FILED
July 2, 2019
INDIANA UTILITY
REGULATORY COMMISSION

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF DUKE ENERGY INDIANA, LLC PURSUANT TO IND. CODE §§ 8-1-2-42.7 AND 8-1-2-61, FOR (1) AUTHORITY TO MODIFY ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE THROUGH A STEP-IN OF NEW RATES AND CHARGES USING A FORECASTED TEST PERIOD; (2) APPROVAL OF NEW SCHEDULES OF RATES AND CHARGES, GENERAL RULES AND REGULATIONS, AND RIDERS; (3) APPROVAL OF A FEDERAL MANDATE CERTIFICATE UNDER IND. CODE § 8-1-8.4-1; (4) APPROVAL OF REVISED ELECTRIC DEPRECIATION RATES APPLICABLE TO ITS ELECTRIC PLANT IN SERVICE; (5) APPROVAL OF NECESSARY AND APPROPRIATE ACCOUNTING DEFERRAL RELIEF; AND (6) APPROVAL OF A REVENUE DECOUPLING MECHANISM FOR CERTAIN CUSTOMER CLASSES	)	**CAUSE NO. 45253**

VERIFIED DIRECT TESTIMONY OF JEFFREY T. KOPP

On Behalf of Petitioner,
DUKE ENERGY INDIANA, LLC

Petitioner's Exhibit 13

July 2, 2019

DIRECT TESTIMONY OF JEFFREY T. KOPP
MANAGER, BUSINESS CONSULTING DEPARTMENT
BURNS & McDONNELL ENGINEERING COMPANY, INC.
ON BEHALF OF DUKE ENERGY INDIANA, LLC
BEFORE THE INDIANA UTILITY REGULATORY COMMISSION

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jeffrey (Jeff) T. Kopp, and my business address is 9400 Ward Parkway, Kansas City, Missouri 64114.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Burns & McDonnell Engineering Company, Inc. ("Burns & McDonnell") as a manager in the Business Consulting Department of the Business & Technology Services Division.

Q. WHAT KIND OF FIRM IS BURNS & MCDONNELL?

A. Burns & McDonnell is a consulting engineering firm and has been in business since 1898, serving multiple industries including the electric power industry. In 2019, Burns & McDonnell was rated No. 10 overall of the Top 500 Design Firms by the Engineering News Record ("ENR"). Burns & McDonnell was rated as the No. 1 engineering design firm in the United States serving the electric power industry by ENR in 2019.

Burns & McDonnell has vast experience in both preparation of dismantlement studies and executing construction projects, including hundreds of construction projects totaling more than $2 billion dollars of construction last year alone.

Our long history, large market presence, and top industry rankings demonstrate our ability to effectively and accurately estimate costs. In addition, we have worked with demolition contractors over the years to refine our estimating process for dismantlement studies to align our estimates with theirs.

Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AS A MANAGER IN THE BUSINESS CONSULTING DEPARTMENT OF BURNS & MCDONNELL.

A. I am a professional engineer registered in the states of Indiana, Illinois, and Missouri with 18 years of experience consulting to electric utilities. I have been involved in numerous decommissioning studies and served as project manager on the majority of them. I have helped prepare decommissioning studies on all types of power plants utilizing various technologies and fuels.

As the manager of the Utility Consulting Department of Burns & McDonnell, I oversee a team of more than 60 project managers, consultants, and engineers, who provide consulting services to clients primarily in the electric power generation and electric power transmission industries, but also to other industrial and commercial clients. The services provided by this group of project managers include decommissioning cost studies, independent engineering assessments of existing power generation assets, economic evaluations of capital expenditures, new power generation development and evaluation, electric and water rate analysis, electric transmission planning, generation resource planning, renewable power development, and other related engineering and economic assessments.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I have a Bachelor's Degree in Civil Engineering from the University of Missouri – Rolla (now the Missouri University of Science and Technology) and a Masters of Business Administration from the University of Kansas. In my role as a group manager, project manager, and project engineer, I have worked on and have overseen consulting activities for coal, natural gas, wind, solar, hydroelectric, and biomass power generation facilities.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?

A. I am testifying on behalf of Duke Energy Indiana, LLC ("Duke Energy Indiana" or "Company").

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

A. The purpose of my testimony is to describe and support Duke Energy Indiana's "Electric Generating Plant Decommissioning & Dismantlement Study" cost estimate (Decommissioning Study) for its electric generating units, as prepared by Burns and McDonnell. The Decommissioning Study report is attached to my testimony as Petitioner's Exhibit 13-A.

II. DUKE ENERGY INDIANA'S DECOMMISSIONING STUDY

Q. DID BURNS & MCDONNELL PERFORM A STUDY FOR DUKE ENERGY INDIANA AT ITS REQUEST AS TO THE COST OF DEMOLISHING ITS GENERATING STATIONS?

A. Yes, it did.

Q. WHY IS IT NECESSARY TO DEMOLISH A GENERATING STATION AT THE END OF ITS USEFUL LIFE?

A. There are a number of reasons. First, to reuse the land, the structures and facilities would need to be removed. Also, there is a safety concern and therefore a potential public risk if security is not maintained at the structures. If the abandoned structures are not dismantled, the structures will deteriorate if not maintained. Some of the structures, stacks for example, could collapse causing damage. Environmental remediation of potential health hazards (such as asbestos), also requires proper removal and disposal of equipment.

Q. PLEASE SUMMARIZE THE RESULTS OF THE DECOMMISSIONING STUDY PREPARED FOR THE COMPANY.

A. The Company retained Burns and McDonnell to provide it with a recommendation regarding the estimated total cost, in 2018 dollars, of decommissioning and dismantling each Company-owned generation unit at the end of its useful life, as well as the total cost of decommissioning and dismantling the common facilities at these generating plants. The total decommissioning and dismantlement cost as determined by Burns and McDonnell, and reflected in the Decommissioning Study, was net of salvage value for scrap materials at each plant. Further, Duke Energy Indiana provided to Burns and McDonnell estimated remaining materials and supplies inventory balances for inclusion in the Decommissioning Study, to be expensed at plant end-of-life. A portion of the inventory was also given a salvage credit. The estimated total net decommissioning and dismantlement cost for Duke Energy Indiana's generation facilities included in the study is $420,569,400 in 2018 dollars.

Q. WHAT PLANTS DID BURNS AND MCDONNELL EVALUATE IN THE 2018 DECOMMISSIONING COST STUDY?

A. For purposes of the Decommissioning Study, we evaluated each of Duke Energy Indiana's electric generating plants, including Cayuga Station, Edwardsport IGCC, Gallagher Station, Gibson Station, Noblesville Station, Cayuga CT4, Henry County CT Station, Madison CT Station, Vermillion CT Station, Wheatland CT Station, Markland Hydro, Camp Atterbury Solar, and Crane Solar (collectively, the "Plants").

Q. WHAT APPROACH WAS USED TO DEVELOP THE COST ESTIMATES IN THE DECOMMISSIONING STUDY?

A. The estimate of the direct decommissioning and dismantlement cost was prepared with the intent of most accurately representing what Burns and McDonnell would anticipate contractors bidding (through a competitive bidding process) to decommission and dismantle the equipment, address environmental issues, and restore the site for new industrial use, based on performing known tasks under ideal conditions. In addition to these known tasks under ideal conditions, indirect costs were added to cover costs incurred by the Company in executing the projects, and contingency was added to account for unknown, but reasonably expected to be incurred costs.

Q. WHAT SOURCES DID YOU RELY ON TO DEVELOP THE DECOMMISSIONING ESTIMATE FOR THE PLANTS?

A. The labor rates, equipment costs, and disposal costs used to develop the Decommission Study cost estimates were specific to the location in which the work is to be performed. These rates were applied to the quantities associated with each Plant to determine the total cost of decommissioning. Disposal costs were obtained from publicly available information and communications with landfills and scrap processors located in the area in which the work is to be performed. Pricing developed by the American Metal Market ("AMM") was also used to develop scrap credits, which is an industry standard publication routinely relied upon by demolition contractors. The RS Means online database was also utilized to obtain labor rates, equipment costs, and disposal costs for the study area. RS Means labor rates are national averages and include site cost indices to provide localized costs. RS Means is widely utilized within the construction industry as a tool for estimating and projecting project costs.

Q. HOW WERE THE DIRECT COSTS DEVELOPED FOR PURPOSES OF THE DECOMMISSIONING STUDY?

A. Direct costs are the estimated costs that contractors would bid to demolish the equipment, address environmental issues, and restore the site to a condition suitable for industrial use. As part of the Decommissioning Study, site-specific direct cost estimates were developed using a "bottom-up" cost estimating approach, where cost estimates are developed from scratch through the development of site-specific quantity estimates and the application of unit pricing to the quantity estimates. The quantity estimates include, but are not limited to, items such as tons of steel; pounds of other metals such as copper and stainless steel; tons of debris; cubic yards of concrete; linear feet of asbestos pipe insulation; square feet of asbestos boiler insulation; cubic yards of site grading; acres of seeding; and the labor hours required to complete the decommissioning and demolition activities.

Q. WHAT QUALIFIES BURNS AND MCDONNELL TO PREPARE ACCURATE ESTIMATES OF DISMANTLEMENT COSTS AND WHY SHOULD THE COMMISSION PUT WEIGHT INTO THESE ESTIMATES OF THE DIRECT COSTS?

A. Over the years, Burns and McDonnell has worked closely with demolition contractors in developing decommissioning cost estimates in order to more accurately estimate the costs for activities that the demolition contractors will perform. Burns and McDonnell has prepared numerous decommissioning studies for various clients considering different technologies in several different states and has provided services to clients on decommissioning project execution that has included review and evaluation of bids from demolition contractors. Burns and McDonnell has utilized this experience preparing decommissioning estimates as well as reviewing demolition contractor bids to confirm the reasonableness of the cost estimates prepared by Burns and McDonnell.

At the time the Company decides to decommission the Plants, means and methods will not be dictated to the contractor by Burns and McDonnell. It will be the contractor’s responsibility to determine means and methods that result in safely decommissioning and dismantling the Plants at the lowest possible cost. However, based on Burns and McDonnell’s experience with decommissioning projects and discussions with demolition contractors, the costs estimated by Burns and McDonnell are reflective of what contractors would bid, through a competitive bidding process given the option to select safe and efficient means and methods.

As indicated above, Burns and McDonnell has vast experience in preparation of decommissioning studies, overseeing demolition projects, and executing construction projects. To execute over $2 billion of construction projects on an annual basis, Burns and McDonnell has to win this work through competitive bidding processes, which requires us to be able to accurately prepare cost estimates. If we routinely estimated costs too high, we would not be successful in winning projects. If we routinely estimated costs too low, we would not be able to execute projects profitably and would no longer be active in this market.

Our long history, large market presence, and top industry rankings demonstrate our ability to effectively and accurately estimate costs. In addition, we have seen competitive bids from demolition contractors for power plant demolition projects, and we have worked with demolition contractors over the years to refine our estimating process for decommissioning studies to align our costs with theirs.

Q. WHAT LEVEL OF DECOMMISSIONING AND DISMANTLEMENT WAS ASSUMED TO BE PERFORMED AT EACH OF THE SITES?

A. The basis of the estimates was that all sites would be restored to a condition suitable for new industrial use.

Q. WHAT DOES RESTORING THE SITE FOR NEW INDUSTRIAL USE ENTAIL?

A. The sites will have all above grade buildings and equipment removed,[1] foundations removed to two feet below grade, be rough graded, and seeded. Sites also will have small diameter underground pipes capped and abandoned in place. The sites can remain in this condition in perpetuity, until the site is specifically redeveloped for new industrial use.

Q. WHAT WAS THE EXTENT OF YOUR PERSONAL INVOLVEMENT IN THE PREPARATION OF THE DECOMMISSIONING STUDY?

A. I served as the Burns and McDonnell project manager on the Decommissioning Study. I worked directly with all individuals and parties involved in the preparation of the decommissioning and dismantlement cost estimates in the Decommissioning Study. I was responsible for the overall project, and was involved in the development of the decommissioning and dismantlement

[1] For clarity, this excludes any transmission facilities, such as substations, that are otherwise required to remain on the site.

assumptions and cost estimating methodology, preparation and review of the cost estimates, and preparation and review of the report.

Q. DID THE BURNS & MCDONNELL TEAM VISIT EACH OF THE PLANTS FOR WHICH THE SITE-SPECIFIC COST ESTIMATES WERE DEVELOPED?

A. Yes. The Burns & McDonnell team visited all plants for which site-specific decommissioning and dismantlement cost estimates were prepared, along with representatives from the Company.

III. DESCRIPTION OF DECOMMISSIONING AND DISMANTLEMENT COSTS

Q. PLEASE GENERALLY EXPLAIN THE TYPE OF COSTS DEVELOPED BY BURNS & MCDONNELL AND REFLECTED IN THE DECOMMISSIONING STUDY.

A. The cost estimates reflected in the Decommissioning Study are inclusive of direct costs associated with decommissioning and dismantling the plant equipment and facilities and restoring the sites to an industrial-ready condition. The direct costs include environmental remediation costs for asbestos removal and other hazardous material handling and disposal, as well as costs for removing and disposing of contaminated soil around transformers. The Decommissioning Study also includes estimates of indirect costs to be incurred by the Company during decommissioning and dismantlement, and contingency costs.

