations where the entity can meet the closure-in-place performance
10 standards but leaving ash in place can conflict with longer term company
11 business needs. In my experience, the choice of the prudent closure option is
12 highly dependent on site-specific facts.

13 **Q. WHAT ARE THE CLOSURE-IN-PLACE PERFORMANCE**
14 **STANDARDS?**

15 A. The applicable federal closure performance standards for owners or operators
16 that select a closure-in-place approach are found in 40 CFR 257.102(d). This
17 section identifies five closure-in-place performance standards as follows: (1)
18 closed units must control, minimize or eliminate, to the maximum extent
19 feasible, post-closure infiltration of liquids into the waste and releases of CCR,

³⁸ Where the waste unit is located in areas where the CCR is in contact with groundwater, EPA requires the use of special engineering controls to ensure closure-in-place is environmentally protective. In these situations, the costs can be much higher and more uncertain than for a typical closure-in-place, including for long-term operation and maintenance of the final cover system and installed engineering controls. Based on site-specific circumstances, engineering controls can also be necessary for closure-in-place at units that do not meet other CCR Rule location standards such as seismic impact zones. Any analysis of the need for such engineering controls is necessarily site-specific.

1 leachate, or contaminated run-off to the ground or surface waters or to the
2 atmosphere; (2) closed units must preclude the possibility of future
3 impoundment of water, sediments, or slurry; (3) closed units must include
4 measures that provide for major slope stability to prevent the sloughing or
5 movement of the final cover system throughout the closure and post-closure
6 period; (4) owners and operators must minimize the need for further
7 maintenance of the closed CCR unit; and (5) owners or operators must complete
8 the closure in the shortest time that is consistent with generally accepted good
9 engineering practices.

10 **Q. HAS EPA PROVIDED ANY GUIDANCE ON HOW IT IS**
11 **INTERPRETING THE FIRST CLOSURE IN-PLACE PERFORMANCE**
12 **STANDARD WITH RESPECT TO UNITS WHERE WASTE IS IN**
13 **CONTACT WITH GROUNDWATER?**

14 **A.** Yes. In January 2022, EPA provided further interpretation on how it views the
15 first closure-in-place performance standard for facilities that have CCR in
16 contact with groundwater:

17 EPA views the word “infiltration” as a general term that
18 refers to any kind of movement of liquids into a CCR unit.
19 That would include, for example, any liquid passing into or
20 through the CCR unit by filtering or permeating from any
21 direction, including the top, sides, and bottom of the unit.
22 This is consistent with the plain meaning of the term. For
23 example, Merriam-Webster defines infiltration to mean “to
24 pass into or through (a substance) by filtering or permeating”
25 or “to cause (something, such as a liquid) to permeate
26 something by penetrating its pores or interstices.” Neither
27 definition limits the source or direction by which the
28 infiltration occurs. In situations where the groundwater
29 intersects the CCR unit, water may infiltrate into the unit

1 from the sides and/or bottom of the unit because the base of
2 the unit is below the water table. In this scenario, the CCR
3 will be in continuous contact with water. This contact
4 between the waste and groundwater provides a potential for
5 waste constituents to be dissolved and to migrate out of (or
6 away from) the closed unit.³⁹

7 In evaluating its determination denying a closure extension request for
8 Gavin Power, LLC's General James M. Gavin Plant in Ohio, EPA found that
9 because the base of the impoundment intersects with groundwater, the closure
10 plan would need to "have discussed the engineering measures taken to ensure
11 that the groundwater had been removed from the unit prior to the start of
12 installing the final cover system as required by 40 C.F.R §257.102(d)(2)(i)."⁴⁰
13 EPA further stated that "this provision applies both to the freestanding liquid in
14 the impoundment and all separable porewater in the impoundment, whether the
15 porewater was derived from sluiced water or groundwater that intersects the
16 impoundment." EPA has stated this same position in its review of closure-in-
17 place plans associated with closure extension requests for other plants where
18 EPA contends the CCR is in contact with groundwater.⁴¹

19 Thus, in cases where ash in the CCR unit is in contact with the
20 uppermost groundwater aquifer or is hydraulically connected to that

³⁹ U.S. Environmental Protection Agency, Proposed Denial of Alternative Closure Deadline for General James M Gavin Plant (January 11, 2022).

⁴⁰ Ibid.

⁴¹ EPA has provided its site-specific analysis for a number of closure plans where the Agency has concluded that CCR is or is likely in contact with groundwater at <https://www.epa.gov/coalash/coal-combustion-residuals-ccr-part-implementation> (last accessed on August 2, 2022). The Clifty Creek plant in Indiana and the Ottumwa plant in Iowa are two additional examples. EPA emphasizes that closure-in-place plans for CCR units in contact with groundwater need to include appropriate engineering controls.

