

1 conditions for the Wilson Unit 1 boiler. Fundamentally, Project 12
2 consists of recycling the Coleman Station FGD/absorber system by
3 moving it to the Wilson Station and rebuilding it utilizing a combination
4 of existing parts and infrastructure and new equipment, including an
5 updated gypsum dewatering system and wastewater treatment
6 facilities. This project will achieve ongoing environmental compliance
7 at the Wilson Station, maximize the Station's value and ensure the
8 continued availability of its baseload coal-fired generating capacity in a
9 reasonable and least-cost manner. The estimated capital cost for this
10 project is \$111.77 million (excluding capitalized interest), and ongoing
11 operations and maintenance ("O&M") expenses are expected to be \$4.37
12 million annually.

- 13 • **PROJECT 13 – CLOSURE OF ASH PONDS.** As the Commission is
14 aware, facilities utilized for the production of energy from coal produce
15 CCR, which generally consists of fly ash, bottom ash, boiler slag and
16 FGD material. The containment, maintenance and disposal of CCR
17 materials by Kentucky utilities are governed chiefly by the CCR Rule,
18 the ELG Rule, and KPDES discharge limitations and requirements.

- 19 ○ **Project 13-1: Green Ash Pond Closure, WMB Pond, WWT**
20 **Systems.** Project 13-1 is comprised of undertakings primarily
21 designed to ensure compliance with the CCR Rule and limitations
22 prescribed by the Green Station's relevant KPDES permit. The

1 Green Station’s existing ash pond will be closed by using a hybrid
2 approach of capping in place approximately 450,000 cubic yards of
3 the total 1,000,000 cubic yards of CCR material estimated to be in
4 the ash pond footprint by consolidating and covering it along
5 existing berms within the pond. The remaining 550,000 cubic yards
6 will be removed and relocated to the existing on-site permitted
7 special waste landfill. A new, lined WMB pond (totaling
8 approximately 17-acres in size) will be constructed in place of the
9 removed CCR material, and new chemical treatment equipment will
10 be installed at the WMB Pond to meet the expected KPDES
11 discharge requirements at the relevant outfall. Additionally, the
12 Green Station’s current WWT system will be modified to contain
13 maintenance activities by the addition of a new “thickener overflow”
14 pond in place of one of the coal pile runoff ponds. The estimated
15 capital cost for this project is \$41.37 million (excluding capitalized
16 interest). The annual O&M expense resulting from this project is
17 estimated at approximately \$2.72 million, due primarily to chemical
18 consumption costs.

- 19 ○ **Project 13-2: Coleman Ash Ponds Closure.** The Company’s
20 Coleman Station includes three coal ash ponds, designated as the
21 North Pond (approximately sixty (60) acres in size), the Sluice Pond
22 (approximately forty-nine (49) acres in size), and the South Pond

1 (approximately ninety-four (94) acres in size). As discussed, while
2 the current CCR Rule does not presently require the closure of these
3 legacy ash ponds, Big Rivers expects that legal obligation to arise in
4 the near term; when it does, Big Rivers proposes to close these ponds
5 by capping them in place with a cover system, as outlined in the
6 CCR Rule. The estimated capital cost for this project is \$48.72
7 million (excluding capitalized interest); following completion of this
8 project, estimated O&M expenses related to the closed ash ponds
9 are expected to be approximately \$21,000 annually.

- 10 ○ **Project 13-3: HMP&L Station Two Ash Pond Closure.** In light
11 of the retirement of the HMP&L Station Two generating units in
12 February of 2019, the CCR Rule requires the timely closure of the
13 ash pond located at that facility. Big Rivers proposes as Project 13-
14 3 to close the approximately 24-acre ash pond by capping it in place
15 with a cover system, as outlined in the CCR Rule. The total
16 estimated capital cost of Project 13-3 (excluding capitalized interest)
17 is \$13.3 million, of which Big Rivers' projected share is \$10.3 million;
18 following completion of this project, estimated O&M expenses
19 related to the closed ash pond are expected to be approximately
20 \$21,000 annually, with \$16,200 representing the projected share of
21 Big Rivers annually.

1 • **PROJECT 14 – WILSON LANDFILL PHASE 1 FINAL COVER.**

2 Project 14 concerns Phase 1 of the Wilson Station’s permitted special
3 waste landfill. While the 103-acre Phase 1 landfill stopped accepting
4 special waste in 2010, Big Rivers is required to monitor and maintain
5 the landfill to ensure compliance with regulations governing CCR
6 storage/disposal and groundwater protection. Project 14 includes the
7 construction of an engineered synthetic geo-membrane liner to serve as
8 the final cover system for the Phase 1 landfill. It is designed to mitigate
9 rain water penetration of the landfill into groundwater, thereby
10 advancing the goal of full compliance with corrective action
11 requirements of the CCR Rule. The estimated capital cost for this
12 project is \$15.2 million (excluding capitalized interest). The annual
13 O&M expense resulting from this project is estimated at approximately
14 \$26,000.

15 • **PROJECT 15 – GREEN LANDFILL PERIMETER DRAINAGE**

16 **SYSTEM.** Project 15 concerns the Green Station’s CCR landfill. The
17 project is designed to reduce lithium levels in groundwater, and it
18 involves the construction of a perimeter drainage system to convey non-
19 groundwater seepage to a target manhole located on the northeastern
20 corner of the landfill. The project also includes the removal of coal ash
21 run-off from the sedimentation pond located to the south of the Green
22 Landfill. The estimated capital cost for this project totals \$5.66 million;

1 however, similar to decommissioning costs associated with
2 Reid/HMP&L Station Two, the City of Henderson is expected to be
3 obligated for its proportional share of these costs, thereby reducing Big
4 Rivers' projected financial responsibility to approximately \$4.98 million.
5 Following project completion, O&M expenses associated with this
6 project are expected to be \$60,000 annually, with Big Rivers' share being
7 approximately \$53,000 annually.

- 8 • **PROJECT 16 – CCR ENVIRONMENTAL COMPLIANCE.** Project
9 16 includes a series of efforts undertaken by Big Rivers to ensure
10 ongoing compliance with the CCR Rule at its coal-fired generating
11 stations. These projects include the installation of groundwater
12 monitoring wells, CCR pile containment measures, installation of
13 leachate collection and treatment systems, and the development of
14 numerous engineering studies and technical analyses to comply with the
15 CCR Rule. These projects have been pursued in the usual course of Big
16 Rivers' business since 2015, and each is more fully detailed in the Direct
17 Testimony of Mr. Pullen, and specifically at Exhibit Pullen-3. The costs
18 of the undertakings which comprise Project 16 have been deferred by
19 Big Rivers as part of the CCR Regulatory Assets established in Case No.
20 2015-00333. These compliance costs are expected to total approximately
21 \$14.87 million following the completion of ongoing projects later this
22 year.