Q. HOW WERE THE DIRECT COSTS DEVELOPED FOR PURPOSES OF THE DECOMMISSIONING STUDY?

A. As part of the Decommissioning Study, site-specific cost estimates were developed using a "bottom-up" cost estimating approach, where cost estimates are developed from scratch through the development of site-specific quantity estimates and the application of unit pricing rates to the quantity estimates.

As outlined in the Decommissioning Study, Burns and McDonnell prepared these cost estimates by estimating quantities for existing equipment based on visual inspections, interviews with the facilities' staff, review of engineering drawings, review of Burns and McDonnell's in-house database of plant equipment quantities, and using Burns and McDonnell's professional judgment. This resulted in an estimate of quantities for the tasks required to be performed for each decommissioning and dismantlement effort. Current market pricing for labor rates and equipment were used to develop unit pricing rates for each task. These unit pricing rates were applied to the quantities for the Plants to determine the total direct cost of decommissioning and dismantlement for each site. Additionally, unit pricing for scrap values was applied to the scrap quantities to determine anticipated salvage values, which were subtracted from the gross direct costs to arrive at a net project cost in 2018 dollars.

Q. HOW WERE SCRAP VALUES DETERMINED?

A. Scrap metal prices used in the development of the scrap credit were based on a review of recent pricing trends for various types of materials published by

American Metal Market, which is an industry standard publication and information subscription service[2] that reports the prices paid for scrap metals in transactions worldwide.

American Metal Market is the leading independent supplier of market intelligence and pricing to the North American metals industries and publisher of widely-used reference prices for scrap. American Metal Market also has extensive experience in reporting scrap prices in a wide range of grades and locations. American Metal Market has been reporting on the U.S. scrap market for more than 100 years, providing benchmark prices to users in the scrap metal industry.

Q. WHAT IS INCLUDED IN THE PROJECT INDIRECT COSTS INCLUDED IN THE DECOMMISSIONING STUDY?

A. This category includes costs expected to be incurred by the Company during the decommissioning and dismantlement process, which would be in addition to the direct costs paid to a demolition contractor. This includes the costs for staff of the Company providing oversight during demolition activities, as well as Company overheads, and general and administrative costs. Project scope intended to be covered by this category includes obtaining permits; construction services such as water and electricity; security facilities; environmental monitoring; and the costs of construction management which include scheduling, monitoring and supervising the contractors who will be doing the actual demolition work. It is

[2] See http://www.amm.com

also intended to cover such additional expenses as the relocation/modification of switch yard facilities where that is necessary.

Q. HOW WERE THE INDIRECT COSTS DETERMINED?

A. Indirect costs were determined as a percentage of the direct costs, as is a typical approach when preparing these types of cost estimates. The percentage of direct costs that was applied to determine the indirect costs was developed by Burns and McDonnell based on experience with past decommissioning and dismantlement estimates.

Q. WHAT IS INCLUDED IN THE CONTINGENCY COSTS?

A. A contingency cost includes unspecified but reasonably expected additional costs to be incurred by the Company during the execution of decommissioning and dismantlement activities. For any project, there is always some uncertainty associated with work conditions, the scope of work, and how the work will be performed. There is also some uncertainty associated with estimating the quantities for dismantlement of facilities. These uncertainties result from the age of the Plants, limits on drawing availability, and the absence of detailed data for environmental remediation (such as identification of asbestos, lead based paint, soil testing around transformers, etc.), prior to preparation of these types of studies. Contingency costs account for these unspecified but expected costs and are in addition to the direct costs associated with the base decommissioning and dismantlement known scope items.

Q. ARE CONTINGENCY COSTS STANDARD INDUSTRY PRACTICE?

A. Yes. The application of contingency is not only appropriate, it is standard industry practice. Even on a project where firm pricing has been agreed upon with a successful bidder, it is typical that a client carry some level of contingency to cover potential change orders. It is even more important to carry contingency on planning-level cost estimates such as those presented in the Decommissioning Study.

Q. DID BURNS & MCDONNELL INCLUDE ANY OTHER COSTS IN THE DECOMMISSIONING STUDY?

A. Yes. In addition to the physical decommissioning and dismantlement scope itself, we also included the expense provided by Duke Energy Indiana of remaining materials and supplies (“M&S”) inventory balances at the time of retirement. An appropriate credit for potential reuse or resale of remaining M&S was also included.

Q. DID BURNS & MCDONNELL APPLY ANY COST ESCALATION FACTOR TO THESE ESTIMATES?

A. No, we did not. All of the estimates are in year 2018 dollars.

Q. WHAT IS YOUR OPINION OF THE REASONABLENESS OF THE DECOMMISSIONING AND DISMANTLEMENT COST ESTIMATES THAT BURNS & MCDONNELL HAS PREPARED FOR DUKE ENERGY INDIANA?

A. In my opinion, these estimates were carefully prepared using standard and accepted estimating techniques and the best information available, and are consistent with our industry experience. Although assumptions had to be made, I believe these assumptions are reasonable and that the estimates are as accurate as possible. Further, the inclusion of remaining M&S balance expenses is also reasonable. Maintaining an adequate inventory of M&S for the operation and maintenance of the generating units up to their end of life represents a prudently incurred cost for providing service to customers.

IV. CONCLUSION

Q. WAS THE DECOMMISSIONING STUDY ATTACHED TO YOUR TESTIMONY AS PETITIONER'S EXHIBIT 13-A PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

Q. ARE THE ESTIMATED COSTS REFLECTED IN THE DECOMMISSIONING STUDY REASONABLY REFLECTIVE OF THE ACTUAL COSTS NECESSARY TO DEMOLISH THE COMPANY'S PLANTS AND EXPENSE REMAINING M&S INVENTORY?

A. Yes, they are.

Q. ARE THESE ESTIMATED COSTS APPROPRIATE FOR USE IN THE DEVELOPMENT OF DEPRECIATION RATES FOR THE COMPANY'S ELECTRIC GENERATING PLANTS?

A. Yes.

Q. DOES THIS CONCLUDE YOUR PREFILED DIRECT TESTIMONY?

A. Yes, it does.

Electric Generating Plant Decommissioning & Dismantlement Study

Duke Energy Indiana

Electric Generating Plant Decommissioning & Dismantlement Study
Project No. 109635

11/26/2018

November 26, 2018

Mr. Michael Wertz
Duke Energy Indiana
550 S. Tryon Street
Charlotte, North Carolina 28202

Re: Decommissioning Study of Duke Energy Indiana Facilities

Dear Michael:

Burns & McDonnell is pleased to submit its Decommissioning Study ("Study") to Duke Energy Indiana ("DEI") for the fleetwide study of all DEI assets ("Plants").

The objective of the Study was to review the Plants and to make a recommendation to DEI regarding the total cost in 2018 dollars to decommission the facility at the end of its useful life. Based on the results of this evaluation, the estimated net cost for decommissioning the fleet is $420,569,400.

Burns & McDonnell appreciates the opportunity to provide our professional consulting services to DEI. If you need any additional information, please contact Jeff Kopp at (816) 822-4239, fax (816) 333-3690, or e-mail jkopp@burnsmcd.com. We look forward to working with you again on any future projects.

Sincerely,

Jeffrey T Kopp

Jeff Kopp, PE (Registered in IL, IN, MO)
Manager, Utility Consulting

JTK/jtk

Electric Generating Plant Decommissioning & Dismantlement Study

prepared for

Duke Energy Indiana
Electric Generating Plant Decommissioning & Dismantlement Study
Plainfield, IN

Project No. 109635

11/26/2018

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

INDEX AND CERTIFICATION

Duke Energy Indiana
Electric Generating Plant Decommissioning & Dismantlement Study
Project No. 109635

Report Index

Certification

I hereby certify, as a Professional Engineer in the state of Indiana, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by the Duke Energy Indiana or others without specific verification or adaptation by the Engineer.

Jeff Kopp, P.E. (Registered in IL, IN, MO)

Date: 11/26/2018

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
BOP	Balance of Plant
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
C&D	Construction and Demolition
DEI	Duke Energy Indiana
ESP	Electrostatic Precipitator
FGD	Flue Gas Desulfurization
GE	General Electric Company
HRSG	Heat Recovery Steam Generator
IGCC	Integrated Gasification Combined Cycle
MW	Megawatt
NOx	Nitrogen Oxide
Plant	Power Generation Asset
SCR	Selective Catalytic Reduction
Study	Decommissioning & Dismantlement Cost Study

STATEMENT OF LIMITATIONS

In preparation of this decommissioning study, Burns & McDonnell has relied upon information provided by Duke Energy Indiana. Burns & McDonnell acknowledges that it has requested the information from Duke Energy Indiana that it deemed necessary to complete this study. Burns & McDonnell has not independently verified such information and cannot guarantee its accuracy or completeness.

Burns & McDonnell's estimates and projections of decommissioning costs are based on Burns & McDonnell's experience, qualifications, and judgment. Since Burns & McDonnell has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractors' procedures and methods, and other factors, Burns & McDonnell does not guarantee the accuracy of its estimates and projections.

Burns & McDonnell's estimates do not include allowances for unforeseen environmental liabilities associated with unexpected environmental contamination due to events not considered part of normal operations, such as fuel tank ruptures, oil spills, etc. Estimates also do not include allowances for environmental remediation associated with changes in classification of hazardous materials.

1.0 EXECUTIVE SUMMARY

1.1 Introduction

Burns & McDonnell Engineering Company, Inc. ("Burns & McDonnell") of Kansas City, Missouri, was retained by Duke Energy Indiana ("DEI") to conduct a Decommissioning & Dismantlement Cost Study ("Study") for power generation assets ("Plants") in Indiana and Ohio. The assets include natural gas-fired, coal-fired, hydro-powered, and solar generating facilities. The purpose of the Study was to review the facilities and to make a recommendation to DEI regarding the total cost to decommission the facilities at the end of their useful lives. The decommissioning costs were developed by Burns & McDonnell using information provided by DEI and in-house data available to Burns & McDonnell.

1.2 Results

Burns & McDonnell has prepared cost estimates in 2018 dollars for the decommissioning and dismantlement of the Plants. These cost estimates are summarized in Appendix A. When DEI determines that the Plants should be retired, the above grade equipment and steel structures are assumed to have sufficient scrap value to a scrap contractor to offset a portion of the decommissioning costs. DEI will incur costs in the demolition and restoration of the sites less the scrap value of equipment and bulk recycled metals. Additionally, DEI's on-site inventory was taken into consideration for the demolition costs. For the Edwardsport integrated gasification combined cycle ("IGCC") and combustion turbine facilities, a salvage value of 25 percent was assumed. For the other Plants, 10 percent of the inventory was assumed to be salvageable. The combustion turbine facilities were assumed to have a higher inventory salvage value because spare parts for combustion turbines are more marketable and can be more easily resold to other owners/operators at a higher premium than just the scrap price of the material.

Table 1-1: Decommissioning Cost Summary (2018$)

Plant Name	Gross Demo Cost ($)	Inventory Cost ($)	Scrap Credit ($)	Inventory Credit ($)	2018 Net Cost ($)
Camp Atterbury	$281,400	-	($86,000)	-	$195,400
Cayuga CT 4	$1,629,000	$334,000	($494,000)	($84,000)	$1,385,000
Cayuga Station	$70,800,000	$9,259,000	($18,885,000)	($926,000)	$60,248,000
Crane Solar	$2,884,000	-	($686,000)	-	$2,198,000
Edwardsport IGCC	$50,161,000	$155,957,000	($13,544,000)	($38,989,000)	$153,585,000
Gallagher Station	$41,540,000	$9,115,000	($13,904,000)	($912,000)	$35,839,000
Gibson Station	$146,098,000	$31,400,000	($48,388,000)	($3,140,000)	$125,970,000
Henry County CT	$2,848,000	$586,000	($897,000)	($147,000)	$1,893,000
Madison CT Station	$5,620,000	$6,537,000	($3,783,000)	($1,634,000)	$6,465,000
Markland Hydro	$5,133,000	$213,000	($662,000)	($21,000)	$4,663,000
Noblesville Station	$11,700,000	$9,536,000	($4,894,000)	($954,000)	$15,388,000
Vermillion CT Station	$6,044,000	$2,919,000	($3,659,000)	($730,000)	$4,574,000
Wheatland CT	$3,875,000	$8,855,000	($2,350,000)	($2,214,000)	$8,166,000
Fleet Total	**$348,613,400**	**$234,711,000**	**($112,232,000)**	**($49,751,000)**	**$420,569,400**

The total net project costs presented above include the costs to return the sites to a condition suitable for reuse for development of an industrial facility. Included are the costs to decommission the facilities, dismantle the power generating equipment, dismantle the Balance of Plant ("BOP") facilities, and to perform environmental site restoration activities.