1 groundwater, significant engineering controls would need to be implemented to
2 allow closure-in-place to comply with the 257.102(d)(1) closure-in-place
3 performance standard. The feasibility and cost of these engineering measures
4 is highly dependent on site-specific characteristics. For many of these units,
5 these engineering solutions could result in uncertain effectiveness over the long
6 post-closure period (i.e., decades) or could require cost expenditures that
7 exceed those associated with closure by removal.

8 **Q. CAN YOU DISCUSS WHETHER FAILURE TO MEET OTHER EPA**
9 **LOCATION STANDARDS CAN ALSO RESULT IN THE NEED FOR**
10 **ENGINEERING CONTROLS IN ORDER TO MEET THE CLOSURE-**
11 **IN-PLACE PERFORMANCE STANDARDS?**

12 A. It is certainly possible, but that determination would require a site-specific
13 analysis. As an example, EPA provides significant detail in the April 2015 final
14 rule preamble regarding the type of damage that can occur in seismic impact
15 areas. That damage includes adverse impacts to engineered features including
16 caps, dikes, slope integrity, liners, and leachate collection systems. Seismic
17 motion can also adversely impact foundation soils. These types of impacts can
18 also adversely impact closed CCR units, resulting in the inability of the unit to
19 comply with the first closure-in-place performance standard to “control,
20 minimize or eliminate, to the maximum extent feasible, post-closure infiltration
21 of liquids into the waste and releases of CCR, leachate, or contaminated run-off
22 to the ground or surface waters or to the atmosphere” without installation of
23 engineering controls. Slope stability throughout the closure and post-closure

1 period is another specific closure-in-place standard as is prevention of
2 movement of the final cover system. CCR units that fail to meet one or more
3 location standards would need to ensure that each of these performance
4 standards could be met, either with or without the installation of engineering
5 controls.⁴²

6 As another example, EPA provides detailed discussion in the CCR Rule
7 preamble about the potential for adverse impacts of operational CCR units in
8 wetlands. The Agency notes that these areas are “deserving of special protection
9 because of their ecologic significance. Wetlands are very important, fragile
10 ecosystems that must be protected, and EPA has long identified wetlands
11 protection as a high priority.”⁴³ EPA also discusses adverse impacts that can
12 occur when closed units remain in wetlands. These types of impacts can include
13 hydrologic alterations in the wetlands, drainage pattern changes that disrupt the
14 sensitive wetlands environment, or erosion or migration of native wetland soils
15 or muds that support the CCR unit. Again, a site-specific analysis is necessary
16 to evaluate whether closure-in-place standards can be met in a reliable and cost-
17 effective manner in a sensitive wetlands environment using appropriate
18 engineering controls.

⁴² In its preamble to the 2015 CCR Rule, EPA stated that for existing surface impoundments in seismic areas, “the Agency has been unable to find any way to retrofit or engineer the unit to be protective.” (80 Federal Register 21302, 21365) This statement suggests challenges in meeting closure-in-place performance standards for closing CCR surface impoundment units in these locations.

⁴³ 80 Federal Register 21302, 21363.

1 **Q. BASED ON YOUR EXPERIENCE, ARE THERE ANY OTHER**
2 **REASONS THAT CLOSURE-IN-PLACE WOULD NOT BE A**
3 **PRUDENT OPTION?**

4 A. Decisions about closure are not made in a vacuum. The public often views
5 leaving CCR in place unfavorably and the public's input plays an important and
6 defined role in making closure determinations. Today, owners and operators
7 must self-implement the provisions of the federal CCR Rule, including the
8 provisions regarding public notice and posting of key rulemaking
9 determinations.

10 In the preamble to the final rule, EPA discussed the importance of public
11 participation for regulations promulgated under RCRA.⁴⁴ Also, to the extent
12 citizens do not believe the documentation provided by regulated CCR owners
13 and operators meet the federal rule requirements, citizens can participate
14 directly through lawsuits under RCRA Section 7002. CCR units that fail to
15 comply with the self-implementing requirements or that result in an imminent
16 and substantial endangerment to public health or the environment face a risk of
17 being subject to successful citizen suits. This provision encourages regulated
18 entities to carefully consider public input as part of the self-implementing CCR
19 regulations.