1 31. As alternatives to Project 12, Big Rivers also examined in detail whether
2 other options for the Wilson Station’s FGD, including its continued operation as-is
3 and its replacement with a new FGD, presented favorable economic and operational
4 outcomes. The financial modeling conducted, which is further described in the Direct
5 Testimony of Mr. Paul Smith and particularly at Exhibit Smith-2, represents an
6 economic comparison of the estimated capital, fixed O&M and variable O&M for each
7 option. Based on this analysis, recycling the FGD/absorber system at Coleman
8 Station and moving it to the Wilson Station proved to be the reasonable, least cost
9 option.

10 32. Big Rivers also thoroughly evaluated the reasonableness and cost-
11 effectiveness of the other projects that comprise its 2020 Plan. Though the CCR Rule
12 does not permit considerable latitude in deciding whether to address the
13 maintenance, storage and disposal of CCR, Big Rivers examined multiple avenues for
14 achieving compliance with applicable rules. At the Green Station, for example, Big
15 Rivers and its expert consultants examined both the complete closure of the ash pond
16 and the chosen hybrid approach to closure; by electing to pursue the latter method,
17 Big Rivers is expected to save approximately \$9.84 million in project costs.¹⁷
18 Similarly, the final cover system selected for Phase 1 of the Wilson Landfill

¹⁷ The hybrid closure-in-place option was selected because it is the lower cost option that is expected to meet compliance requirements. As the project proceeds, the Kentucky Division of Waste Management will review these plans in detail and may require modifications, with which Big Rivers will be required to comply. While the existing plan is based on internal and retained experts’ best professional judgement and interpretation of the regulations at the time of this filing, Big Rivers seeks the Commission’s permission to proceed with the ash pond closure method required by relevant state and federal authorities.

1 contiguous area in which the utility renders service, and that do not
2 involve sufficient capital outlay to materially affect the existing
3 financial condition of the utility involved, or will not result in increased
4 charges to its customers.

5
6 38. Project 14's estimated capital cost of approximately \$15.2 million
7 represents a relatively insignificant portion of Big Rivers' net utility plant
8 (approximately 1.5%) and will not materially impact Big Rivers' existing financial
9 condition. Likewise, Project 15's total estimated cost of \$5.66 million (of which Big
10 Rivers' share has been calculated to be \$4.98 million), also represents a relatively
11 minor capital outlay for Big Rivers (approximately .56% of the cooperative's net
12 utility plant) to address its existing facilities. These projects, themselves, will also
13 have a minor or negligible impact on the amounts collected each month through the
14 Environmental Surcharge, as evidenced by the Direct Testimony of Mr. John
15 Wolfram submitted herewith. For these reasons, Big Rivers is not required to obtain
16 a CPCN for Project 14 or Project 15 under KRS 278.020. However, should the
17 Commission find either or both of these projects does require Commission
18 preapproval under KRS 278.020, a CPCN is requested as necessary.

19 39. Pursuant to 807 KAR 5:001, Section 15(2)(a), the facts relied upon to
20 show that the proposed construction or extension is or will be required by public
21 convenience or necessity are set forth in this Application and in the exhibits hereto.
22 In support of this Application, Big Rivers submits testimony from the following:

- 23 • Mr. Michael T. Pullen, Vice President of Production for Big Rivers,
24 who provides testimony at Exhibit E addressing, among other things,
25 Big Rivers' generation portfolio and strategic profile, the

Big Rivers Electric Corporation
Case No. 2019-00435
2020 Environmental Compliance Plan

Project Number	Primary Pollutant(s)	Control Facility	Plant	Primary Environmental Regulation	Permit	Projected Completion	Projected Capital Cost ¹ (\$ Million)	Projected Annual O&M (\$ Million)
12	SO ₂ / ELG	Relocation of Flue Gas Desulfurization (FGD / Scrubber) with Dewatering and Wastewater Treatment (WWT)	Coleman / Wilson	Clean Air Act, Cross State Air Pollution Rule (CSAPR); Effluent Limitations Guidelines ("ELG")	<u>Wilson Title V Permit</u> V-16-013 modification (Authority to Construct and Operate a new Wet FGD ("WFGD")); <u>Coleman Title V Permit</u> V-08-019 modification (Remove Scrubber from Permit)	2022	\$ 111.77	\$ 4.37
13-1	CCR / ELG	Ash Pond Closure, WMB Pond, Wasterwater Treatment	Green	Coal Combustion Residuals ("CCR") Rule; Effluent Limitations Guidelines ("ELG")	Kentucky Pollutant Discharge Elimination System ("KPDES") Permit KY0001929	2027	41.37	2.700
13-2	CCR	Ash Pond Closures	Coleman	CCR Rule	KPDES Permit KY0001937	2029	48.72	0.021
13-3	CCR	Ash Pond Closure ²	Reid/ HMP&L Station Two	CCR Rule	KPDES Permit KY0001929	2024	10.30	0.016

Big Rivers Electric Corporation
Case No. 2019-00435
2020 Environmental Compliance Plan

Project Number	Primary Pollutant(s)	Control Facility	Plant	Primary Environmental Regulation	Permit	Projected Completion	Projected Capital Cost ¹ (\$ Million)	Projected Annual O&M (\$ Million)
14	CCR	Phase 1 Landfill Final Cover	Wilson	CCR Rule	Solid Waste Permit SW09200004	2021	15.20	0.026
15	CCR / ELG	Landfill Permitter Drainage System ²	Green	CCR Rule; ELG	Solid Waste Permit SW11700007	2020	4.98	0.053
16	CCR	CCR Regulatory Assets ^{2, 3}	Wilson, Green, Reid/HMP&L Station Two	CCR Rule	KPDES Permit KY0001929; Solid Waste Permits SW11700007, SW09200004	2020	<i>Not Applicable</i>	1.490
							\$ 232.34	\$ 8.676

¹ Capital costs exclude capitalized interest.

² Costs exclude HMP&L share of capital and O&M.

³ Total costs deferred through CCR Regulatory Assets, which Big Rivers proposes to amortize over 10 years, are projected to total approximately \$14.87 million.