2.0 INTRODUCTION

2.1 Background

Burns & McDonnell was retained by DEI to conduct a Study to estimate the costs to decommission and demolish the electric generating Plants owned by DEI in Indiana and Ohio. The assets include natural gas-fired, coal-fired, hydro-powered, and solar generating facilities. Individuals from Burns & McDonnell visited the Plants evaluated within the Study in September of 2018. The purpose of the Study was to review the facilities and to make a recommendation to DEI regarding the total cost to decommission and dismantle the facilities at the end of their useful lives.

Burns & McDonnell has prepared decommissioning studies for over 100 facilities varying from fossil fuel generation (coal-steam, natural gas-steam, combined cycle, etc.) to renewables generation (solar, hydro, wind, etc.) using a proven methodology. In addition to preparing decommissioning and dismantlement estimates, Burns & McDonnell has supported demolition projects as the owner's engineer, to evaluate demolition bids and oversee demolition activities. This has provided Burns & McDonnell with insight into a broad range of competitive demolition bids, which also assists in confirming the validity of the decommissioning estimates developed by Burns & McDonnell.

2.2 Methodology

The site decommissioning and dismantling costs were developed using information provided by DEI and in-house data Burns & McDonnell collected from previous project experience. Burns & McDonnell estimated the quantities of equipment types based on a visual inspection of the facilities, reviews of engineering drawings, an in-house database of plant equipment quantities, and professional judgment. For each decommissioning and demolition task, Burns & McDonnell estimated the material, equipment and manhour quantities. Current market pricing for labor rates, equipment, and productivity were then developed for each task. The unit pricing was developed for each site based on the labor rates, equipment costs, and disposal costs specific to the area in which the work is to be performed. These rates were applied to the quantities for the Plants to determine the total cost of decommissioning and dismantling for each site.

The decommissioning and dismantling costs include the cost to return the site to an industrial condition, suitable for reuse for development of an industrial facility. Included are the costs to decommission and dismantle the assets owned by DEI at each site, including power generating equipment and BOP facilities.

2.2.1 Site Visits

Representatives from Burns & McDonnell and DEI visited the sites. The site visits consisted of a tour of each facility with plant personnel to review the equipment. Note that site visits were not conducted for Camp Atterbury Solar Station or Crane Solar. Tours were conducted by plant personnel. Mr. Michael Wertz, from Duke Energy Indiana, served as the DEI representative throughout the site visits, along with plant personnel at each of the sites.

The following Burns & McDonnell representatives comprised the site visit team:

- Mr. Jeff Kopp, Project Manager
- Mr. Kyle Haas, Lead Engineer
- Ms. Beth Wiese, Project Consultant
- Ms. Katlyn Meggers, Project Consultant

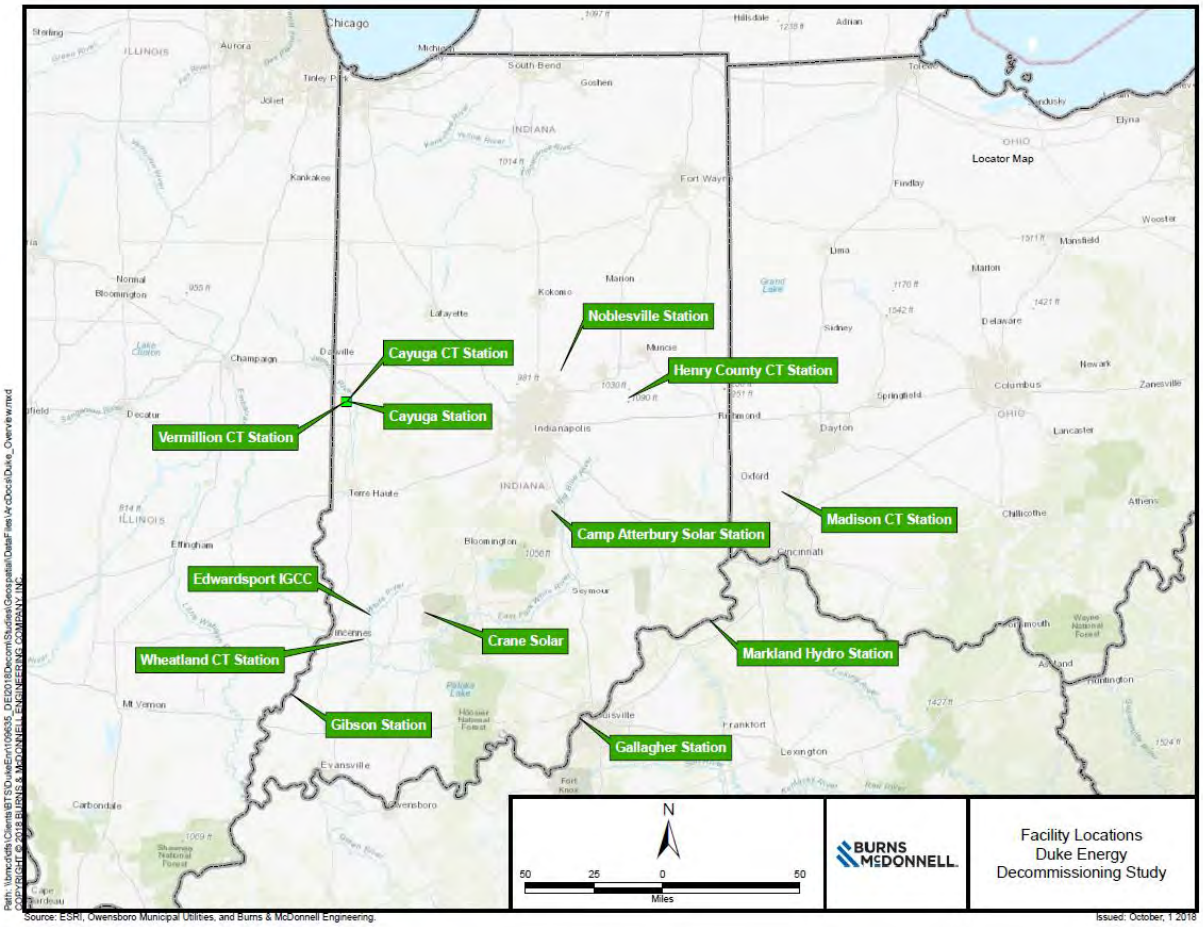
Table 2-1 outlines the dates in which the site visits were performed.

Table 2-1: Site Visit Dates

Plant	Site Visit Date
Cayuga CT Station	September 4th, 2018
Cayuga Station	September 4th, 2018
Vermillion CT Station	September 4th, 2018
Gibson Station	September 5th, 2018
Edwardsport IGCC	September 5th, 2018
Wheatland CT Station	September 5th, 2018
Noblesville Station	September 6th, 2018
Henry County CT Station	September 6th, 2018
Madison CT Station	September 6th, 2018
Markland Hydro Station	September 6th, 2018
Gallagher Station	September 7th, 2018

Figure 2-1 presents a map illustrating the location of the DEI facilities evaluated within this Study.

Figure 2-1: DEI Facilities



3.0 PLANT DESCRIPTIONS

The following sections provide the Plant descriptions considered for the purposes of this Study.

3.1 Camp Atterbury Solar Station

Camp Atterbury will be constructed at the Indiana National Guard's Camp Atterbury training facility in Johnson County, Indiana. The Camp Atterbury solar farm will have a capacity of 2 megawatts ("MW") and serve the surrounding area.

3.2 Cayuga Station and Cayuga CT Station

Cayuga Station is a three-unit generating facility with a total net capacity of 1085 MW located in Cayuga, Indiana. Unit 3 consists of one simple cycle combustion turbine facility as well as four diesel units with net capacities of 3.0 MW, 3.0 MW, 2.0 MW, and 2.0 MW.

Units 1 and 2, built between 1970 and 1972, are both steam turbines with net capacities of 500 MW and 495 MW, respectively. Units 1 and 2 both use coal as a primary fuel source but are capable of burning distillate fuel oil as a secondary fuel type. Unit 3 is a gas turbine with a net capacity of 80 MW. The primary fuel used for Unit 3 is natural gas and the secondary fuel is distillate fuel oil. The following table provides a summary of the three units at the Cayuga Station that were included in this Study.

Table 3-1: Cayuga Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Steam Turbine	Bituminous Coal	500 MW	1970
2	Steam Turbine	Bituminous Coal	495 MW	1972
3	Gas Turbine	Natural Gas	80 MW	1993
3A	Diesel Generator	Diesel	3 MW	1972
3B	Diesel Generator	Diesel	3 MW	1972
3C	Diesel Generator	Diesel	2 MW	1972
3D	Diesel Generator	Diesel	2 MW	1972

Units 1 and 2 are similarly designed units with similar primary and BOP equipment. The primary equipment of each includes a pulverized coal boiler, a condenser with stainless steel tubing, electrostatic precipitators ("ESP"), and a steam turbine generator. In addition, scrubbers were installed on Units 1 and 2 in 2008 and selective catalytic reduction ("SCR") units were installed in 2015. Supporting systems at Units 1 and 2 include circulating water piping and cooling towers, coal and limestone handling equipment, water treatment, and other BOP systems. The primary equipment accounted for at Unit 3 includes the 80 MW combustion turbine, 10 MW combined from four diesel generators, the stack/ancillary equipment (lube oil, fuel gas, etc.) associated with the combustion turbine, and supporting BOP facilities.

3.3 Crane Solar

Beginning commercial operation in 2017, the Crane Solar Facility consists of 76,000 SW-325 photovoltaic solar panels with a total capacity of 17.3 MW. The facility is located on roughly 145 acres of land which is leased by DEI from the Department of the Navy.

3.4 Edwardsport IGCC

Edwardsport is a 2x1 integrated gasification combined cycle ("IGCC") unit with a net capacity of 595 MW. Beginning commercial operation in 2013, this IGCC replaced Edwardsport's three coal-fired steam generators, which were demolished in 2012.

Unit 1 and Unit 2 are both combustion turbines manufactured by General Electric Company ("GE"). Both units are GE 7F Syngas and have a net capacity of 174.9 MW. Unit 3 is a steam turbine also manufactured by GE. Unit 3 is a G13 and has a net capacity of 245.2 MW. Table 3-2 provides a summary of the three units that are included in the Study.

Table 3-2: Edwardsport IGCC Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Combustion Turbine	Coal- Derived Syngas	174.9 MW	2013
2	Combustion Turbine	Coal- Derived Syngas	174.9 MW	2013
3	Steam Turbine	Coal- Derived Syngas	245.2 MW	2013

Other equipment on site includes two heat recovery steam generators ("HRSG"), gasifier trains, air separation units, sulfur recovery units, acid gas removal units, an activated carbon bed, and a multiple cell cooling tower.

3.5 Gallagher Station

Gallagher station is a four-unit 560 MW coal fired generating facility located in Floyd County, Indiana. Baghouses and dry sorbent pollution-control equipment were installed to meet emission regulations. Units 1 and 2 share a baghouse which came online in December of 2007, and Units 3 and 4 share a baghouse that came online in April of 2008.

Units 1 and 3 were retired in early 2012, while Units 2 and 4 continue to operate, each having a net capacity of 140 MW. Each unit primarily burns low sulfur bituminous coal but can use distillate fuel oil as a secondary fuel. Table 3-3 provides a summary of the units that are included in the Study.

Table 3-3: Gallagher Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Steam Turbine	Bituminous Coal	140 MW	1959
2	Steam Turbine	Bituminous Coal	140 MW	1958
3	Steam Turbine	Bituminous Coal	140 MW	1960
4	Steam Turbine	Bituminous Coal	140 MW	1961

The primary equipment for all four units includes pulverized coal boilers, condensers with titanium tubes, and steam turbine generators. Supplementary equipment associated with all four units includes coal handling equipment, circulating water equipment, cooling equipment, baghouses, and various BOP facilities.

3.6 Gibson Station

Gibson station is a five-unit 3,132 MW coal fired generating facility located in Owensville, Indiana. Each unit has been fitted with overfire air, low Nitrogen Oxide ("NOx") burners, and SCRs manufactured by Foster Wheeler Power Group. Unit 1 and Unit 2 were fitted with spray and tray scrubbers in 2007. Unit 3 was fitted with spray and tray scrubbers in 2006. Unit 4 and Unit 5 were fitted with spray scrubbers in 1995 and 1982, respectively. ESPs (without flue gas conditioning) were installed on the units between 1978 and 1992.

Each unit primarily uses bituminous coal, but distillate fuel oil can be used as a secondary fuel. Table 3-4 provides a summary of the units that are included in the Study.

Table 3-4: Gibson Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Steam Turbine	Bituminous Coal	630 MW	1976
2	Steam Turbine	Bituminous Coal	630 MW	1975
3	Steam Turbine	Bituminous Coal	630 MW	1978
4	Steam Turbine	Bituminous Coal	622 MW	1979
5	Steam Turbine	Bituminous Coal	620 MW	1982

Units 1, 2, 3, and 4 are solely owned by Duke Energy Indiana. Unit 5 is co-owned by Duke Energy Indiana, Wabash Valley Power Association, and Indiana Municipal Power Agency. Duke Energy Indiana owns 50.05 percent, Wabash Valley Power Association owns 25 percent, and Indiana Municipal Power Agency owns 24.95 percent of Unit 5. For the purposes of this Study, it was assumed that Duke Energy Indiana would incur 100 percent of the costs associated with Unit 5.