⁴⁴ 80 Federal Register 21302, 21310 (April 17, 2015). EPA cites to Section 6974(b) of RCRA noting that "public participation in the ...implementation and enforcement of any regulation under this chapter shall be provided for, encourage, and assisted by the Administrator." In the CCR final rule preamble, EPA discusses the importance of state solid waste management planning for CCR and the role of public participation in developing those state plans under 40 CFR Part 256 RCRA regulations.

1 Public participation will also be incorporated into state and federal CCR
2 permits.⁴⁵ EPA's interim guidance for state CCR permitting programs notes
3 that "public participation plays an integral role in a state permitting program. A
4 good public participation program will create an inclusive dialogue, allowing
5 interesting parties to talk openly and frankly with one another about issues and
6 search for mutually agreeable solutions to differences."⁴⁶ EPA further notes
7 that this public participation should ensure that: (1) documents for permit
8 determinations are made available for public review and comment; (2) final
9 determinations on permit applications are made known to the public; and (3)
10 public comments on permit determinations are considered.⁴⁷

11 Both the public's preference for removal of CCR from older surface
12 impoundments and the required public participation in CCR closure decisions
13 makes closure-in-place a less viable option in some situations, including those
14 where there is significant public concern about groundwater or surface water
15 contamination or impacts on sensitive locations such as wetlands.

16 In addition to the public preference for excavation, closure-in-place may
17 preclude the use of the land for other purposes. Closure-in-place requires the
18 construction of a final cover system as well as post-closure requirements (e.g.,
19 ensuring the integrity of the final cover system, maintaining the integrity of

⁴⁵ EPA discusses its anticipated public participation program for federal CCR permits in its February 20, 2020 proposed regulation.

⁴⁶ U.S. Environmental Protection Agency, Coal Combustion Residuals State Permit Program Guidance Document: Interim Final (August 2017), p. 1-7.

⁴⁷ Ibid, p. 2-3.

1 leachate collection and removal systems, if required, and groundwater
2 monitoring) for 30 years after the closure.⁴⁸ This may prohibit the owner or
3 operator of the utility from utilizing the land for either new waste management
4 units or for expansions to other plant facilities.

5 Additionally, closure-in-place requires the owner/operator to record a
6 notation on the property deed in perpetuity that the land was used for a CCR
7 unit.⁴⁹ This affects both the current owner/operator and any future landowners.
8 EPA recognized the burden of the indefinite land restrictions and post-closure
9 care obligations associated with closure-in-place and noted that this should
10 create a further incentive for closure by removal, explaining its views on this
11 topic in the 2015 federal CCR Rule preamble:

12 Upon completion [of closure by removal], the unit is exempt
13 from the groundwater monitoring and any other post-closure
14 care requirements. In addition, the final rule adopts the
15 proposal to allow the owner or operator to remove the deed
16 notation required under § 257.102(i)(4), upon certification
17 that clean closure has been completed. EPA proposed this
18 option to create a further incentive for clean closure, and it
19 is clear from the commenters, who uniformly supported this
20 option, that it does so.⁵⁰

⁴⁸ 40 CFR 257.104.

⁴⁹ 40 CFR 257.102(i).

⁵⁰ 80 Federal Register, 21302, 21412, April 17, 2015. I note that to complete closure by removal under the existing federal rule, the owner operator must demonstrate that groundwater monitoring concentrations do not exceed the groundwater protection standards in appendix IV of the rule (see 40 CFR 257.102). EPA has proposed to amend the existing rule and allow owners and operators to complete closure by removal and demonstrate the groundwater protection standard is met during a post-closure period (see 85 Federal Register 12456, March 3, 2020).

1 **SECTION IV: APPLICATION OF FEDERAL CCR RULE CLOSURE**
2 **REQUIREMENTS TO DEP FACILITIES**

3 **Q. IN YOUR OPINION, IF DEP'S CCR ASH PONDS WERE ONLY**
4 **REQUIRED TO COMPLY WITH THE FEDERAL REGULATIONS,**
5 **WOULD CLOSURE BY EXCAVATION BE REQUIRED OR BE THE**
6 **MOST PRUDENT CLOSURE APPROACH?**

7 A. Each of the surface impoundments that I was asked to evaluate is required to
8 close under federal regulations separate and apart from the closure requirements
9 imposed by South Carolina or North Carolina. DEP has developed closure
10 plans for these units as required to comply with the federal regulations, which
11 are currently self-implementing. Each of these impoundments do not meet
12 federal liner requirements for existing CCR units and the units are not allowed
13 to continue to operate. In addition, the surface impoundments do not meet one
14 or more of the location standards under the federal regulations, again resulting
15 in required closure. All of the CCR ash ponds I was asked to review are located
16 within five feet of groundwater and several do not comply with other federal
17 location restrictions that prohibit existing units from operating in wetlands,
18 seismic impact areas, or unstable areas.⁵¹

19 While the federal regulations offer two options for closure, as discussed
20 in the previous section of my testimony, certain performance standards must be
21 met for an owner or operator to utilize the closure-in-place option. The analysis

⁵¹ See reports at Duke Energy CCR Rule Compliance Data & Information, available at <https://www.duke-energy.com/our-company/environment/compliance-and-reporting/ccr-rule-compliance-data> (last accessed on August 2, 2022).