1 costs. It was determined that the existing booster fans and limestone grinding
2 systems, among many other components, can be reused at the Wilson Station
3 with minimal modification. Overall, it is estimated that Big Rivers can save
4 approximately \$17 million by utilizing existing equipment as part of the
5 Wilson FGD retrofit and upgrade project compared to installing a new FGD
6 and associated equipment.

7

8 **Q. What is the anticipated capital cost of this project?**

9 A. The cost study prepared by Mr. Hoydick and his team at AFWIPC estimate a
10 total cost for the project at approximately \$122.1 million. However, that
11 estimate is based on the relocation and reinstallation of not only the Coleman
12 FGD, but also its dewatering systems; and as evidenced by the Synmat
13 proposal provided at Exhibit Pullen-2, the installation of a new system in an
14 existing building at the Wilson Station will significantly reduce project costs.
15 Based on this latter approach, the total estimated capital cost for Project 12 is
16 \$111.77 million (excluding capitalized interest of \$4.64 million).

17

18 **Q. What is the estimated annual cost of operation after the proposed
19 facilities are placed into service?**

20 A. Big Rivers estimates annual O&M expense resulting from Project 12 to be
21 \$4.37 million beginning in 2023.

1 **Q. What impact will Project 12 have on the Wilson Station's capacity and**
2 **O&M costs?**

3 A. Replacing the FGD systems at Wilson Station will decrease the station's
4 capacity by approximately five megawatts due to the larger recycle pump
5 motors and oxidation blowers associated with the replacement FGD. However,
6 the fixed O&M cost will decrease by an average of approximately \$4 million
7 annually, and Wilson's non-fuel variable O&M cost will decrease by an average
8 of \$1.64/MWh, through 2035.

9
10 **Q. What is the projected schedule and timeline for this project?**

11 A. The full project, including obtaining necessary approvals, detailed engineering
12 and design, procurement of materials and services, and construction is
13 expected to be completed immediately following the FGD tie-in during the
14 spring 2022 planned outage of the Wilson 1 unit. Big Rivers plans to complete
15 detailed engineering work for Project 12 in 2020 to allow for competitive
16 bidding of the construction and procurement work as soon as practicable. The
17 bids will be evaluated based on cost, schedule, conformance to bid
18 specifications, and demonstrated experience in safely and efficiently doing this
19 type of work. Once underway, dismantling of the absorber at the Coleman
20 Station is expected to take approximately fourteen (14) weeks, with erection of
21 the absorber at the Wilson Station encompassing approximately twenty-two

1 addition to the proposed project, including the continued operation of the
2 Station as-is and the replacement of Wilson's FGD with a new FGD. The
3 economic analyses conducted by the Company are further discussed in the
4 testimony of Mr. Smith, Big Rivers' Chief Financial Officer.

5

6 **Q. Please describe the notable advantages and disadvantages of each of**
7 **the options considered.**

8 **A.** For the scenario to continue the operation of the Station as-is, O&M cost,
9 Capital Cost, and Equivalent Unplanned Outage rates would all increase. In
10 addition, "as-is" operation would likely result in additional environmental
11 liability as system-wide emission allowances decrease following the idling of
12 the Coleman and Reid Stations. For the scenario to replace the FGD with a
13 new FGD, the new FGD would lower fixed O&M cost, lower non-fuel variable
14 O&M cost, and reduce the amount of special waste disposal in the landfill.
15 However, as previously explained in this testimony, the reuse of the Coleman
16 FGD at Wilson reduces the fixed O&M by an average of approximately \$4
17 million annually and non-fuel variable O&M cost by an average of \$1.64/MWh
18 through 2035. Given these savings, the least cost option, and that chosen by
19 Big Rivers, is to recycle the FGD at Coleman Station and move it to the Wilson
20 Station.

21

1 stormwater runoff, in addition to sluiced ash, a WMB Pond is needed for the
2 continuing waste water flows. The pond will be modified by segregating the
3 ash to one side of the pond and closing it in place, and the remaining area will
4 be used as a waste water pond for storm water runoff and process water
5 discharge.

6

7 **Q. What are the principal environmental drivers underlying the**
8 **modification of the Green Station's WWT system?**

9 A. In order to meet requirements governing wastewater discharge as regulated
10 by the federal Effluent Limitation Guidelines and state KPDES permit, the
11 Green Station must be equipped with a wastewater treatment system to
12 regulate pond pH, alkalinity, total suspended solids, and assist in the removal
13 of arsenic and iron that originates primarily from the coal pile runoff stream,
14 boiler blowdowns, and miscellaneous site drains.

15

16 **Q. What is the estimated capital cost for this project?**

17 A. The estimated capital cost for this project is \$41.37 million plus capitalized
18 interest of \$3.5 million for a total cost of \$44.87 million.

19

20

1 **Q. Please describe Project 13-1's expected impact to operations and**
2 **maintenance costs for Big Rivers.**

3 A. The annual O&M expense resulting from the chemical treatment systems and
4 ongoing monitoring costs associated with the WMB pond and WWT system are
5 estimated at approximately \$2.7 million, due primarily to chemical
6 consumption costs.

7

8 **Q. Please describe the contracting approach Big Rivers intends to take**
9 **in order to complete the construction of this project.**

10 A. Big Rivers anticipates utilizing multiple contracts to complete this work. Big
11 Rivers will utilize an Owner's Engineer to develop the construction and major
12 equipment specifications to be procured. Competitive bidding will be
13 performed to award the contracts based on cost, experience, safety record, and
14 scheduling requirements.

15

16 **Q. Besides authorization from this Commission, what permits or**
17 **approvals are necessary in connection with these projects?**

18 A. The current KPDES permit already contains the requirements to meet when
19 dewatering the ash pond to convert it to a WMB pond. Big Rivers will notify
20 the Kentucky Division of Waste Management and prepare a solid waste permit
21 application to transfer the water discharge permit to a solid waste permit.

1 **Q. What is the anticipated capital cost and impact to annual O&M**
2 **associated with this project?**

3 A. The estimated total capital cost of this project, including contingency and
4 owner's costs, is \$48.72 million. This amount does not include capitalized
5 interest of approximately \$4.5 million, which results in a total project cost of
6 approximately \$53.22 million. Ongoing O&M costs for the closed ponds are
7 expected to remain equal to those currently experienced for the ponds as part
8 of the idled facility, and they are expected to be approximately \$21,000 per year
9 to cover costs such as mowing, well monitoring, wildlife control inspection, and
10 ground maintenance.