3.7 Henry County CT Station

Henry County Peaking Station consists of three 43 MW natural gas-fueled combustion turbines that provide a combined net capacity of 129 MW. The three GE LM6000PA turbines are fitted with low NOx Controls. Table 3-5 provides a summary of the units that are included in the Study.

Table 3-5: Henry County Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Gas Turbine	Natural Gas	43 MW	2001
2	Gas Turbine	Natural Gas	43 MW	2001
3	Gas Turbine	Natural Gas	43 MW	2001

3.8 Madison CT Station

Madison Station is a 556 MW natural gas fired Plant located in Butler County, Ohio. Madison Station features eight 7EA combustion turbines manufactured by GE Energy. When built in 2000, each unit was fitted with dry low NOx burners. Table 3-6 provides a summary of the eight units that are included in the Study.

Table 3-6: Madison Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Gas Turbine	Natural Gas	71 MW	2000
2	Gas Turbine	Natural Gas	71 MW	2000
3	Gas Turbine	Natural Gas	59 MW	2000
4	Gas Turbine	Natural Gas	70 MW	2000
5	Gas Turbine	Natural Gas	70 MW	2000
6	Gas Turbine	Natural Gas	72 MW	2000
7	Gas Turbine	Natural Gas	73 MW	2000
8	Gas Turbine	Natural Gas	70 MW	2000

3.9 Markland Hydro Station

Located on the Ohio River, Markland is the only hydroelectric station operated by Duke Energy in the Midwest. The hydroelectric station has a net capacity of 45 MW and began commercial operation in 1967. The station currently consists of three units manufactured by Allis Chalmers Corp, each with a capacity of 15 MW. Table 3-7 provides a summary of the units that are included in the Study.

Table 3-7: Markland Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Hydraulic Turbine	Water	15 MW	1967
2	Hydraulic Turbine	Water	15 MW	1967
3	Hydraulic Turbine	Water	15 MW	1967

Over the next three years (2018 through 2020) the technology in all three units will be modernized and updated to increase efficiency.

3.10 Noblesville Station

Originally built in 1950 as a coal plant, the Noblesville Station was modernized and reopened in 2003 as a combined cycle facility. The facility now utilizes three natural gas-fired GE 6FA combustion turbines and two steam turbines. These turbines are joined to a HRSG which captures and converts combustion turbine exhaust heat to energy, making the repowered plant more efficient.

The combined cycle configuration now provides a total net capacity of 264 MW. The steam turbines have net capacities of 43 and 44 MW. The three combustion turbines have net capacities of 59, 60, and 58 MW.

Each combustion turbine unit was fitted with SCR nitrogen controls in 2003. Table 3-8 provides a summary of the units that are included in the Study.

Table 3-8: Noblesville Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Steam Turbine	Natural Gas	43 MW	1950
2	Steam Turbine	Natural Gas	44 MW	1950
3	Combustion Turbine	Natural Gas	59 MW	2003
4	Combustion Turbine	Natural Gas	60 MW	2003
5	Combustion Turbine	Natural Gas	58 MW	2003

3.11 Vermillion CT Station

Vermillion Power Station houses eight natural gas-fired simple cycle turbines with a combined net capacity of 574 MW. The eight GE 7EA units began commercial operation in 2000 and have each been equipped with low NOx burners.

Currently 62.5 percent of the plant is owned by Duke Energy Indiana while the remaining 37.5 percent is owned by Wabash Valley Power Association. Table 3-9 provides a summary of the eight units included in the Study. For the purposes of this Study, it was assumed that Duke Energy Indiana would incur 100 percent of the costs associated with Vermillion.

Table 3-9: Vermillion Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Gas Turbine	Natural Gas	72 MW	2000
2	Gas Turbine	Natural Gas	72 MW	2000
3	Gas Turbine	Natural Gas	71 MW	2000
4	Gas Turbine	Natural Gas	73 MW	2000
5	Gas Turbine	Natural Gas	71 MW	2000
6	Gas Turbine	Natural Gas	72 MW	2000
7	Gas Turbine	Natural Gas	72 MW	2000
8	Gas Turbine	Natural Gas	71 MW	2000

3.12 Wheatland Peaking Station

Located in Knox County, the Wheatland Peaking Station consists of four natural gas-fired simple cycle combustion turbines. The four Siemens 501D5A turbines produce a combined net capacity of 450 MW. Each unit is fitted with low NOx control technology. Table 3-10 provides a summary of the units that are included in the Study.

Table 3-10: Wheatland Summary

Unit	Generation Technology	Fuel Type	Net Capacity	In-Service Date
1	Gas Turbine	Natural Gas	111 MW	2000
2	Gas Turbine	Natural Gas	114 MW	2000
3	Gas Turbine	Natural Gas	114 MW	2000
4	Gas Turbine	Natural Gas	111 MW	2000

4.0 DECOMMISSIONING COSTS

Burns & McDonnell has prepared decommissioning and dismantling cost estimates for the Plants described in Section 3.0. When DEI determines that each site should be retired, the above grade equipment and steel structures are assumed to have sufficient scrap value to a scrap contractor to offset a portion of the site decommissioning costs. However, DEI will incur costs for decommissioning and dismantling the Plants and restoring each site to the extent that those costs exceed the scrap value of equipment and bulk steel.

The decommissioning and dismantling costs include the cost to return the site to an industrial condition, suitable for reuse for development of an industrial facility. The estimates include the costs to decommission the facilities, dismantle all the assets owned by DEI at the sites, including power generating equipment and BOP facilities, and the costs to perform environmental site restoration activities except for coal combustion residual remediation, as deemed necessary by DEI.

For purposes of this Study, Burns & McDonnell has assumed that each site will be decommissioned and dismantled as a single project allowing the most cost-effective demolition methods to be utilized. A summary of several of the means and methods that could be employed are summarized in the following paragraphs. However, means and methods will not be dictated to the contractor by Burns & McDonnell. It will be the contractor's responsibility to determine means and methods that result in safely decommissioning the Plants at the lowest possible cost.

Asbestos remediation, as required, would take place prior to commencement of any other demolition activities. Abatement would need to be performed in compliance with all county, state, and federal regulations, including, but not limited to, requirements for sealing off work areas and maintaining negative pressure throughout the removal process. Final clearances and approvals would need to be achieved prior to performing further demolition activities.

High grade assets would then be removed from each site, to the extent possible. This would include items such as transformers, transformer coils, circuit breakers, electrical wire, condenser plates and tubes, and heater tubes. High grade assets include precious alloys such as copper, aluminum-brass tubes, stainless steel tubes, and other high value metals occurring in Plant systems. High grade asset removal would occur up-front in the schedule, to reduce the potential for vandalism, increase cash flow, and recover scrap through separation of recyclable materials. Methods of removal vary with the location and nature of the asset. Small transformers, small equipment, and wire would likely be removed and shipped as-is for processing at a scrap yard. Large transformers, combustion turbines, steam turbine generators, and condensers would likely require some on-site disassembly prior to being shipped to a scrap yard.

Construction and Demolition ("C&D") waste includes items such as non-asbestos insulation, roofing, wood, drywall, plastics, and other non-metallic materials. C&D waste would typically be segregated from scrap and concrete to avoid cross-contamination of waste streams or recycle streams. C&D crews could remove these materials with equipment such as excavators equipped with material handling attachments, skid steers, etc. This material would be consolidated and loaded into bulk containers for disposal.

In general, boilers could be felled and cut into manageable sized pieces on the ground. First the structures around the boilers would need to be removed using excavators equipped with shears and grapples. Stairs, grating, elevators, and other high structures would be removed using an "ultra-high reach" excavator, equipped with shears.

After the surrounding structures and ductwork have been removed, the stacks would be imploded, using controlled blasts. Following implosion, the stack liners and concrete would be reduced in size to allow for handling and removal.

BOP structures and foundations would likely be demolished using excavators equipped with hydraulic shears, hydraulic grapples, impact breakers, and open flame cutting torches. Steel components would be separated, reduced in size, and loaded onto trailers for recycling. Concrete would be broken into manageable sized pieces and stockpiled for crushing on-site. Concrete pieces would ultimately be loaded in a hopper and fed through a crusher to be sized for on-site disposal.

4.1 General Assumptions for All Sites

The following assumptions were made as the basis of all the cost estimates.

1. All decommissioning, demolition and salvage estimates are based on the assumption that each facility is demolished and salvaged as a single project at the time that the last unit at the site is retired. No interim demolition or salvage activities will occur while any units at the site continue to operate.
2. All equipment, foundations and facilities will be removed to a depth of two feet below grade.
3. All facilities will be decommissioned to zero generating output. Existing utilities will remain in place for use by the contractor for the duration of the demolition activities.
4. All work will take place in the most cost-efficient method.
5. Labor costs are based on a 40-hour work week, without overtime.

6. Crushed rock will be disposed of on site by using it for clean fill or will be recycled by the demolition contractor.
7. Abatement of asbestos will precede any other work. Demolition will proceed only after final air quality clearances have been attained.
8. Removal of asbestos will be done in accordance with applicable federal, state and local laws, rules and regulations.
9. DEI will remove all burnable coal, lubricating/insulating/fuel oil, and chemicals from within the plant prior to commencement of demolition activities. Burns & McDonnell has provided an estimate for the removal of these items prior to the commencement of demolition activities.
10. All PCB oil will be removed and disposed of properly. It is assumed that 10 percent of transformer oil fleetwide has PCB levels greater than 50 ppm and will have to be disposed of as hazardous waste.
11. All loose lead paint will be collected and disposed of properly. Lead paint that is adhered to a structure will be disposed of with the structure.
12. Handling and disposal of hazardous material will be performed in compliance with the approved methods of DEI's Environmental Services Department.
13. DEI provided plant inventory values for each site for inclusion as a cost in each estimate. It is assumed that 10 percent of the inventory value will be included as a scrap credit. For Edwardsport and the combustion turbine facilities, it is assumed that 25 percent of the inventory value is accounted for as a scrap credit. This inventory cost is not included in the calculation for contingency and indirect costs.
14. Demolition will include the removal of all above grade structures, equipment, boilers, tanks, conveying and ancillary buildings, and any other associated equipment and facilities to two feet below grade level.
15. Below grade foundations and piles will be removed to two feet below grade. All structures below two feet will be abandoned in place, unless deemed hazardous by DEI or otherwise stated in the assumptions as being demolished.
16. Existing basements will be used to bury non-hazardous debris.
17. Costs for offsite disposal for materials in excess of the onsite inert debris disposal capacity are included in the estimates.
18. To the extent possible, concrete will be crushed and disposed of on-site. Below grade concrete will be perforated to create drainage. All other material that is not sold as scrap will be disposed of at an off-site landfill.

19. Sewers, catch basins, and ducts shall be collapsed to two feet below grade and will be certified closed by the authority having jurisdiction. Horizontal runs will be abandoned in place after closure.
20. Intake and discharge canals that will no longer serve a purpose after station operation ceases will be filled and closed unless otherwise noted within the assumptions. Equipment and structures above the seawall or intake structure will be removed. Finished dock lines, canals, and slips will be retained and secured with perimeter cyclone fencing.
21. For purposes of the Study, it will be assumed that none of the equipment will have a salvage value in excess of the scrap value of the materials in the equipment at the time of the Study. The cost estimates are based on the end of useful life of each facility. All equipment, steel, and copper will be sold as scrap.
22. All fuel oil and chemicals will be removed from the plants by DEI prior to decommissioning. The costs associated with chemical and fuel oil removal are included in the common section of the estimates.
23. Mercury surveys were not available for review. Standard removal and disposal costs were included for all Plants.
24. Pond closure costs and landfills are not included in the scope.
25. Transmission switchyards and substations are not included in the scope. Switchyards associated with the facilities only and not part of the transmission system are assumed to be included in the scope of this Study. All facility switchyard lines of demarcation will be from the Yard Side of the Generator Breaker switch back to the retired generating station.
26. Sites will be graded to achieve suitable site drainage to natural drainage patterns, but grading will be minimized to the extent possible. Disturbed site area will also be seeded after being graded to provide a suitable ground cover to prevent soil erosion.
27. Underground piping 24 inches and larger shall be filled with flowable concrete fill or grout and capped. Piping more than two feet below grade that is smaller than 24 inches in diameter will be abandoned in place.
28. Scrap value of metals to be used in the base estimate are set to the current market rates for the given material.
29. Market conditions may result in cost variations at the time of contract execution.
30. Estimates are provided in 2018 dollars.
31. A 10 percent indirect cost is included in the cost estimates to cover expenses to manage the demolition of the facilities.