1 of whether a CCR unit can comply with the closure-in-place standards is a site-
2 specific one. Many of the DEP CCR units have ash in contact with groundwater
3 and cannot meet the first closure-in-place performance standard without
4 extensive site-specific engineering. Others are located in seismic or unstable
5 areas or in wetlands, each of which can create significant challenges for meeting
6 one or more of the closure-in-place performance standards.

7 My review of the federal regulations, including the closure-in-place
8 performance standards, in combination with the site-specific conditions and
9 analysis outlined in the testimony of Witness Bednarcik, demonstrate that
10 closure by removal of all or the vast majority of the CCR is the only closure
11 approach that can reliably and cost-effectively meet the federal CCR closure
12 performance standards.

13 As I have already discussed, the regulations require that for a closure-
14 in-place, the unit be closed in a manner that will “control, minimize or
15 eliminate, to the maximum extent feasible, post-closure infiltration of fluids
16 into the waste and releases of CCR, leachate, or contaminated run-off to the
17 ground or surface waters or to the atmosphere.”⁵² EPA has interpreted this
18 closure-in-place performance standard to preclude direct contact between the
19 CCR and groundwater without the use of effective engineering controls.

20 All of the DEP surface impoundments I reviewed are less than five feet
21 from groundwater and for most or all, some of the ash is in contact with

⁵² 40 CFR 257.102(d)(1)(i).

1 groundwater. To close these site-specific surface impoundments in place would
2 require extensive and costly engineering to prevent contact between ash and
3 groundwater and to eliminate, to the maximum extent feasible, future releases
4 of CCR or leachate. Even with these engineering controls, the cost of continuing
5 to meet the performance standards during the post-closure period would remain
6 uncertain.

7 Additionally, CCR units at the Sutton and Weatherspoon facilities are
8 located in areas that present significant seismic impact and instability concerns
9 that again create long-term engineering challenges that are costly and that may
10 impose challenges for long-term cost-effective compliance with closure-in-
11 place standards. The active ash basin at H. F. Lee is located in wetlands and in
12 the 100-year floodplain, which can also result in long-term stability issues
13 during major storms. This issue was specifically discussed in Witness
14 Bednarcik's testimony with a discussion of recent hurricane impacts at this
15 facility and the projections for increasing severity of storm events.

16 Witness Bednarcik has applied the site-specific facts to each of these
17 CCR unit closures in her testimony. Based on my knowledge of the federal
18 CCR requirements in conjunction with the site-specific analyses provided by
19 Witness Bednarcik, closure by removal is a reasonable and prudent closure
20 approach for the Company's ash ponds. The site-specific analyses demonstrate
21 that closure-in-place would not be able to meet the federal closure performance
22 standards over the decades-long post-closure period in an equally cost-effective
23 and reliable manner.

1 **Q. WHAT INFORMATION DID YOU RELY UPON TO REACH YOUR**
2 **CONCLUSIONS THAT CLOSURE BY REMOVAL WAS A**
3 **REASONABLE AND PRUDENT APPROACH FOR CLOSURE OF**
4 **DEP'S SURFACE IMPOUNDMENTS?**

5 I reviewed the technical reports prepared by the Company and the
6 certifications from qualified professional engineers confirming whether or not
7 each of the Company's CCR units met each of the federal location standards.⁵³
8 These location standards are an important input into my closure analysis
9 because units that fail to meet location standards for environmentally protective
10 continued unit operation can also require significant engineering controls to
11 meet closure-in-place performance standards. I also reviewed the cost and
12 feasibility analysis performed by Burns & McDonnell, an analysis that
13 identified the types of engineering controls and other closure activities and
14 associated costs necessary should the Company want to close each unit in
15 place.⁵⁴ Additionally, I am aware of the strong public sentiment for closure by
16 removal in both South Carolina and North Carolina, sentiment that has been
17 fully embraced by regulatory agencies in each of these states as well as other
18 states.⁵⁵ I also reviewed the Company's groundwater monitoring and corrective

⁵³ See reports at Duke Energy CCR Rule Compliance Data & Information, <https://www.duke-energy.com/our-company/environment/compliance-and-reporting/ccr-rule-compliance-data> (last accessed on August 2, 2022).