11

12 **Q. What is the estimated timeline for this project?**

13 A. From start to finish, the closure of the Coleman Station ash ponds is expected
14 to take approximately five (5) years. This schedule includes roughly five
15 months for detailed engineering design and 3 months for a bid process. The
16 overall construction schedule, which was developed based on 8-hour, 5-day
17 work weeks, reflects the volume of the CCR material to be graded and
18 consolidated on-site. The estimated daily grading production rate of moving
19 wet CCR material within the ponds is 3,500 cubic yards, assuming the use of
20 two excavators and eight haul trucks. This estimate is based on other CCR
21 unit closure projects with which Burns & McDonnell has been involved.

1 **Q. What is the anticipated capital cost and annual O&M associated with**
2 **this project?**

3 A. The total estimated capital cost of Project 13-3 is \$13.3 million, of which Big
4 Rivers' projected share is \$10.3 million. This amount does not include
5 capitalized interest of approximately \$0.27 million, which results in a total
6 project cost for Big Rivers of approximately \$10.57 million. Following
7 completion of this project, estimated O&M expenses related to the closed ash
8 pond are expected to be approximately \$21,000 annually, with \$16,200
9 representing the projected share of Big Rivers annually.

10

11 **Q. What is the estimated schedule and timeline for this project?**

12 A. Based on the date generation last occurred at the Station and consistent with
13 the CCR Rule, the closure of the relevant ash pond is required to be completed
14 by April 17, 2024. The anticipated closure timeline, including permitting and
15 engineering, is estimated to be completed in just over two (2) years.

16 **Q. Does Big Rivers intend to use a similar contracting approach with**
17 **respect to this ash pond closure project as that planned for the**
18 **Coleman Station project?**

19 A. No, as this ash pond is owned by the City of Henderson. While Big Rivers'
20 expertise and leadership are expected to spearhead this project, the award of

1 be required to acquire and place approximately 83,000 cubic yards of
2 additional soil to complete the soil cap. Moreover, once the soil placement is
3 complete, Big Rivers would be required to sow and maintain grass and
4 complete additional erosion control measures continually. As reflected in
5 Exhibit Pullen-3, the estimated capital costs associated with these alternatives
6 significantly exceed the estimated capital cost of the selected system.
7 Moreover, ongoing O&M costs associated with the selected option
8 (approximately \$26,000 annually) are much more favorable than the other
9 options.

10

11 **Q. Please describe the manner in which Project 14 will be completed.**

12 A. Project 14 will begin with site preparations including drainage modifications
13 and surface adjustments. Once the landscape is complete, the synthetic cover
14 system will be installed. This system is rolled onto the surface of the landfill,
15 similar to turf onto a football field. The synthetic cover will create an
16 impervious barrier diverting runoff to dedicated down drains that collect into
17 the allocated KPDES-permitted collection pond. Once the cover is completed,
18 toe drains will be installed at the perimeter of the landfill to collect runoff from
19 the lower slope and further alleviate any existing pockets of water contained
20 within the landfill. These drains will also flow to the allocated KPDES-
21 permitted collection pond.

1 **Q. What is the anticipated capital cost associated with this project?**

2 A. The estimated capital cost for this project is \$15.2 million plus capitalized
3 interest of \$0.41 million for a total cost of \$15.53 million. This figure is based
4 on quotes obtained by Big Rivers for site preparation, the cover material,
5 installation, drainage facilities and associated work, as reflected in the
6 attached Exhibit Pullen-3.

7

8 **Q. What is the estimated timeline for this project?**

9 A. Detailed Engineering specifications/drawings are expected to be completed by
10 June 1, 2020, which includes review and comment by the Kentucky Division of
11 Waste Management. Bid specifications and contractor selection process would
12 then occur between June 1, 2020 and July 31, 2020. This schedule gives an
13 anticipated start of construction date of August 10, 2020. The project is
14 expected to be completed by June 1, 2021.

15

16 **Q. Please describe the contracting approach Big Rivers intends to take
17 in order to complete the construction of this project.**

18 A. Similar to the Green Station ash pond closure and associated projects, Big
19 Rivers intends to utilize a multiple-contract approach to complete this work.
20 Big Rivers will utilize an Owner's Engineer to develop the construction and
21 major equipment specifications to be procured, and competitive bidding will be

1 reduction of lithium concentrations to levels below the groundwater protection
2 standards in the currently affected monitoring wells, thereby advancing the
3 goal of full compliance with corrective action requirements of the CCR Rule.

4
5 **Q. Is the City of Henderson also required to share in the costs of this**
6 **project?**

7 A. Yes. Henderson is obligated to share in those Green landfill costs that are
8 attributable to the HMP&L Station Two waste in the landfill, based upon the
9 percentage of waste in the landfill attributable to Henderson's share of waste
10 generated by Station Two. As of December 31, 2018, Henderson owned 12% of
11 the waste in the landfill, and is therefore expected to pay 12% of the costs of
12 Project 15. Again, however, should the Company be unable to recover from
13 Henderson as it expects, Big Rivers requests authority to recover through its
14 ESM the costs it actually incurs.

15
16 **Q. What is the anticipated capital cost and impact to annual O&M**
17 **associated with this project?**

18 A. The estimated capital cost of Project 15 is \$5.66 million plus capitalized
19 interest of \$0.10 million for a total cost of \$5.76 million. Annual O&M costs
20 associated with this project are expected to be approximately \$60,000.

1 require a CPCN. Alternatively, if the Commission finds Project 13-3 does
2 require a CPCN, Big Rivers requests a CPCN for that project, as well.

3 In addition, Projects 14 and 15, which concern the installation of a final
4 cover system for Phase 1 of the Wilson Station's landfill and a perimeter
5 drainage system and other facilities at the Green Station's landfill,
6 respectively, are relatively-minor undertakings pursued by Big Rivers as
7 ordinary extensions of existing systems in the usual course of business. Project
8 14's estimated capital cost of approximately \$15.2 million represents a
9 relatively insignificant portion of Big Rivers' net utility plant (1.5%) and will
10 not materially impact Big Rivers' existing financial condition. Likewise,
11 Project 15's total estimated cost of \$5.66 million, of which Big Rivers' share has
12 been calculated to be \$4.98 million, also represents a relatively minor capital
13 outlay for Big Rivers (0.56% of the cooperative's net utility plant). These
14 Projects, themselves, will also have a minor or negligible impact on the amount
15 of the ES, as discussed in the Direct Testimony of Mr. John Wolfram. For
16 these reasons, Big Rivers is not required to obtain a CPCN for Project 14 or
17 Project 15 under KRS 278.020 and requests a Commission determination
18 reflecting that conclusion.