32. A 20 percent contingency is included in the cost estimates on all assets to cover expenses that are unknown at the time the estimate is prepared but are expected to be expended on the project.
33. Scrap values were determined using the American Metal Market reports from September 2017 through August 2018. Prices were optimized by minimizing transportation cost and maximizing scrap value for the nearest hubs. The prices presented below for all metals other than stainless steel are the scrap values for the Cincinnati hub less the cost of transportation. The prices for stainless steel are for the Chicago hub less the cost of transportation.

Table 4-1: Scrap Value Summary (2018$)

Plant Name	Steel (Per Net Ton)	Copper (Per Pound)	Aluminum (Per Pound)	Stainless (Per Net Ton)	Brass (Per Pound)	Titanium (Per Pound)
Camp Atterbury Solar Station	($261.07)	($2.30)	($0.41)	($824.62)	($1.54)	($8.12)
Cayuga Station	($265.01)	($2.30)	($0.41)	($830.34)	($1.55)	($8.12)
Crane Solar	($257.13)	($2.30)	($0.41)	($821.47)	($1.54)	($8.12)
Edwardsport IGCC	($262.03)	($2.30)	($0.41)	($826.37)	($1.54)	($8.12)
Gallagher Station	($266.38)	($2.30)	($0.41)	($822.49)	($1.55)	($8.12)
Gibson Station	($260.05)	($2.30)	($0.41)	($825.36)	($1.54)	($8.12)
Henry County CT Station	($267.30)	($2.30)	($0.41)	($831.66)	($1.55)	($8.12)
Madison CT Station	($276.59)	($2.31)	($0.42)	($821.37)	($1.55)	($8.12)
Markland Hydro Station	($271.34)	($2.30)	($0.42)	($822.87)	($1.55)	($8.12)
Noblesville Station	($264.40)	($2.30)	($0.41)	($828.75)	($1.54)	($8.12)
Vermillion CT Station	($265.01)	($2.30)	($0.41)	($830.34)	($1.55)	($8.12)
Wheatland CT Station	($261.83)	($2.30)	($0.41)	($827.15)	($1.54)	($8.12)

4.2 Site Specific Decommissioning Assumptions

In addition to the general assumptions, the following assumptions were made specific to each Plant cost estimate.

4.2.1 Camp Atterbury Solar Station

1. Any additional roads that were built to support the solar facility will be removed.
2. All panels, support structures, electrical equipment, foundations, fencing, and roads associated with the solar facility are assumed to be removed.
3. No substations directly associated with the solar facility were assumed to be removed as part of this Study.
4. No drawings were available for the Camp Atterbury solar facility. Therefore, all quantities for the Camp Atterbury solar facility (2.0 MW AC) were scaled based on output compared to the Crane Solar (17.25 MW AC) facility. It was assumed that the solar panel type, support system, and electrical equipment of Camp Atterbury was the same as those of Crane Solar.

5. The Camp Atterbury battery storage is not included in the estimate because it is considered a transmission and distribution asset.
6. Project-specific fence line is to be removed.
7. When not provided, the transformer weights were estimated from similar projects.
8. It is assumed that concrete will be disposed of off-site.

4.2.2 Cayuga CT Station

1. No asbestos is assumed to be present.
2. There is no known lead-based paint at the plant. However, testing during demolition is recommended for confirmation.
3. The plant has no Cesium 137 nuclear devices and therefore costs for removing and disposing of these devices are not included.

4.2.3 Cayuga Station

1. Rolling stock, including rail cars, is assumed to be removed by DEI prior to decommissioning. Plant-specific rail up to the main line is to be removed as part of this Study.
2. Removal of all coal and ash from plant equipment and infrastructure are included in this Study.
3. Demolition activities for the coal pile area include removing and disposing of 12 inches of soil, replacing that soil, grading, adding topsoil, fine grading, and hydroseeding. It is assumed that that 50,000 tons of coal will need to be transported to the landfill.
4. All coal plants will incur a cost for plant washdown as part of the decommissioning study.
5. The oil removal costs include removal of one foot of soil beneath the transformer pads for offsite disposal.
6. Transmission switchyards and substations within the boundaries of the plant are not part of the demolition scope. For purposes of this Study, the division between generation assets and transmission assets is at the high voltage connection to the bulk electric system (typically the switchyard bus connection).
7. Asbestos abatement costs is included in the estimate. These costs were developed using the percentages of remaining asbestos by unit, which were obtained through correspondence with DEI's team. At Cayuga, it is assumed that 20 percent of asbestos has been abated.
8. Removal costs for the original concrete stacks for Unit 1 and Unit 2 are not included in this estimate.
9. Lead based paint is expected with testing during demolition.
10. An estimated cost of approximately $150,000 is included for removal of 24 Cesium 137 nuclear devices on the plant site.

11. A mercury survey was not available for review. Standard removal and disposal costs were included.
12. Demolition activities for the fuel tank area include removing and disposing of 12 inches of soil, replacing that soil, grading, adding topsoil, fine grading, and hydroseeding.
13. Subsurface materials that are more than two feet below the surface will remain in place. All circulating water piping above this level will be excavated and removed from the site.
14. Cost to remove cold reheat steam pipe and concrete foundation from the boiler building to the neighboring paper mill is included in the estimate under the category entitled "BOP miscellaneous."
15. Circulating water piping removal and flowable fill cost estimates were calculated and split 50/50 between the two units.

4.2.4 Crane Solar

1. Any additional roads that were built to support the solar facility will be removed.
2. All panels, support structures, electrical equipment, foundations, fencing, and roads associated with the solar facilities are assumed to be removed.
3. No substations directly associated with the solar facility were assumed to be removed as part of this study.
4. Project-specific fence line is to be removed.
5. When not provided, the transformer weights were estimated from similar projects.
6. It is assumed that concrete will be disposed of off-site.

4.2.5 Edwardsport IGCC

1. Rolling stock, including rail cars, is assumed to be removed by DEI prior to decommissioning. Plant-specific rail is to be removed as part of this Study.
2. Removal of all coal and ash from plant equipment and infrastructure is included in this Study.
3. Demolition activities for the coal pile area include removing and disposing of 12 inches of soil, replacing that soil, grading, adding topsoil, fine grading, and hydroseeding.
4. No asbestos is assumed to be present.
5. The old coal plant on the North side of the property has already been demolished and is not included in this estimate.
6. A mercury survey was not available for review. Standard removal and disposal costs were included.
7. The plant has no known lead-based paint. However, testing during demolition is recommended for confirmation.

8. Using previous similar IGCC estimates, the gasification chamber steel weight was estimated and scaled on a MW basis.
9. Quantities from the Spill Prevention, Control, and Countermeasure plan were used for transformer oil and lube oil calculations.
10. The entirety of the cost for removal and disposal of oils, greases, lubricants, fuels, waste water and oily water is included in the estimate as these will not be run down prior to plant shut down.

4.2.6 Gallagher Station

1. Removal of all coal from plant equipment and infrastructure is included in this Study.
2. Demolition activities for the coal pile area include removing and disposing of 12 inches of soil, replacing that soil, grading, adding topsoil, fine grading, and hydroseeding.
3. All coal plants will incur a cost for plant washdown as part of the decommissioning study.
4. It is assumed that no asbestos abatement has taken place.
5. The oil removal costs include removal of one foot of soil beneath the transformer pads for offsite disposal.
6. Subsurface materials that are more than two feet below the surface will remain in place.
7. All oils in main and aux transformers for Unit 1 and Unit 3 have been removed.
8. Main transformer at Unit 3 has been previously demolished and removed and is not included in the estimate.
9. Transmission switchyards and substations within the boundaries of the plant are not part of the demolition scope. For purposes of this study, the division between generation assets and transmission assets is at the high voltage connection to the bulk electric system (typically the switchyard bus connection)
10. Barge unloading equipment and mooring cell removal is included in the estimate.
11. Circulating water pumps and service water pumps at Units 1 and 3 have been removed.
12. All Cesium 137 nuclear devices were removed from the site when precipitators were demolished prior to baghouse construction.
13. Removal of 95 percent of equipment at retired Units 1 and 3 is included in the estimate.
14. All basement and lower rooms will be back filled to grade level using debris from building and stack demolition (concrete, no refractory brick). Any remaining volume will be filled with dirt hauled in from off-site.
15. Stack foundation will be back filled to grade using debris from stack demolition (concrete, no refractory brick). Any remaining volume will be filled with dirt hauled in from off-site.

16. Environmental costs associated with asbestos abatement in the stacks are split evenly between all four units.
17. Costs associated with baghouse demolition and decommissioning are split evenly between all four units.
18. Circulating water pipes and discharge tunnel beneath site basement will require flowable fill and costs estimates for both labor and material of such are included in the estimate.

4.2.7 Gibson Station

1. Rolling stock, including rail cars, is assumed to be removed by DEI prior to decommissioning. Plant-specific rail is to be removed as part of this Study.
2. Removal of all coal and ash from plant equipment and infrastructure is included in this Study.
3. Demolition activities for the coal pile area include removing and disposing of 12 inches of soil, replacing that soil, grading, adding topsoil, fine grading, and hydroseeding.
4. All coal plants will incur a cost for plant washdown as part of the decommissioning study.
5. Limited asbestos is assumed to be present and only located in gasket material and transite siding.
6. The oil removal costs include removal of one foot of soil beneath the transformer pads for offsite disposal.
7. All five intake and outfall structures for the cooling lake will be removed as a part of this Study.
8. A mercury survey was not available for review. Standard removal and disposal costs were included.
9. Unit 1 and Unit 2 contain carbon steel liners while Units 3, 4, and 5 contain brick liners.
10. Flue gas desulfurization ("FGD"), associated fixation systems, and scrubbers have been installed on all five units.
11. Subsurface materials that are more than two feet below the surface will remain in place.

4.2.8 Henry County CT Station

1. No asbestos is assumed to be present.
2. There is no known lead-based paint at the plant. However, testing during demolition is recommended for confirmation.
3. The plant has no Cesium 137 nuclear devices and therefore costs for removing and disposing of these devices are not included.
4. It is assumed that the gas yard is not included with the estimate.
5. The demineralized water trailers on site are not included in the estimate and it is assumed that these will be removed prior to commencement of decommissioning.
6. No large oil spills have occurred on site and therefore oil spill remediation costs are not included.

7. The estimate includes approximately 2,000 cubic yards of concrete and an installed equipment garage that are not included in drawings.
8. It is assumed that all duel fuel equipment and piping has been removed and is not included in the estimate.
9. Electrical equipment in the switchyard is included in the estimate up until the breaker. All equipment after the breaker is assumed to be owned by another party and will remain on site.

4.2.9 Madison CT Station

1. No asbestos is assumed to be present.
2. There is no known lead-based paint at the plant. However, testing during demolition is recommended for confirmation.
3. The plant has no Cesium 137 nuclear devices and therefore costs for removing and disposing of these devices are not included.

4.2.10 Markland Hydro Station

1. The dam structure and powerhouse are not included for removal in this Study and will remain in place for flow control purposes.
2. All turbines, generators, transformer, other power generation equipment, and support equipment for the control and protection of the power generation equipment will be removed.
3. All equipment required to control water flow through the dam structure will remain in place.
4. The internal dam voids where power equipment currently resides will be filled with flowable fill to the normal water level. Further analysis may be warranted to understand if this is an acceptable method to decommission the facility. DEI should work with the United States Army Corps of Engineers to understand any and all decommissioning and dismantlement requirements.
5. All major structures, including the powerhouse, are to be left in place in order to maintain the structural integrity of the dam.
6. Turbines and generators are to be removed using the crane on site. The Markland crane will then be removed using a larger crane.
7. All space below the dam where water flows will be filled with flowable fill.
8. It is assumed that the debris dam upstream of Markland will be removed with the mooring cell supporting it.
9. Based on discussions with DEI, no asbestos currently exists on site.
10. Specific demolition crews are based on task, labor, and equipment rates, which vary depending on the estimated time of completion.

4.2.11 Noblesville Station

1. Asbestos abatement costs are included in the estimate. These costs were developed using the percentage of remaining asbestos at Unit 1, Unit 2, and Unit 3, which was provided by site personnel. Burns & McDonnell assumed 10 percent of asbestos has been abated in the old power block.
2. There is no known lead-based paint at the plant. However, testing during demolition is recommended for confirmation.
3. The plant has no Cesium 137 nuclear devices and therefore costs for removing and disposing of these devices are not included.
4. Demolition activities for the fuel tank area include removing and disposing of 12 inches of soil, replacing that soil, grading, adding topsoil, fine grading, and hydroseeding.
5. Retired power block equipment (boiler, feedwater heaters, fans, pulverizer, etc.) that is still on site is included in the decommissioning estimate.
6. Conveyor and belt equipment associated with old coal handling crusher house is assumed to be more than two feet underground and will be abandoned in place.
7. No large oil spills have occurred on site and therefore oil spill remediation costs are not included.
8. The onsite trench has costs included for excavating and backfilling upon decommissioning of the plant.
9. The switchyards are included in the estimate up until the breakers. It is assumed all other equipment in the switchyard stays in place at the time of decommissioning.
10. It is assumed that the potable and raw water wells are 90 feet deep.