⁵⁴ Burns & McDonnell, Conceptual CCR Closure Cost Estimates Summary Report, August 2022. This report further supports my opinions regarding the nature and significant costs of the engineering controls required for closure-in-place at the ash ponds at issue in this matter.

⁵⁵ I also note that Virginia, a state that has adopted the federal CCR Rule, has required numerous CCR units to close by removal as has Georgia. In fact, Georgia, one of the first states to obtain EPA approval to implement the federal CCR program has required Georgia Power to close 19 surface impoundments

1 action reports for individual CCR units as well as the detailed site-specific
2 closure analyses presented by Witness Bednarcik.

3 **Q. IF DEP'S SURFACE IMPOUNDMENTS WERE CLOSED USING**
4 **CLOSURE-IN-PLACE INSTEAD OF EXCAVATION, WOULD THE**
5 **COSTS HAVE BEEN LESS?**

6 A. For units closing in areas meeting all of EPA's location standards, closure-in-
7 place can often be less expensive than closure by excavation. However, that
8 situation does not describe the Company's closing CCR units. Thus, any cost
9 comparison of closure options requires a site-specific comparative analysis.

10 For units that close in areas not meeting EPA's location standards,
11 closure-in-place can be more expensive than closure by removal due to the costs
12 of engineering controls required to meet closure-in-place performance
13 standards. Also, for units that close with ash in place, this closure approach
14 needs to consider the costs of post-closure care. Post-closure care includes costs
15 over at least a 30-year period for maintaining the integrity of the final cover
16 system, including any required maintenance, as well as the cost of operating
17 and maintaining a compliant groundwater monitoring system. It also includes
18 the operational and maintenance costs for any other engineering controls that

by excavation. Many of these are unlined impoundments that cannot meet the location restrictions, similar to DEP's surface impoundments. (See https://www.georgiapower.com/content/dam/georgiapower/pdfs/company-pdfs/AshPondClosures_072221.pdf (last accessed on August 2, 2022)). Similarly, Texas, which is also approved to implement the federal CCR program has required closure of a pond at the Calaveras Power Station that has less than five feet separation between the waste and the uppermost aquifer. (See CCR Unit Closure and Post-Closure Plan, CPS Energy, Calveras Power Station, prepared by ERM (October 14, 2016, Amended December 14, 2020); Location Restrictions Demonstration – CCR Rule 40 CFR §257.60-64, prepared by ERM, (October 2018)). Thus, impoundment closure decisions mandating closure by excavation are being made by states approved to implement the federal CCR rule.

1 are needed to meet the closure-in-place performance standards (e.g., slurry
2 walls, groundwater pump and treat systems).

3 In addition, leaving the CCR in place, even when meeting the required
4 performance standards for closure-in-place at the time of closure, does not
5 avoid the possibility of future releases from the surface impoundment during
6 the post-closure period that could trigger the need to perform additional
7 groundwater investigation and corrective action if future releases exceed
8 protective standards. The cost of corrective action, including extensive
9 groundwater evaluation, is always uncertain and dependent upon site-specific
10 facts such as the hydrogeologic conditions at the site and the types of
11 contaminants.

12 These costs are made even more uncertain by the potential for new,
13 emerging contaminants that can drive unexpected cleanup costs or the
14 possibility that more stringent risk-based contaminant standards can evolve
15 over time. Therefore, companies may factor the uncertainty of future releases
16 into the comparative prudence of their closure choices. Based on site-specific
17 factors, additional upfront costs associated with excavation can be offset by
18 lower post-closure costs and reduced future liability associated with the
19 possibility of future releases requiring corrective action.

20 In fact, owners and operators of CCR impoundments are choosing to
21 close by removal even in site-specific situations where the CCR impoundment
22 meets all the location restrictions and could potentially be closed in place. In
23 the example I provided earlier from Texas, the Calaveras Power Station has

1 other impoundments that were found to meet the location restrictions but are
2 being closed by removal.⁵⁶ Based on preliminary compliance data submitted
3 under the CCR Rule, at least 207 surface impoundments located outside of
4 South Carolina and North Carolina are closing (or planning to close) by ash
5 removal.⁵⁷ A significant number of these surface impoundments were
6 determined by their owners/operators to meet the EPA surface impoundment
7 location standards. Therefore, the closure by removal appears to be a choice
8 made by those owners/operators that in many site-specific situations, closure
9 by removal was the more prudent approach.