19 Finally, the relatively-minor undertakings that comprise Project 16 (and
20 for which regulatory assets were authorized in Case No. 2015-00333) have also
21 been pursued by Big Rivers as ordinary extensions of its existing systems in

Big Rivers DB Wilson Phase 1

Enter Below

Total Project Size (acres) **103**

ITEM DESCRIPTION	ALTERNATIVE 1: CONVENTIONAL CAP				ALTERNATIVE 2: MICRODRAIN SYSTEM				ALTERNATIVE 3: CLOSURETURF SYSTEM			
	QTY	UNIT	UNIT PRICE	TOTAL PRICE	QTY	UNIT	UNIT PRICE	TOTAL PRICE	QTY	UNIT	UNIT PRICE	TOTAL PRICE
Project & Construction Management	60	mo	30,000	\$ 1,800,000	60	mo	30,000	\$ 1,800,000	24	mo	15,000	\$ 360,000
QA/QC Oversight	60	mo	35,000	\$ 2,100,000	60	mo	35,000	\$ 2,100,000	24	mo	20,000	\$ 480,000
Subtotal Management and Oversight				\$ 3,900,000				\$ 3,900,000				\$ 840,000
40 mil LLDPE MicroSpike Geomembrane - Material Delivered	4,935,348	SF	\$ 0.281	\$ 1,386,833				\$ -				\$ -
300/8/8 mil Geocomposite - Material Delivered	4,935,348	SF	\$ 0.452	\$ 2,230,777				\$ -				\$ -
40 mil LLDPE MicroSpike Geomembrane - Installation	4,486,680	SF	\$ 0.180	\$ 807,602				\$ -				\$ -
300/8/8 mil Geocomposite - Installation	4,486,680	SF	\$ 0.180	\$ 807,602				\$ -				\$ -
Stripping, storing and replacing Cover Soil (24")	332,347	CY	\$ 28.000	\$ 9,305,707				\$ -				\$ -
Toe Drain Installations	4,486,680	SF	\$ 0.132	\$ 592,242				\$ -				\$ -
Seeding - Hydroseeding	4,486,680	SF	\$ 0.180	\$ 807,602				\$ -				\$ -
Subtotal Traditional Multilayer Cover				\$ 15,938,366				\$ -				\$ -
50 mil LLDPE MicroDrain - Material Delivered					4,935,348	SF	\$ 0.503	\$ 2,482,480				
8 oz Nonwoven Geotextile - Material Delivered					4,935,348	SF	\$ 0.098	\$ 483,664				
50 mil LLDPE MicroDrain -Installation					4,486,680	SF	\$ 0.210	\$ 942,203				
8 oz Nonwoven Geotextile - Installation					4,486,680	SF	\$ 0.140	\$ 628,135				
Stripping, storing and replacing Cover Soil (24")					332,347	CY	\$ 28.000	\$ 9,305,707				
Toe Drain Installations					4,486,680	SF	\$ 0.132	\$ 592,242				
Seeding - Hydroseeding					4,486,680	SF	\$ 0.180	\$ 807,602				
Subtotal MicroDrain System								\$ 15,242,033				\$ -
ClosureTurf (material, installation, and infill)				\$ -					4,486,680	SF	\$ 2.99	\$ 13,415,173
Toe Drain Installations									4,486,680	SF	\$ 0.132	\$ 592,242
Subtotal ClosureTurf System				\$ -				\$ -				\$ 14,007,415
Annual Maintenance (mowing, repairs, etc)	103	AC	\$ 2,500.00	\$ 257,500	103	AC	\$ 2,500.00	\$ 257,500	103	AC	\$ 250.00	\$ 25,750
Cost of Capital	30	YR	6%	\$ 7,725,000	30	YR	6%	\$ 7,725,000	30	YR	6%	\$ 772,500
Subtotal Present Value O&M				\$ 3,544,444				\$ 3,544,444				\$ 354,444
				\$ -				\$ -				\$ -
TOTAL ALTERNATIVE	ALTERNATIVE 1			\$ 23,382,810	ALTERNATIVE 2			\$ 22,686,477	ALTERNATIVE 3			\$ 15,201,859
Notes:	Notes: Material quantities include 10% lap and waste Material pricing includes estimated freight Soil pricing assumes no soil import required. PM/CM/QAC for liner and soil construction				Notes: Material quantities include 10% lap and waste Material pricing includes estimated freight Soil pricing assumes no soil import required. PM/CM/QAC for liner and soil construction				Notes: Estimated freight included Typical lap and scrap included in pricing MicroDrain geomembrane included Engineered turf and infill included Geosynthetics and infill installation included Assume BR to contract direction with installer			

1 (“WWT”) improvements, as detailed in the testimonies of Mr. Pullen and Mr.
2 Hoydick.

3

4 **Q. What is the estimated capital cost of Project 12?**

5 A. The estimated capital cost of Project 12 is approximately \$111.77 million. The
6 addition of capitalized interest of approximately \$4.64 million results in a total
7 estimated project cost of \$116.41 million.

8

9 **Q. Did Big Rivers evaluate alternative options to determine whether**
10 **Project 12 was cost effective?**

11 A. Yes. As described in more detail in Mr. Pullen’s testimony, the existing FGD
12 at Wilson Station is at the end of its useful life and needs to be replaced. The
13 relatively new FGD at the idled Coleman Station presents a unique
14 opportunity for Big Rivers to maximize the value of Coleman Station by
15 utilizing a proven, efficient asset to replace the Wilson FGD. To ensure this
16 plan was cost effective, Big Rivers compared utilizing the Coleman FGD
17 against the continued operation of the existing FGD, and against the
18 replacement of Wilson’s FGD with a new FGD.

19

1 ponds as part of the 2020 Plan, including those at Green (Project 13-1),
2 Coleman (Project 13-2), and Reid/HMP&L Station Two (Project 13-3).

3

4 i. Project 13-1

5 **Q. What is Project 13-1?**

6 A. As more fully discussed in Mr. Pullen’s testimony, Project 13-1 is comprised of
7 undertakings primarily designed to ensure compliance with the CCR Rule and
8 limitations prescribed by the Green Station’s relevant Kentucky Pollutant
9 Discharge Elimination System (“KPDES”) permit. The project primarily
10 includes components necessary to satisfy retirement obligations related to the
11 Green Station’s ash pond, as well as certain water treatment equipment
12 outside the scope of the ARO related to the ash pond.