4.2.12 Vermillion CT Station

1. No asbestos is assumed to be present.
2. There is no known lead-based paint at the plant. However, testing during demolition is recommended for confirmation.
3. The plant has no Cesium 137 nuclear devices and therefore costs for removing and disposing of these devices are not included.

4.2.13 Wheatland CT Station

1. No asbestos is assumed to be present.
2. There is no known lead-based paint at the plant. However, testing during demolition is recommended for confirmation.

3. The plant has no known Cesium 137 nuclear devices and therefore costs for removing and disposing of these devices are not included.
4. It is assumed that the onsite switchyard and switchgear will remain in place. No switchgear past the high side of the GSU is included in the estimate.
5. No large oil spills have occurred on site and therefore oil spill remediation costs are not included.

APPENDIX A - COST ESTIMATE SUMMARIES

Table A-1
Camp Atterbury
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Camp Atterbury						
Solar Farm						
Solar Panel Removal/Recycling	$ 34,500	$ 34,600	$ 15,800	$ -	$ 84,900	$ -
Panel Supports/Rack	$ 20,900	$ 21,000	$ -	$ -	$ 41,900	$ -
Wiring	$ 800	$ 800	$ -	$ -	$ 1,600	$ -
Transformer and Inverter Block	$ 2,400	$ 2,400	$ -	$ -	$ 4,800	$ -
Roads	$ -	$ -	$ -	$ 2,700	$ 2,700	$ -
Perimeter Fence Removal	$ 7,700	$ 7,800	$ -	$ -	$ 15,500	$ -
Site Restoration	$ -	$ -	$ -	$ 64,600	$ 64,600	$ -
On-site Concrete Crushing and Removal	$ -	$ -	$ 100	$ -	$ 100	$ -
Debris	$ -	$ -	$ 300	$ -	$ 300	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (85,600)
Subtotal	**$ 66,300**	**$ 66,600**	**$ 16,200**	**$ 67,300**	**$ 216,400**	**$ (85,600)**
Camp Atterbury Subtotal	**$ 66,300**	**$ 66,600**	**$ 16,200**	**$ 67,300**	**$ 216,400**	**$ (85,600)**
TOTAL DECOM COST (CREDIT)					**$ 216,400**	**$ (86,000)**
PROJECT INDIRECTS (10%)					**$ 22,000**	
CONTINGENGY (20%)					**$ 43,000**	
TOTAL PROJECT COST (CREDIT)					**$ 281,400**	**$ (86,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 195,400**	

Table A-2
Cayuga CT
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Cayuga CT						
Unit 1						
CTs	$ 188,000	$ 189,000	$ -	$ -	$ 378,000	$ -
Stacks	$ 4,000	$ 4,000	$ -	$ -	$ 7,000	$ -
GSU & Foundation	$ 39,000	$ 39,000	$ -	$ -	$ 78,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 10,000	$ -	$ 10,000	$ -
Debris	$ -	$ -	$ 11,000	$ -	$ 11,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (422,000)
Subtotal	**$ 231,000**	**$ 232,000**	**$ 21,000**	**$ -**	**$ 484,000**	**$ (422,000)**
Common						
BOP Misc.	$ 71,000	$ 71,000	$ -	$ -	$ 142,000	$ -
Roads	$ 32,000	$ 32,000	$ -	$ -	$ 64,000	$ -
All BOP Buildings	$ 41,000	$ 41,000	$ -	$ -	$ 82,000	$ -
Fuel Equipment	$ 59,000	$ 59,000	$ -	$ 45,000	$ 163,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 52,000	$ 52,000	$ -
Fuel Oil Line Flushing/Cleaning	$ -	$ -	$ -	$ 3,000	$ 3,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 6,000	$ 6,000	$ -
Lube Oil Disposal	$ -	$ -	$ -	$ 15,000	$ 15,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 10,000	$ -	$ 10,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 231,000	$ 231,000	$ -
Debris	$ -	$ -	$ 1,000	$ -	$ 1,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (72,000)
Subtotal	**$ 203,000**	**$ 203,000**	**$ 11,000**	**$ 352,000**	**$ 769,000**	**$ (72,000)**
Cayuga CT Subtotal	**$ 434,000**	**$ 435,000**	**$ 32,000**	**$ 352,000**	**$ 1,253,000**	**$ (494,000)**
TOTAL DECOM COST (CREDIT)					**$ 1,253,000**	**$ (494,000)**
PROJECT INDIRECTS (10%)					**$ 125,000**	
CONTINGENGY (20%)					**$ 251,000**	
PLANT INVENTORY COST (CREDIT)					**$ 334,000**	**$ (84,000)**
TOTAL PROJECT COST (CREDIT)					**$ 1,963,000**	**$ (578,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 1,385,000**	

Table A-3
Cayuga Station
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Cayuga Station						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 5,000,000	$ 5,000,000	$ -
Boiler	$ 2,826,000	$ 2,842,000	$ -	$ -	$ 5,668,000	$ -
Steam Turbine & Building	$ 1,364,000	$ 1,372,000	$ -	$ -	$ 2,736,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 417,000	$ 417,000	$ -	$ -	$ 834,000	$ -
Precipitator	$ 516,000	$ 519,000	$ -	$ -	$ 1,035,000	$ -
SCR	$ 1,210,000	$ 1,217,000	$ -	$ -	$ 2,427,000	$ -
Scrubber / FGD	$ 395,000	$ 397,000	$ -	$ -	$ 792,000	$ -
Stack	$ 154,000	$ 155,000	$ -	$ -	$ 309,000	$ -
Cooling Towers & Basin	$ 369,000	$ 371,000	$ -	$ -	$ 740,000	$ -
GSU & Foundation	$ 81,000	$ 82,000	$ -	$ -	$ 163,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 214,000	$ -	$ 214,000	$ -
Debris	$ -	$ -	$ 50,000	$ -	$ 50,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (8,362,000)
Subtotal	**$ 7,332,000**	**$ 7,372,000**	**$ 264,000**	**$ 5,000,000**	**$ 19,968,000**	**$ (8,362,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 5,000,000	$ 5,000,000	$ -
Boiler	$ 2,826,000	$ 2,842,000	$ -	$ -	$ 5,668,000	$ -
Steam Turbine & Building	$ 1,364,000	$ 1,372,000	$ -	$ -	$ 2,736,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 417,000	$ 417,000	$ -	$ -	$ 834,000	$ -
SCR	$ 1,210,000	$ 1,217,000	$ -	$ -	$ 2,427,000	$ -
Scrubber / FGD	$ 395,000	$ 397,000	$ -	$ -	$ 792,000	$ -
Stack	$ 154,000	$ 155,000	$ -	$ -	$ 309,000	$ -
Cooling Towers & Basin	$ 369,000	$ 371,000	$ -	$ -	$ 740,000	$ -
GSU & Foundation	$ 81,000	$ 82,000	$ -	$ -	$ 163,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 214,000	$ -	$ 214,000	$ -
Debris	$ -	$ -	$ 50,000	$ -	$ 50,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (8,362,000)
Subtotal	**$ 7,332,000**	**$ 7,372,000**	**$ 264,000**	**$ 5,000,000**	**$ 19,968,000**	**$ (8,362,000)**
Handling						
Coal Handling Facilites	$ 401,000	$ 403,000	$ -	$ -	$ 804,000	$ -
Limestone Handling Facilities	$ 142,000	$ 142,000	$ -	$ -	$ 284,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 14,000	$ -	$ 14,000	$ -
Debris	$ -	$ -	$ 102,000	$ -	$ 102,000	$ -
Coal Pile Remediation	$ -	$ -	$ -	$ 3,325,000	$ 3,325,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (378,000)
Subtotal	**$ 543,000**	**$ 545,000**	**$ 116,000**	**$ 3,325,000**	**$ 4,529,000**	**$ (378,000)**
Common						
Switchyard and Substation	$ 52,000	$ 52,000	$ -	$ -	$ 104,000	$ -
BOP Misc.	$ 1,031,000	$ 1,037,000	$ -	$ -	$ 2,068,000	$ -
Roads	$ 257,000	$ 259,000	$ -	$ -	$ 516,000	$ -
All BOP Buildings	$ 819,000	$ 824,000	$ -	$ -	$ 1,643,000	$ -
Fuel Equipment	$ 93,000	$ 93,000	$ -	$ -	$ 186,000	$ -
All Other Tanks	$ 800,000	$ 805,000	$ -	$ -	$ 1,605,000	$ -
Refractory Disposal	$ -	$ -	$ -	$ 15,000	$ 15,000	$ -
Mercury & Universal Waste Disposal	$ -	$ -	$ -	$ 8,000	$ 8,000	$ -
Plant Wash Down & Disposal	$ -	$ -	$ -	$ 66,000	$ 66,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 394,000	$ 394,000	$ -
Lube Oil Disposal	$ -	$ -	$ -	$ 160,000	$ 160,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 10,000	$ 10,000	$ -
Fuel Oil Tank Cleaning	$ -	$ -	$ -	$ 26,000	$ 26,000	$ -
Fuel Oil Line Flushing/Cleaning	$ -	$ -	$ -	$ 4,000	$ 4,000	$ -
Nuclear Device Disposal	$ -	$ -	$ -	$ 150,000	$ 150,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 127,000	$ -	$ 127,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 2,865,000	$ 2,865,000	$ -
Debris	$ -	$ -	$ 50,000	$ -	$ 50,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,783,000)
Subtotal	**$ 3,052,000**	**$ 3,070,000**	**$ 177,000**	**$ 3,698,000**	**$ 9,997,000**	**$ (1,783,000)**
Cayuga Station Subtotal	**$ 18,259,000**	**$ 18,359,000**	**$ 821,000**	**$ 17,023,000**	**$ 54,462,000**	**$ (18,885,000)**
TOTAL DECOM COST (CREDIT)					**$ 54,462,000**	**$ (18,885,000)**
PROJECT INDIRECTS (10%)					**$ 5,446,000**	
CONTINGENGY (20%)					**$ 10,892,000**	
PLANT INVENTORY COST (CREDIT)					**$ 9,259,000**	**$ (926,000)**
TOTAL PROJECT COST (CREDIT)					**$ 80,059,000**	**$ (19,811,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 60,248,000**	

Table A-4
Crane Solar
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Crane Solar						
Solar Farm						
Solar Panel Removal/Recycling	$ 360,400	$ 361,800	$ 95,600	$ -	$ 817,800	$ -
Panel Supports/Rack	$ 234,400	$ 235,300	$ -	$ -	$ 469,700	$ -
Wiring	$ 8,200	$ 8,200	$ -	$ -	$ 16,400	$ -
Transformer and Inverter Block	$ 24,800	$ 24,900	$ -	$ -	$ 49,700	$ -
Combiner Boxes	$ 400	$ 400	$ -	$ -	$ 800	$ -
Roads	$ -	$ -	$ -	$ 23,500	$ 23,500	$ -
Perimeter Fence Removal	$ 80,900	$ 81,200	$ -	$ -	$ 162,100	$ -
Site Restoration	$ -	$ -	$ -	$ 675,500	$ 675,500	$ -
On-site Concrete Crushing and Removal	$ -	$ -	$ 1,000	$ -	$ 1,000	$ -
Debris	$ -	$ -	$ 1,800	$ -	$ 1,800	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (686,400)
Subtotal	**$ 709,100**	**$ 711,800**	**$ 98,400**	**$ 699,000**	**$ 2,218,300**	**$ (686,400)**
Crane Solar Subtotal	**$ 709,100**	**$ 711,800**	**$ 98,400**	**$ 699,000**	**$ 2,218,300**	**$ (686,400)**
TOTAL DECOM COST (CREDIT)					**$ 2,218,000**	**$ (686,000)**
PROJECT INDIRECTS (10%)					**$ 222,000**	
CONTINGENGY (20%)					**$ 444,000**	
TOTAL PROJECT COST (CREDIT)					**$ 2,884,000**	**$ (686,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 2,198,000**	