10 The Company had Burns & McDonnell perform a comparative cost and
11 feasibility analysis for closure-in-place versus closure by removal using site-
12 specific information at the individual CCR units at this in this matter. The
13 results of that evaluation support my opinion that closure by removal can
14 frequently be less expensive once engineering controls necessary to meet a
15 closure-in-place performance standard are included in the cost estimates.
16 Importantly, one must perform a probabilistic analysis to incorporate the
17 potential for significant groundwater corrective action costs resulting from site-
18 specific factors that could adversely impact the long-term effectiveness of
19 selected engineering controls.

⁵⁶ CCR Unit Closure and Post-Closure Plan, CPS Energy, Calveras Power Station, prepared by ERM (October 14, 2016, Amended December 14, 2020); Location Restrictions Demonstration – CCR Rule 40 CFR §257.60-64, prepared by ERM, (October 2018).

⁵⁷ See <https://earthjustice.org/features/coal-ash-contaminated-sites-map> (last accessed on August 2, 2022). These data were last updated as of October 2020 according to the website.

1 **Q. HAVE YOU CONSIDERED THE FACT THAT THE FEDERAL CCR**
2 **RULE MAY HAVE GIVEN THE COMPANY ADDITIONAL TIME TO**
3 **COMPLETE CLOSURE OVER THE CLOSURE TIME FRAMES**
4 **SELECTED BY THE COMPANY? IF TRUE, WOULDN'T THAT**
5 **HAVE REDUCED THE COMPANY'S CLOSURE COSTS?**

6 A. While the Company has proceeded with some CCR unit closures in advance of
7 federally mandated closure dates, one cannot conclude that earlier closure
8 completion equates to more expensive closure costs. While there are potential
9 savings in closing later because the money would have been expended later and
10 therefore discounted due to the time value of money, there are other factors that
11 could more than offset this discount. As an example, work completed prior to
12 2022 was not subject to the significant inflation that is present today.

13 Another key factor is the availability and cost of engineers and
14 contractors to perform the work. As the federal regulations trigger closures
15 under a set of specified deadlines, the demand for closure services will
16 inevitably increase and the corresponding cost is likely to increase as well. In
17 addition, it is not uncommon for environmental regulations and requirements to
18 increase in stringency as time passes. There is no guarantee that additional
19 closure or post-closure requirements will not be put in place if a closure is
20 conducted later in time, thereby increasing costs. Delaying closure can also
21 increase the probability of corrective action requirements and costs, depending
22 upon site-specific factors.

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SECTION V: BENEFICIAL REUSE OF CCR

Q. PLEASE DESCRIBE BENEFICIAL USE OF CCR.

A. Beneficial use of CCR includes the reuse of CCR in various applications, including as a raw material in cement manufacturing, in manufacturing wallboard, or as structural fill meeting certain EPA-issued requirements. Beneficial use can reduce the amount of CCR being stored in ash ponds and can create alternatives to the disposal of CCR during ash pond closure. Since the 1980s, EPA has been a proponent of beneficial coal ash reuse because the practice can reduce the use of virgin resources, lower greenhouse gas emissions, reduce the cost of coal ash disposal, and add improved strength and durability to product materials.

Q. HAS EPA SUPPORTED BENEFICIAL USE OF CCR?

A. EPA has consistently supported the reuse of all types of wastes when done in an environmentally safe manner. The safe reuse of wastes replaces the use of virgin materials including the environmental impact of extracting and processing these virgin materials. EPA often refers to this as “sustainable materials management,” noting that:

How our society uses materials is fundamental to our economic and environmental future. Global competition for finite resources will intensify as world population and economies grow. More productive and less impactful use of materials helps our society remain economically competitive, contributes to our prosperity and protects the environment in a resource-constrained future.⁵⁸

⁵⁸ See <https://www.epa.gov/smm/sustainable-materials-management-basics> (last accessed on August 2, 2022).