13

14 **Q. What is the estimated capital cost for this project?**

15 A. The estimated capital cost for this project is \$41.37 million plus capitalized
16 interest of \$3.5 million for a total cost of \$44.87 million.

17

18 **Q. What portion of the capital cost of Project 13-1 is related to closure of
19 the Green ash pond?**

20 A. Of the total estimated capital cost for Project 13-1, \$35.47 million relates to the
21 closure of the Green ash pond in satisfaction of asset retirement obligations.

1 The balance of the projected capital cost, roughly \$5.9 million, reflects costs
2 related to the associated WMB pond and water treatment that are outside the
3 scope of the ARO for the ash ponds.

4

5 **Q. What was Big Rivers' ARO liability balance for the Green ash pond as**
6 **of December 31, 2019?**

7 A. As of December 31, 2019, Big Rivers' ARO liability balance was \$25.3 million
8 for the Green ash pond, which reflects the present value of the estimated future
9 cash flows required to close the ash pond per the updated cost studies prepared
10 by Burns & McDonnell.

11

12 **Q. How does Big Rivers propose to recover the costs of this project**
13 **through its ES?**

14 A. Big Rivers proposes to recover the capital costs of ash pond closure reflected in
15 Project 13-1 (the Green ARO Regulatory Asset) through non-levelized
16 amortization of the actual ash pond closure spending-to-date, allocable over a
17 rolling 10-year period. This method ensures that cost recovery from Members
18 through the ES is based on actual project spending while also allowing Big
19 Rivers to match its amortization expense with ES revenue. With respect to the
20 Project 13-1 capital costs that are not included in the ash pond ARO
21 (approximately \$5.9 million), Big Rivers requests the authority to add those

1 capital costs to its environmental rate base, including capitalized interest, the
2 authority to depreciate that plant utilizing the approved Green Station
3 depreciation rates, and to recover that depreciation expense through the ES.

4
5 **Q. Does Big Rivers seek to recover ongoing O&M related to this project?**

6 A. Yes. The annual O&M expense resulting from this project is estimated at
7 approximately \$2.7 million, due primarily to chemical consumption costs. Big
8 Rivers seeks to recover this amount as an expense through its ES.

9
10 ii. Project 13-2

11 **Q. What is Project 13-2?**

12 A. As more fully discussed in Mr. Pullen's testimony, Project 13-2 involves the
13 closure of the Coleman Station's three coal ash ponds, designated as the North
14 Pond (approximately sixty (60) acres in size), the Sluice Pond (approximately
15 forty-nine (49) acres in size), and the South Pond (approximately ninety-four
16 (94) acres in size).

17
18 **Q. What is the estimated capital cost for this project?**

19 A. The estimated total capital cost of this project, including contingency and
20 owner's costs, is \$48.72 million. This amount does not include capitalized

1 interest of approximately \$4.5 million, which results in a total project cost of
2 approximately \$53.22 million.

3

4 **Q. Has Big Rivers recognized AROs related to its Coleman Station ash**
5 **ponds?**

6 A. No. Unlike the Green and Reid/Station Two facilities, the ash ponds at the
7 Coleman Station were inactive at the time the CCR Rule was originally
8 published. As a result, Big Rivers was not then required to recognize an ARO
9 with respect to the Coleman Station ash ponds.

10

11 **Q. Has the CCR Rule expanded to include the coal ash ponds at the**
12 **Coleman Station?**

13 A. Not yet, but it is expected to soon. As discussed in the testimony of Mr. Pullen,
14 a 2018 decision of the U.S. Court of Appeals for the D.C. Circuit vacated and
15 remanded a number of provisions within the CCR Rule, including those that
16 exempt from regulation inactive impoundments at inactive facilities (also
17 known as “legacy ponds”) like Coleman Station. The U.S. Environmental
18 Protection Agency is presently examining the path forward for implementation
19 of the decision, and it is expected that legacy ponds will face the same or
20 substantially similar closure requirements as currently-regulated ash ponds.

21 It is also expected that these ponds will be subject to the Kentucky

1 Administrative Regulations (KAR) for special waste facilities or forthcoming
2 state regulations specifically applicable to disposal of CCR.

3

4 **Q. Does Big Rivers expect to recognize an ARO for the Coleman Station**
5 **ash ponds?**

6 A. Yes, upon publication of the updated CCR Rule that includes regulation of
7 legacy ash ponds. The RUS USoA requires Big Rivers to recognize an ARO
8 liability in the period in which it is incurred, and the amount recognized for
9 the liability and an associated asset retirement cost must be stated at the fair
10 value of the asset retirement obligation. Likewise, Financial Accounting
11 Standards Board Accounting Standards Codification 14 ("ASC") Topic 410-20,
12 *Asset Retirement Obligations*, requires AROs to be recognized at fair value
13 when incurred and capitalized as part of the related long-lived asset. The
14 liability is accreted to its present value each period, and the capitalized cost is
15 depreciated over the useful life of the related asset. When the asset is retired,
16 the entity settles the obligation for its recorded amount or incurs a gain or loss.

17

18 **Q. What is the amount of the ARO Big Rivers expects to recognize with**
19 **respect to the Coleman ash ponds?**

20 A. Big Rivers expects to record an ARO liability based on the present value of the
21 cost estimate provided by Burns & McDonnell, \$48.7 million.

1 **Q. Is this approach consistent with that approved in Case No. 2015-**
2 **00333?**

3 A. Yes.

4

5 **Q. Please summarize the ES treatment that Big Rivers requests**
6 **regarding Project 13-2.**

7 A. When Project 13-2 commences and costs begin to be incurred, Big Rivers
8 requests authority to recover as an expense through its ES the amortization of
9 the Coleman Station ARO Regulatory Asset over a rolling 10-year period as
10 actual costs are incurred, which is the same manner of recovery as requested
11 with respect to the Green ARO Regulatory Asset and Reid/Station Two ARO
12 Regulatory Asset. Big Rivers also requests to recover ongoing O&M expense
13 related to Project 13-2 through its ES, which is estimated to total \$21,000
14 annually.

15

16 iii. Project 13-3

17 **Q. What is Project 13-3?**

18 A. In light of the retirement of the HMP&L Station Two generating units in
19 February of 2019, the CCR Rule requires the timely closure of the ash pond
20 located at that facility. Big Rivers proposes as Project 13-3 to close the

1 approximately 24-acre ash pond by capping it in place with a cover system, as
2 outlined in the CCR Rule.