Table A-5
Edwardsport IGCC
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Edwardsport IGCC						
Unit 1						
Gasification Island	$ 4,045,000	$ 4,068,000	$ -	$ -	$ 8,113,000	$ -
CTs and HRSGs	$ 2,198,000	$ 2,210,000	$ -	$ -	$ 4,408,000	$ -
ST, Pedestal, & Building	$ 650,000	$ 653,000	$ -	$ -	$ 1,303,000	$ -
Cooling Water Intakes and Ciculcating Water Pumps	$ 91,000	$ 91,000	$ 462,000	$ -	$ 644,000	$ -
SCR	$ 70,000	$ 70,000	$ -	$ -	$ 140,000	$ -
Stacks	$ 72,000	$ 72,000	$ -	$ -	$ 144,000	$ -
Cooling Towers & Basin	$ 873,000	$ 878,000	$ -	$ -	$ 1,751,000	$ -
GSU & Foundation	$ 86,000	$ 87,000	$ -	$ -	$ 173,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 134,000	$ -	$ 134,000	$ -
Debris	$ -	$ -	$ 195,000	$ -	$ 195,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (9,905,000)
Subtotal	**$ 8,085,000**	**$ 8,129,000**	**$ 791,000**	**$ -**	**$ 17,005,000**	**$ (9,905,000)**
Handling						
Coal Handling Facilities	$ 1,110,000	$ 1,116,000	$ -	$ -	$ 2,226,000	$ -
Coal Storage Area Restoration	$ -	$ -	$ -	$ 2,595,000	$ 2,595,000	$ -
Coal Yard Transformers	$ 27,000	$ 27,000	$ -	$ -	$ 54,000	$ -
Rail	$ 741,000	$ 746,000	$ -	$ -	$ 1,487,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 86,000	$ -	$ 86,000	$ -
Debris	$ -	$ -	$ 11,000	$ -	$ 11,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,071,000)
Subtotal	**$ 1,878,000**	**$ 1,889,000**	**$ 97,000**	**$ 2,595,000**	**$ 6,459,000**	**$ (1,071,000)**
Common						
Switchgear & Electrical	$ 17,000	$ 17,000	$ -	$ -	$ 34,000	$ -
GSU, Electrical, and Foundation	$ 66,000	$ 67,000	$ -	$ -	$ 133,000	$ -
Air Seperation Unit	$ 829,000	$ 834,000	$ -	$ -	$ 1,663,000	$ -
Water Treatment Equipment and Piping	$ 381,000	$ 383,000	$ -	$ -	$ 764,000	$ -
BOP Misc.	$ 679,000	$ 683,000	$ -	$ -	$ 1,362,000	$ -
Roads	$ 235,000	$ 236,000	$ -	$ -	$ 471,000	$ -
All BOP Buildings	$ 1,553,000	$ 1,562,000	$ -	$ -	$ 3,115,000	$ -
All Other Tanks	$ 56,000	$ 56,000	$ -	$ -	$ 112,000	$ -
Mercury & Universal Waste Disposal	$ -	$ -	$ -	$ 74,000	$ 74,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 467,000	$ 467,000	$ -
Lube Oil Disposal	$ -	$ -	$ -	$ 90,000	$ 90,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 131,000	$ 131,000	$ -
Fuel Oil Tank Cleaning	$ -	$ -	$ -	$ 347,000	$ 347,000	$ -
Fuel Oil Line Flushing//Cleaning	$ -	$ -	$ -	$ 89,000	$ 89,000	$ -
Concrete Removal, Curshing, & Disposal	$ -	$ -	$ 401,000	$ -	$ 401,000	$ -
Wells	$ -	$ -	$ -	$ 5,000	$ 5,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 5,822,000	$ 5,822,000	$ -
Debris	$ -	$ -	$ 41,000	$ -	$ 41,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (2,568,000)
Subtotal	**$ 3,816,000**	**$ 3,838,000**	**$ 442,000**	**$ 7,025,000**	**$ 15,121,000**	**$ (2,568,000)**
Edwardsport IGCC Subtotal	**$ 13,779,000**	**$ 13,856,000**	**$ 1,330,000**	**$ 9,620,000**	**$ 38,585,000**	**$ (13,544,000)**
TOTAL DECOM COST (CREDIT)					**$ 38,585,000**	**$ (13,544,000)**
PROJECT INDIRECTS (10%)					**$ 3,859,000**	
CONTINGENGY (20%)					**$ 7,717,000**	
PLANT INVENTORY COST (CREDIT)					**$ 155,957,000**	**$ (38,989,000)**
TOTAL PROJECT COST (CREDIT)					**$ 206,118,000**	**$ (52,533,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 153,585,000**	

Table A-6
Gallagher Station
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Gallagher Station						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 2,318,000	$ 2,318,000	$ -
Boiler	$ 942,000	$ 947,000	$ -	$ -	$ 1,889,000	$ -
ST, Pedestal, & Building	$ 325,000	$ 327,000	$ -	$ -	$ 652,000	$ -
Baghouse	$ 60,000	$ 60,000	$ -	$ -	$ 120,000	$ -
Stack (Brick/Concrete)	$ 138,000	$ 138,000	$ -	$ -	$ 276,000	$ -
GSU, Electrical & Foundation	$ 20,000	$ 20,000	$ -	$ -	$ 40,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 398,000	$ -	$ 398,000	$ -
Debris	$ -	$ -	$ 18,000	$ -	$ 18,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,344,000)
Subtotal	**$ 1,485,000**	**$ 1,493,000**	**$ 416,000**	**$ 2,318,000**	**$ 5,711,000**	**$ (3,344,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 2,318,000	$ 2,318,000	$ -
Boiler	$ 943,000	$ 948,000	$ -	$ -	$ 1,891,000	$ -
ST, Pedestal, & Building	$ 325,000	$ 327,000	$ -	$ -	$ 652,000	$ -
Baghouse	$ 60,000	$ 60,000	$ -	$ -	$ 120,000	$ -
Stack (Brick/Concrete)	$ 138,000	$ 138,000	$ -	$ -	$ 276,000	$ -
GSU, Electrical & Foundation	$ 20,000	$ 20,000	$ -	$ -	$ 40,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 398,000	$ -	$ 398,000	$ -
Debris	$ -	$ -	$ 18,000	$ -	$ 18,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,345,000)
Subtotal	**$ 1,486,000**	**$ 1,493,000**	**$ 416,000**	**$ 2,318,000**	**$ 5,713,000**	**$ (3,345,000)**
Unit 3						
Asbestos Removal	$ -	$ -	$ -	$ 2,318,000	$ 2,318,000	$ -
Boiler	$ 943,000	$ 948,000	$ -	$ -	$ 1,891,000	$ -
ST, Pedestal, & Building	$ 325,000	$ 327,000	$ -	$ -	$ 652,000	$ -
Baghouse	$ 60,000	$ 60,000	$ -	$ -	$ 120,000	$ -
Stack (Brick/Concrete)	$ 138,000	$ 138,000	$ -	$ -	$ 276,000	$ -
GSU, Electrical & Foundation	$ 5,000	$ 5,000	$ -	$ -	$ 10,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 398,000	$ -	$ 398,000	$ -
Debris	$ -	$ -	$ 18,000	$ -	$ 18,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,233,000)
Subtotal	**$ 1,471,000**	**$ 1,478,000**	**$ 416,000**	**$ 2,318,000**	**$ 5,683,000**	**$ (3,233,000)**
Unit 4						
Asbestos Removal	$ -	$ -	$ -	$ 2,318,000	$ 2,318,000	$ -
Boiler	$ 942,000	$ 947,000	$ -	$ -	$ 1,889,000	$ -
ST, Pedestal, & Building	$ 325,000	$ 327,000	$ -	$ -	$ 652,000	$ -
Baghouse	$ 60,000	$ 60,000	$ -	$ -	$ 120,000	$ -
Stack (Brick/Concrete)	$ 138,000	$ 138,000	$ -	$ -	$ 276,000	$ -
GSU, Electrical & Foundation	$ 37,000	$ 38,000	$ -	$ -	$ 75,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 398,000	$ -	$ 398,000	$ -
Debris	$ -	$ -	$ 18,000	$ -	$ 18,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,482,000)
Subtotal	**$ 1,502,000**	**$ 1,510,000**	**$ 416,000**	**$ 2,318,000**	**$ 5,746,000**	**$ (3,482,000)**
Handling						
Coal Handling Facilites	$ 22,000	$ 22,000	$ -	$ -	$ 44,000	$ -
Limestone Handling Facilities	$ 1,000	$ 1,000	$ -	$ -	$ 2,000	$ -
Coal Pile Remediation	$ -	$ -	$ -	$ 1,168,000	$ 1,168,000	$ -
Debris	$ -	$ -	$ 1,000	$ -	$ 1,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (38,000)
Subtotal	**$ 23,000**	**$ 23,000**	**$ 1,000**	**$ 1,168,000**	**$ 1,215,000**	**$ (38,000)**

Common						
Switchyard and Substation	$ 58,000	$ 58,000	$ -	$ -	$ 116,000	$ -
Cooling Water Intakes & Circ. Water Equip.	$ 222,000	$ 222,000	$ -	$ -	$ 444,000	$ -
BOP Misc.	$ 31,000	$ 32,000	$ -	$ -	$ 63,000	$ -
Roads	$ 73,000	$ 73,000	$ -	$ -	$ 146,000	$ -
All BOP Buildings	$ 435,000	$ 437,000	$ -	$ -	$ 872,000	$ -
Fuel Oil Storage Tanks	$ 60,000	$ 60,000	$ -	$ -	$ 120,000	$ -
All Other Tanks	$ 75,000	$ 76,000	$ -	$ -	$ 151,000	$ -
Mooring Cell Removal	$ 299,000	$ 321,000	$ -	$ -	$ 620,000	$ -
Refractory Disposal	$ -	$ -	$ -	$ 24,000	$ 24,000	$ -
Mercury & Universal Waste Disposal	$ -	$ -	$ -	$ 8,000	$ 8,000	$ -
Plant Wash Down & Disposal	$ -	$ -	$ -	$ 50,000	$ 50,000	$ -
Lube Oil Disposal	$ -	$ -	$ -	$ 123,000	$ 123,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 94,000	$ 94,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 2,000	$ 2,000	$ -
Fuel Oil Tank Cleaning	$ -	$ -	$ -	$ 11,000	$ 11,000	$ -
Fuel Oil Line Flushing/Cleaning	$ -	$ -	$ -	$ 5,000	$ 5,000	$ -
Dirt Backfill	$ -	$ -	$ 1,809,000	$ -	$ 1,809,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 3,044,000	$ 3,044,000	$ -
Debris	$ -	$ -	$ 7,000	$ -	$ 7,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (462,000)
Subtotal	**$ 1,253,000**	**$ 1,279,000**	**$ 1,993,000**	**$ 3,361,000**	**$ 7,886,000**	**$ (462,000)**
Gallagher Station Subtotal	**$ 7,220,000**	**$ 7,276,000**	**$ 3,658,000**	**$ 13,801,000**	**$ 31,954,000**	**$ (13,904,000)**
TOTAL DECOM COST (CREDIT)					**$ 31,954,000**	**$ (13,904,000)**
PROJECT INDIRECTS (10%)					**$ 3,195,000**	
CONTINGENGY (20%)					**$ 6,391,000**	
PLANT INVENTORY COST (CREDIT)					**$ 9,115,000**	**$ (912,000)**
TOTAL PROJECT COST (CREDIT)					**$ 50,655,000**	**$ (14,816,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 35,839,000**	