1 With respect to the beneficial use of CCR, EPA has emphasized these
2 same benefits in the preamble to the final 2015 CCR Rule:

3 CCR can be substituted for many virgin materials that would
4 otherwise have to be mined and processed for use. These
5 virgin materials include limestone to make cement and
6 Portland cement to make concrete; mined gypsum to make
7 wallboard, and aggregate, such as stone and gravel for uses
8 in concrete and road bed. Using virgin materials for these
9 applications requires mining and processing, which can
10 impair wildlife habitats and disturb otherwise undeveloped
11 land. It is beneficial to use secondary materials – provided it
12 is done in an environmentally sound manner – that would
13 otherwise be disposed of, rather than to mine and process
14 virgin materials, while simultaneously reducing waste and
15 environmental footprints. Reducing mining, processing and
16 transport of virgin materials also conserves energy, avoids
17 GHG emissions and reduces impacts on communities.⁵⁹

18 EPA, in fact, quantified the benefits of the beneficial use of CCR at the
19 time of the final federal rule (2015) and estimated that it resulted in: (1)
20 53,054,246 MMBtu per year in energy savings; (2) 1,661,900 million gallons
21 per year in water savings; (3) 11,571,116 tons per year in greenhouse gases (i.e.,
22 carbon dioxide and methane) emissions reductions; and (4) 45,770 tons of
23 criteria air pollutant (i.e., nitrogen oxides, sulfur dioxide, particulate matter, and
24 carbon monoxide) emissions reductions.⁶⁰

25 EPA also noted the benefits from reducing the amount of CCR that must
26 be disposed of in landfills: “Beneficially using CCR instead of disposing of it

⁵⁹ 80 Federal Register 21329 (April 17, 2015).

⁶⁰ Ibid.

1 in landfills and surface impoundments also reduces the need for additional
2 landfill space and any risks associated with their disposal.”⁶¹

3 **Q. HOW DID EPA ADDRESS BENEFICIAL REUSE IN THE CCR RULE?**

4 A. EPA has always viewed the reuse of materials as an important objective of
5 RCRA. The conservation of materials is inherent in the name of the statute itself
6 (Resource Conservation and Recovery Act), and Congress quite clearly
7 articulated this objective when it passed RCRA:

8 (c) Materials. The Congress finds with respect to materials
9 that -- (1) millions of tons of recoverable material which
10 could be used are needlessly buried each year; (2) methods
11 are available to separate usable materials from solid wastes;
12 and (3) the recovery and conservation of such materials can
13 reduce the dependence of the United States on foreign
14 resources and reduce the deficit in its balance of payments.⁶²

15 In adopting regulations under RCRA, including those addressing CCR,
16 EPA has always kept this objective in mind to be applied in conjunction with
17 the protection of human health and the environment from the management of
18 waste materials.

19 Consistent with this objective under RCRA, prior to the issuance of the
20 CCR Rule, EPA had made a regulatory determination in 2000 that the federal
21 regulation of the beneficial use of coal combustion was not warranted and
22 therefore EPA exempted beneficial use from regulation.

23 The Agency has concluded that no additional regulations are
24 warranted for coal combustion wastes that are used

⁶¹ Ibid.

⁶² 42 U.S.C. §6901(c). The statute defined “Resource conservation” as the “reduction of the amounts of solid waste that are generated, reduction of overall resource consumption, and utilization of recovered resources” and “Resource recovery” as “the recovery of material or energy from solid waste.”

1 beneficially (other than for minefilling) and for oil and gas
2 combustion wastes. We do not wish to place any unnecessary
3 barriers on the beneficial use of fossil fuel combustion wastes
4 so that they can be used in applications that conserve natural
5 resources and reduce disposal costs.⁶³

6 In adopting the final CCR rule, EPA reconfirmed its determination that
7 regulation of beneficial use is not warranted for most uses but did restrict the
8 use of unencapsulated CCR (i.e., CCR that is not bound to a solid matrix, like
9 concrete) when placed on the ground in large quantities.⁶⁴ In making this
10 decision, EPA again confirmed the benefits of beneficial use:

11 Finally, EPA does not wish to inhibit or eliminate the
12 measurable environmental and economic benefits derived
13 from the use of this valuable material given the current lack
14 of evidence affirmatively demonstrating an environmental or
15 health risk.⁶⁵

16 While EPA rules do not mandate the beneficial reuse of CCR, they
17 recognize and encourage that under the oversight of state authorities, beneficial
18 reuse projects can and should be pursued. EPA has a current website on coal ash
19 reuse that summarizes the Agency's support for it. On that website, EPA states:

⁶³ 65 Federal Register 32214, 32221 (May 22, 2000).

⁶⁴ 40 CFR §257.53. EPA specified that beneficial use of CCR must meet the following conditions to be exempt from federal regulation: (1) The CCR must provide a functional benefit; (2) The CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction; (3) The use of the CCR must meet relevant product specifications, regulatory standards or design standards when available, and when such standards are not available, the CCR is not used in excess quantities; and (4) When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.

⁶⁵ 80 Federal Register 21330 (April 17, 2015).