3

4 **Q. What is the estimated capital cost for this project?**

5 A. The total estimated capital cost of Project 13-3 is \$13.3 million. As discussed
6 further in the testimony of Mr. Pullen, the City of Henderson is responsible for
7 22.76% of these costs based on the parties' agreement and their respective
8 proportional share of capacity costs during the life of Station Two. Thus, Big
9 Rivers' projected share of the capital cost of this project is \$10.3 million. This
10 amount does not include capitalized interest of approximately \$0.27 million,
11 which results in a total project cost for Big Rivers of approximately \$10.57
12 million. Should the Company be unable to recover from Henderson as it
13 expects, Big Rivers requests authority to recover through its ES the costs it
14 actually incurs.

15

16 **Q. What is Big Rivers' current ARO liability balance for the Reid/Station
17 Two ash pond as of December 31, 2019?**

18 A. As of December 31, 2019, Big Rivers' ARO liability balance was \$9.3 million for
19 its share of the Reid/Station Two ash pond, which reflect the present values of
20 the estimated future cash flows required to close the ash ponds per the updated
21 cost studies prepared by Burns & McDonnell.

1 **Q. How does the cost of this project relate to the existing Reid/Station**
2 **Two ARO Regulatory Asset established in Case No. 2015-00333?**

3 A. As I described earlier, Big Rivers' established the Reid/Station Two ARO
4 Regulatory Asset for the income statement impacts related to its Station Two
5 ash ponds. Just like Big Rivers proposes for Project 13-1 and Project 13-2, Big
6 Rivers proposes cost recovery of Project 13-3 through non-levelized
7 amortization based on actual ash pond closure spending, allocable over a
8 rolling 10-year period, in order to match ES revenue with expense.

9
10 **Q. Does Big Rivers seek to recover ongoing O&M related to this project?**

11 A. Yes, Big Rivers seeks to recover its share of ongoing O&M related to this
12 project (estimated at \$16,200 annually) as an expense through its ES. Again,
13 should the Company be unable to recover from Henderson as it expects, Big
14 Rivers requests authority to recover through its ES the costs it actually incurs.

15

16 **C. PROJECT 14 – WILSON LANDFILL PHASE 1 FINAL COVER**

17 **Q. Please describe Project 14.**

18 A. Project 14 involves the construction of an engineered synthetic geo-membrane
19 liner to serve as the final cover system for Phase 1 of the Wilson Station's
20 permitted special waste landfill. As discussed in the testimony of Mr. Pullen,
21 Big Rivers examined multiple options for compliance with respect to the Phase

1 1 landfill, and Project 14 as-proposed represents the reasonable, least-cost
2 alternative.

3

4 **Q. What is the estimated capital cost and annual O&M associated with**
5 **this project?**

6 A. The estimated capital cost for this project is \$15.2 million plus capitalized
7 interest of \$0.41 million for a total cost of \$15.53 million. The annual O&M
8 expense resulting from this project is estimated at approximately \$26,000.

9

10 **Q. Will the costs of Project 14 materially impact Big Rivers' financial**
11 **condition?**

12 A. No. The total estimated capital cost of Project 14 represents a relatively minor
13 capital outlay for Big Rivers and will not materially impact the cooperative's
14 financial condition. Project 14 reflects a relatively insignificant portion of Big
15 Rivers' net utility plant (approximately 1.5%) and will have a minor or
16 negligible impact on the amount of the ES, as discussed in the Direct
17 Testimony of Mr. John Wolfram.

18

19 **Q. Please summarize the ES treatment that Big Rivers requests**
20 **regarding Project 14.**

1 A. Big Rivers requests the authority to add to its environmental rate base the
2 capital costs of the project, including capitalized interest, as well as the
3 authority to depreciate that plant utilizing the approved Wilson Station
4 depreciation rates and to recover that depreciation expense through the ES.
5 Big Rivers also requests authority to recover the on-going O&M expense
6 associated with the project through the ES.

7

8 **D. PROJECT 15 – GREEN LANDFILL PERIMETER DRAINAGE**
9 **SYSTEM**

10 **Q. Please describe Project 15.**

11 A. Project 15 concerns the Green Station's CCR landfill and is designed to reduce
12 lithium levels in groundwater and control other, non-groundwater releases.
13 The project includes the construction of a perimeter drainage system to direct
14 non-groundwater seepage and the removal of coal ash run-off from the
15 sedimentation pond located to the south of the Green Landfill.

16

17 **Q. What is the estimated capital cost associated with this project?**

18 A. The estimated capital cost of Project 15 is \$5.66 million plus capitalized
19 interest of \$0.10 million for a total cost of \$5.76 million.

20

21 **Q. Is HMP&L also required to share in the costs of this project?**

1 A. Yes. HMP&L is obligated to share in those Green landfill costs that are
2 attributable to the HMP&L Station Two waste in the landfill, based upon the
3 percentage of waste in the landfill attributable to Henderson's share of waste
4 generated by Station Two. As of December 31, 2018, Henderson owned 12% of
5 the waste in the landfill, and is therefore expected to pay 12% of the costs of
6 Project 15. As a result, the capital cost to Big Rivers for this project is
7 anticipated to be approximately \$4.98 million. Again, however, should this
8 Commission or another authority determine that the cost-share allocation is
9 different than expected, Big Rivers requests authority to recover through its
10 ES all costs for which it is deemed responsible.

11

12 **Q. Please describe Project 15's expected impact to operations and**
13 **maintenance costs for Big Rivers.**

14 A. Annual O&M costs associated with this project are expected to be
15 approximately \$60,000, with Big Rivers' share totaling approximately
16 \$53,000 annually.

17

18 **Q. Will the costs of Project 15 materially impact Big Rivers' financial**
19 **condition?**

20 A. No. The total estimated capital cost of Project 15 represents a relatively
21 insignificant portion of Big Rivers' net utility plant (0.56%) and will not

1 **Q. When does Big Rivers anticipate it will complete the ongoing projects**
2 **that comprise the CCR Regulatory Assets?**

3 A. Big Rivers anticipates that the ongoing projects reflected in the CCR
4 Regulatory Assets will be completed by July 31, 2020. In total, Big Rivers
5 projects that the balance of the CCR Regulatory Assets will be approximately
6 \$14.87 million at that time. This amount does not reflect costs for which
7 Henderson is responsible, as detailed in the testimony of Mr. Pullen at Exhibit
8 Pullen-5. As with Project 13-3 and Project 15, Big Rivers requests authority to
9 recover through its ES all costs it actually incurs under Project 16, in the event
10 Henderson does not fulfill its payment obligations.

11

12 **Q. Please explain how Big Rivers proposes to recover the incremental**
13 **CCR Regulatory Assets through its ES.**

14 A. Big Rivers proposes to amortize the entire balance of the incremental CCR
15 Regulatory Assets over a fixed, 10-year (120-month) period. This balanced
16 approach is designed to minimize impact to ratepayers' bills while allowing the
17 Company to gradually recover costs it has necessarily and prudently incurred
18 for environmental compliance.

19

Big Rivers Electric Corporation
Analysis of FGD Alternatives for Wilson Unit 1
January 2020

II. Introduction

In order to comply with the rules promulgated by the U.S. Environmental Protection Agency (“EPA”) under the Clean Air Act (“CAA”), including but not limited to the Mercury and Air Toxics Standards (“MATS”), coal-fired generation facilities generally require a Flue Gas Desulphurization (“FGD”) and absorber system that meets or exceeds specified emissions standards. The existing FGD system at the D.B. Wilson Station (“Wilson Station”) has exceeded its expected useful life, represents relatively dated and ineffective technology, and requires significant ongoing investment to operate and maintain. Big Rivers undertook the instant analysis to consider options for addressing this issue on a least-cost basis.

III. Alternatives

Big Rivers evaluated the following alternatives for continuing to meet the environmental requirements:

- A) Replacing the existing FGD system at Wilson Station utilizing FGD facilities presently in place at Big Rivers’ Kenneth C. Coleman Station (“Coleman Station”);
- B) Retaining the existing Wilson FGD system;
- C) Replacing the Wilson FGD system with a new FGD system;

Key capital cost assumptions for each alternative include the following (all in 2023 dollars)

- A) Wilson Coleman Scrubber: \$116 Million
- B) Wilson Existing Scrubber: No build cost but plant fixed costs are higher to maintain existing scrubber
- C) Wilson New Scrubber: \$133 Million

Other cost and operating assumptions are detailed in the Appendix.

IV. Analysis

Big Rivers analyzed the operation of the three alternatives using its current production models. Big Rivers uses Energy Exemplar’s production cost modeling software Plexos to thoroughly model planning alternatives on a comparative basis.

**Big Rivers Electric Corporation
Analysis of FGD Alternatives for Wilson Unit 1
January 2020**

Sensitivity analyses were performed around key pricing variables, including power prices and coal prices. In the sensitivities, single variable analysis is performed to isolate the impact of future uncertainty of each pricing element. Sensitivity studies were also performed for unit forced outage rates and for project capital build cost variations. The total set of sensitivity scenarios includes the following (all relative to Base Case values):

- Coal Prices: +50%, +40%, +30%, +20%, +10%, -10%, -20%, -30%, -40%, -50%
- LMP Prices: +50%, +40%, +30%, +20%, +10%, -10%, -20%, -30%, -40%, -50%
- Forced Outage Rates: +5%, -5%
- Project Capital Build Costs: +10%, -10%

V. Results

The NPV of net costs for all three options were calculated over three time periods:

- 1) 2023 to 2035 (to reflect all of the years explicitly modeled)
- 2) 2023 to 2043 (to reflect a 20-year study period and also reflect the end of the all service requirement date with Member-Owners)
- 3) 2023 In Perpetuity (to reflect the operation of facilities beyond a 20-year life)

The analysis clearly shows moving the Coleman scrubber to Wilson being the least-cost option. See Table 1 and Table 2 which follow.

Table 1. Case NPVs

<u>Case</u>	<u>Description</u>	<u>2023 to 2035</u>	<u>2023 to 2043</u>	<u>2023 In Perpetuity</u>
A	Wilson Coleman Scrubber	237,649,393	231,125,407	217,461,333
B	Wilson Existing	264,986,715	289,514,936	340,887,731
C	Wilson New Scrubber	253,783,368	246,314,190	230,670,474
	Least Cost Value	237,649,393	231,125,407	217,461,333
	Least Cost Case	A	A	A

**Big Rivers Electric Corporation
Summary of Wilson FGD Analysis**

<u>Line Number</u>	<u>Case</u>	<u>Description</u>	<u>2023 to 2035</u>	<u>2023 to 2043</u>	<u>2023 In Perpetuity</u>	
1						
2	A	Wilson Coleman Scrubber	237,649,393	231,125,407	217,461,333	
3	B	Wilson Existing	264,986,715	289,514,936	340,887,731	
4	C	Wilson New Scrubber	253,783,368	246,314,190	230,670,474	
5						
6		Least Cost Value	237,649,393	231,125,407	217,461,333	
7		Least Cost Case	A	A	A	
8						
9						
10	<u>Case</u>	<u>Description</u>	<u>2023 to 2035</u>	<u>2023 to 2043</u>	<u>2023 In Perpetuity</u>	<u>AVG</u>
11						
12	A	Wilson Coleman Scrubber	1	1	1	1.00
13	B	Wilson Existing	3	3	3	3.00
14	C	Wilson New Scrubber	2	2	2	2.00
15						
16		Least Cost Value	1	1	1	1.00
17		Least Cost Case	A	A	A	A

1 A. A primary goal of the Cost Study was to optimize the overall cost for the project
2 by effectively reusing major pieces of equipment from the Coleman Station,
3 consistent with the direction of Big Rivers. For purposes of the Cost Study,
4 this equipment included: the absorber module including most absorber
5 internals, absorber recycle pumps/motors, absorber 48" fiberglass-reinforced-
6 plastic recycle suction and discharge pipes, oxidation air blowers/motors,
7 gypsum dewatering equipment systems, relevant electrical switchgear, motor
8 control centers and distributed controls system cabinets. Smaller items, such
9 as piping 10 inches in diameter or less, limited instrumentation, instrument
10 tubing, valves, electrical/controls tray/wiring, lighting, and certain
11 communications systems, were not considered reasonably cost-effective to
12 reuse and therefore were included as a part of new equipment purchases.
13 Exhibit Hoydick-3 hereto provides detailed information about all the
14 equipment that AFWIPC and Big Rivers anticipate can be reused.

15
16 **Q. What cost savings can Big Rivers expect to realize as a result of**
17 **repurposing certain Coleman Station equipment?**

18 A. As discussed in the Cost Study, it is estimated that Big Rivers will save
19 approximately \$17.2 million by utilizing existing equipment as part of the
20 Wilson FGD retrofit and upgrade project as compared to installing a new FGD
21 and associated equipment.