1 “The Agency is working to provide tools to assist states and beneficial users
2 with their beneficial use evaluations.”⁶⁶

3 Additionally, EPA provided an explicit incentive for entities to
4 beneficially use CCR as a key management approach as part of unit closure by
5 delaying the commencement of CCR unit closure for those units incorporating
6 a significant beneficial use component in their closure plan. EPA explained the
7 importance of beneficial reuse and its rationale in the preamble to the 2015 CCR
8 Rule:

9 The Agency also agrees with those commenters that
10 supported delaying the commencement of closure of a CCR
11 unit if substantial quantities of CCR are removed from the
12 CCR unit for the beneficial use of the waste. This could
13 include, for example, removal of CCR from a CCR unit
14 followed by its use as a partial replacement for Portland
15 cement. As discussed in Unit IV.B of this preamble, EPA has
16 identified significant benefits from reducing the disposal
17 volumes of CCR in CCR landfills and CCR surface
18 impoundments, including the reduced risks associated with
19 the practice of CCR disposal, benefits from reducing the
20 need to mine and process virgin materials, and energy and
21 greenhouse gas benefits. EPA finds these potential benefits
22 compelling and is therefore revising the closure
23 requirements in the rule to accommodate the removal and
24 beneficial use of CCR. EPA has therefore revised the rule to
25 provide that closure of an otherwise idled CCR unit is not
26 immediately triggered, as long as the owner or operator is
27 removing substantial quantities of CCR from the unit.
28 However, once removal of CCR for beneficial use is no
29 longer taking place, the rule would require the owner or
30 operator to initiate closure of the CCR unit.⁶⁷

⁶⁶ See [Coal Ash Reuse | US EPA](#); - [Frequent Questions about the Beneficial Use of Coal Ash | US EPA](#) (last accessed on August 2, 2022).

⁶⁷ 80 [Federal Register](#) 21302, 21416, April 17, 2015. The rule language is in 40 CFR 257.102(e)(1) and (e)(2).

1 **Q. IN THE EPA STATEMENT YOU CITED, EPA MENTIONS THE**
2 **ECONOMIC BENEFITS ASSOCIATED WITH BENEFICIAL USE.**
3 **PLEASE ELABORATE ON THESE ECONOMIC BENEFITS.**

4 A. While I am not an expert on the market demands for the beneficial use of CCR
5 or the costs associate with beneficial reuse projects, I do know that EPA has
6 long understood that there are real economic benefits. These benefits are
7 perhaps best illustrated by the amount of CCR beneficially reused today as it is
8 an indication of the robust market for beneficial use and the financial
9 opportunities associated with beneficial reuse projects. In the 2015 final CCR
10 Rule, EPA estimated that 40 percent of all CCR was beneficially used.⁶⁸ As
11 such beneficial reuse is typically not mandated by regulation, this robust market
12 indicates that power companies realize financial benefits from beneficial reuse.

13 The American Coal Ash Association (“ACAA”) estimated that the
14 percentage of CCR beneficially reused increased even further and reached a
15 record 64 percent in 2017. ACAA estimated that over 71 million tons of CCR
16 was beneficially reused in 2017, including over 24 million tons of fly ash and
17 over 4 million tons of bottom ash.⁶⁹ This market may grow even further as new

⁶⁸ 80 Federal Register 21302, 21303 (April 17, 2015).

⁶⁹ See National Association of Regulatory Utility Commissioners, A Comprehensive Survey of Coal Ash Law and Commercialization (January 2020), which includes a summary of the ACAA survey data and discussion on coal ash beneficial reuse, including continued government work on expanding future beneficial uses (pp. 54 to 62). Also see ACAA, An American Recycling Success Story: Beneficial Use of Coal Combustion Products, available at [21-ACAA-Brochure.pdf \(aca-usa.org\)](https://www.acaa-usa.org/files/21-ACAA-Brochure.pdf). Also see Appendix C of an October 2021 paper by Eric Dixon. The Appendix deals with coal ash reuse, [repairing-the-damage-coal-ash-reuse-appendix.pdf \(ucsusa.org\)](https://www.ucsusa.org/sites/default/files/attach/2021/10/repairing-the-damage-coal-ash-reuse-appendix.pdf). Figure 2 includes coal ash reuse for different reuse categories between 2009 and 2019. Encapsulated uses have increased significantly while unencapsulated uses have decreased.

1 uses for CCR are commercialized. Therefore, beneficial use is a financially
2 viable option for CCR management and can be a preferable approach consistent
3 with the joint material conservation and environmental protection goals of
4 RCRA.

5 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

6 A. Yes.