Table A-7
Gibson Station
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Gibson Station						
Unit 1						
Asbestos Removal	$ -	$ -	$ -	$ 154,000	$ 154,000	$ -
Boiler	$ 2,877,000	$ 2,893,000	$ -	$ -	$ 5,770,000	$ -
Steam Turbine & Building	$ 978,000	$ 984,000	$ -	$ -	$ 1,962,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 22,000	$ 22,000	$ 132,000	$ -	$ 176,000	$ -
Precipitator	$ 895,000	$ 900,000	$ -	$ -	$ 1,795,000	$ -
SCR	$ 1,429,000	$ 1,438,000	$ -	$ -	$ 2,867,000	$ -
Scrubber/FGD	$ 444,000	$ 447,000	$ -	$ -	$ 891,000	$ -
Stacks	$ 191,000	$ 193,000	$ -	$ -	$ 384,000	$ -
GSU & Foundation	$ 104,000	$ 104,000	$ -	$ -	$ 208,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 183,000	$ -	$ 183,000	$ -
Debris	$ -	$ -	$ 90,000	$ -	$ 90,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (9,014,000)
Subtotal	**$ 6,940,000**	**$ 6,981,000**	**$ 405,000**	**$ 154,000**	**$ 14,480,000**	**$ (9,014,000)**
Unit 2						
Asbestos Removal	$ -	$ -	$ -	$ 154,000	$ 154,000	$ -
Boiler	$ 2,877,000	$ 2,894,000	$ -	$ -	$ 5,771,000	$ -
Steam Turbine & Building	$ 978,000	$ 984,000	$ -	$ -	$ 1,962,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 22,000	$ 22,000	$ 161,000	$ -	$ 205,000	$ -
Precipitator	$ 895,000	$ 900,000	$ -	$ -	$ 1,795,000	$ -
SCR	$ 1,429,000	$ 1,438,000	$ -	$ -	$ 2,867,000	$ -
Scrubber/FGD	$ 444,000	$ 447,000	$ -	$ -	$ 891,000	$ -
Stacks	$ 191,000	$ 193,000	$ -	$ -	$ 384,000	$ -
GSU & Foundation	$ 105,000	$ 106,000	$ -	$ -	$ 211,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 183,000	$ -	$ 183,000	$ -
Debris	$ -	$ -	$ 90,000	$ -	$ 90,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (9,044,000)
Subtotal	**$ 6,941,000**	**$ 6,984,000**	**$ 434,000**	**$ 154,000**	**$ 14,513,000**	**$ (9,044,000)**
Unit 3						
Asbestos Removal	$ -	$ -	$ -	$ 154,000	$ 154,000	$ -
Boiler	$ 2,907,000	$ 2,924,000	$ -	$ -	$ 5,831,000	$ -
Steam Turbine & Building	$ 1,026,000	$ 1,032,000	$ -	$ -	$ 2,058,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 22,000	$ 22,000	$ 284,000	$ -	$ 328,000	$ -
Precipitator	$ 895,000	$ 900,000	$ -	$ -	$ 1,795,000	$ -
SCR	$ 1,429,000	$ 1,438,000	$ -	$ -	$ 2,867,000	$ -
Scrubber/FGD	$ 444,000	$ 447,000	$ -	$ -	$ 891,000	$ -
Stacks	$ 263,000	$ 265,000	$ -	$ -	$ 528,000	$ -
GSU & Foundation	$ 87,000	$ 87,000	$ -	$ -	$ 174,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 286,000	$ -	$ 286,000	$ -
Debris	$ -	$ -	$ 90,000	$ -	$ 90,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (8,977,000)
Subtotal	**$ 7,073,000**	**$ 7,115,000**	**$ 660,000**	**$ 154,000**	**$ 15,002,000**	**$ (8,977,000)**
Unit 4						
Asbestos Removal	$ -	$ -	$ -	$ 154,000	$ 154,000	$ -
Boiler	$ 2,907,000	$ 2,924,000	$ -	$ -	$ 5,831,000	$ -
Steam Turbine & Building	$ 1,026,000	$ 1,032,000	$ -	$ -	$ 2,058,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 22,000	$ 22,000	$ 321,000	$ -	$ 365,000	$ -
Precipitator	$ 895,000	$ 900,000	$ -	$ -	$ 1,795,000	$ -
SCR	$ 1,429,000	$ 1,438,000	$ -	$ -	$ 2,867,000	$ -
Scrubber/FGD	$ 845,000	$ 849,000	$ -	$ -	$ 1,694,000	$ -
Stacks	$ 139,000	$ 140,000	$ -	$ -	$ 279,000	$ -
GSU & Foundation	$ 82,000	$ 82,000	$ -	$ -	$ 164,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 217,000	$ -	$ 217,000	$ -
Debris	$ -	$ -	$ 90,000	$ -	$ 90,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (9,170,000)
Subtotal	**$ 7,345,000**	**$ 7,387,000**	**$ 628,000**	**$ 154,000**	**$ 15,514,000**	**$ (9,170,000)**
Unit 5						
Asbestos Removal	$ -	$ -	$ -	$ 154,000	$ 154,000	$ -
Boiler	$ 2,907,000	$ 2,924,000	$ -	$ -	$ 5,831,000	$ -
Steam Turbine & Building	$ 1,023,000	$ 1,029,000	$ -	$ -	$ 2,052,000	$ -
Cooling Water Intakes and Circulating Water Pumps	$ 22,000	$ 22,000	$ 407,000	$ -	$ 451,000	$ -
Precipitator	$ 895,000	$ 900,000	$ -	$ -	$ 1,795,000	$ -
SCR	$ 1,429,000	$ 1,438,000	$ -	$ -	$ 2,867,000	$ -
Scrubber/FGD	$ 3,680,000	$ 3,701,000	$ -	$ -	$ 7,381,000	$ -
Stacks	$ 120,000	$ 121,000	$ -	$ -	$ 241,000	$ -
GSU & Foundation	$ 100,000	$ 101,000	$ -	$ -	$ 201,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 427,000	$ -	$ 427,000	$ -
Debris	$ -	$ -	$ 90,000	$ -	$ 90,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (9,601,000)
Subtotal	**$ 10,176,000**	**$ 10,236,000**	**$ 924,000**	**$ 154,000**	**$ 21,490,000**	**$ (9,601,000)**
Handling						
Coal Handling Facilities	$ 1,421,000	$ 1,429,000	$ -	$ -	$ 2,850,000	$ -
Coal Storage Area Restoration	$ -	$ -	$ -	$ 10,475,000	$ 10,475,000	$ -
Limestone Handling Facilities	$ 783,000	$ 787,000	$ -	$ -	$ 1,570,000	$ -
Coal Yard Transformers	$ 6,000	$ 6,000	$ -	$ -	$ 12,000	$ -
On-Site Concrete Crushing & Disposal	$ -	$ -	$ 106,000	$ -	$ 106,000	$ -
Debris	$ -	$ -	$ 175,000	$ -	$ 175,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,212,000)
Subtotal	**$ 2,210,000**	**$ 2,222,000**	**$ 281,000**	**$ 10,475,000**	**$ 15,188,000**	**$ (1,212,000)**

Common						
Switchyard and Substation	$ 40,000	$ 41,000	$ -	$ -	$ 81,000	$ -
Pump Transformers	$ 9,000	$ 9,000	$ -	$ -	$ 18,000	$ -
BOP Misc.	$ 264,000	$ 265,000	$ -	$ -	$ 529,000	$ -
Roads	$ 502,000	$ 504,000	$ -	$ -	$ 1,006,000	$ -
All BOP Buildings	$ 1,726,000	$ 1,736,000	$ -	$ -	$ 3,462,000	$ -
Fuel Equipment	$ 486,000	$ 489,000	$ -	$ -	$ 975,000	$ -
All Other Tanks	$ 682,000	$ 686,000	$ -	$ -	$ 1,368,000	$ -
Refractory Disposal	$ -	$ -	$ -	$ 38,000	$ 38,000	$ -
Mercury & Universal Waste Disposal	$ -	$ -	$ -	$ 9,000	$ 9,000	$ -
Plant Wash Down & Disposal	$ -	$ -	$ -	$ 75,000	$ 75,000	$ -
Lube Oil	$ -	$ -	$ -	$ 397,000	$ 397,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 647,000	$ 647,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 215,000	$ 215,000	$ -
Fuel Oil Tank Cleaning	$ -	$ -	$ -	$ 47,000	$ 47,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 187,000	$ -	$ 187,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 6,718,000	$ 6,718,000	$ -
Debris	$ -	$ -	$ 99,000	$ -	$ 99,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (1,370,000)
Wells	$ -	$ -	$ -	$ 325,000	$ 325,000	$ -
Subtotal	**$ 3,709,000**	**$ 3,730,000**	**$ 286,000**	**$ 8,471,000**	**$ 16,196,000**	**$ (1,370,000)**
Gibson Station Subtotal	**$ 44,394,000**	**$ 44,655,000**	**$ 3,618,000**	**$ 19,716,000**	**$ 112,383,000**	**$ (48,388,000)**
TOTAL DECOM COST (CREDIT)					**$ 112,383,000**	**$ (48,388,000)**
PROJECT INDIRECTS (10%)					**$ 11,238,000**	
CONTINGENGY (20%)					**$ 22,477,000**	
PLANT INVENTORY COST (CREDIT)					**$ 31,400,000**	**$ (3,140,000)**
TOTAL PROJECT COST (CREDIT)					**$ 177,498,000**	**$ (51,528,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 125,970,000**	

Table A-8
Henry County CT
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Henry County CT						
Unit 1						
CTs and HRSGs	$ 82,000	$ 82,000	$ -	$ -	$ 164,000	$ -
GSU & Foundation	$ 8,000	$ 8,000	$ -	$ -	$ 16,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 3,000	$ -	$ 3,000	$ -
Debris	$ -	$ -	$ 2,000	$ -	$ 2,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (255,000)
Subtotal	**$ 90,000**	**$ 90,000**	**$ 5,000**	**$ -**	**$ 185,000**	**$ (255,000)**
Unit 2						
CTs and HRSGs	$ 82,000	$ 82,000	$ -	$ -	$ 164,000	$ -
GSU & Foundation	$ 8,000	$ 8,000	$ -	$ -	$ 16,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 3,000	$ -	$ 3,000	$ -
Debris	$ -	$ -	$ 2,000	$ -	$ 2,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (255,000)
Subtotal	**$ 90,000**	**$ 90,000**	**$ 5,000**	**$ -**	**$ 185,000**	**$ (255,000)**
Unit 3						
CTs and HRSGs	$ 82,000	$ 82,000	$ -	$ -	$ 164,000	$ -
GSU & Foundation	$ 8,000	$ 8,000	$ -	$ -	$ 16,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 3,000	$ -	$ 3,000	$ -
Debris	$ -	$ -	$ 2,000	$ -	$ 2,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (255,000)
Subtotal	**$ 90,000**	**$ 90,000**	**$ 5,000**	**$ -**	**$ 185,000**	**$ (255,000)**
Common						
Switchyard and Substation	$ 5,000	$ 5,000	$ -	$ -	$ 10,000	$ -
BOP Misc.	$ 266,000	$ 268,000	$ -	$ -	$ 534,000	$ -
Roads	$ 15,000	$ 15,000	$ -	$ -	$ 30,000	$ -
All BOP Buildings	$ 32,000	$ 33,000	$ -	$ -	$ 65,000	$ -
All Other Tanks	$ 69,000	$ 69,000	$ -	$ -	$ 138,000	$ -
Well Closures	$ -	$ -	$ -	$ 10,000	$ 10,000	$ -
Cooling Towers and Basin	$ 79,000	$ 79,000	$ -	$ -	$ 158,000	$ -
Hazardous Waste Disposal	$ -	$ -	$ -	$ 98,000	$ 98,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 35,000	$ -	$ 35,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 167,000	$ 167,000	$ -
Debris	$ -	$ -	$ 8,000	$ -	$ 8,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (132,000)
Subtotal	**$ 466,000**	**$ 469,000**	**$ 43,000**	**$ 275,000**	**$ 1,253,000**	**$ (132,000)**
Henry County CT Subtotal	**$ 736,000**	**$ 739,000**	**$ 58,000**	**$ 275,000**	**$ 1,808,000**	**$ (897,000)**
TOTAL DECOM COST (CREDIT)					**$ 1,808,000**	**$ (897,000)**
PROJECT INDIRECTS (10%)					**$ 181,000**	
CONTINGENGY (20%)					**$ 362,000**	
PLANT INVENTORY COST (CREDIT)					**$ 586,000**	**$ (147,000)**
TOTAL PROJECT COST (CREDIT)					**$ 2,937,000**	**$ (1,044,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 1,893,000**	

Table A-9
Madison CT Station
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Madison CT Station						
Units 1-8						
CTs					$ 2,168,000	$ -
Stack (metal)	$ 27,000	$ 27,000	$ -	$ -	$ 54,000	$ -
GSU, Electrical, & Foundation	$ 246,000	$ 247,000	$ -	$ -	$ 493,000	$ -
On-Site Concrete Crushing	$ -	$ -	$ 38,000	$ -	$ 38,000	$ -
Debris	$ -	$ -	$ 8,000	$ -	$ 8,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,674,000)
Subtotal	**$ 273,000**	**$ 274,000**	**$ 46,000**	**$ -**	**$ 2,761,000**	**$ (3,674,000)**
Common						
Switchyard and Substation	$ 52,000	$ 52,000	$ -	$ -	$ 104,000	$ -
BOP Misc.	$ 6,000	$ 6,000	$ -	$ -	$ 12,000	$ -
Roads	$ 35,000	$ 35,000	$ -	$ -	$ 70,000	$ -
All BOP Buildings	$ 33,000	$ 34,000	$ -	$ -	$ 67,000	$ -
Fuel Equipment	$ 7,000	$ 7,000	$ -	$ -	$ 14,000	$ -
All Other Tanks	$ 35,000	$ 35,000	$ -	$ -	$ 70,000	$ -
Mercury & Universal Waste Disposal	$ -	$ -	$ -	$ 13,000	$ 13,000	$ -
Lube Oil	$ -	$ -	$ -	$ 42,000	$ 42,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 175,000	$ 175,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 42,000	$ 42,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 4,000	$ -	$ 4,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 722,000	$ 722,000	$ -
Debris	$ -	$ -	$ 16,000	$ -	$ 16,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (109,000)
Subtotal	**$ 168,000.00**	**$ 169,000**	**$ 20,000**	**$ 994,000**	**$ 1,351,000**	**$ (109,000)**
Madison CT Station Subtotal	**$ 441,000**	**$ 443,000**	**$ 66,000**	**$ 994,000**	**$ 4,112,000**	**$ (3,783,000)**
TOTAL DECOM COST (CREDIT)					**$ 4,112,000**	**$ (3,783,000)**
PROJECT INDIRECTS (10%)					**$ 411,000**	
CONTINGENGY (20%)					**$ 822,000**	
PLANT INVENTORY COST (CREDIT)					**$ 6,537,000**	**$ (1,634,000)**
TOTAL PROJECT COST (CREDIT)					**$ 11,882,000**	**$ (5,417,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 6,465,000**	

Table A-10
Markland Hydro
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Markland Hydro						
Hydro Units						
Demolition	$ 739,000	$ 693,000	$ -	$ -	$ 1,432,000	$ -
Electrical	$ 4,000	$ 4,000	$ -	$ -	$ 8,000	$ -
Debris	$ -	$ -	$ 1,000	$ -	$ 1,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (662,000)
Subtotal	**$ 743,000**	**$ 697,000**	**$ 1,000**	**$ -**	**$ 1,441,000**	**$ (662,000)**
Common						
Transformer Oil Disposal	$ -	$ -	$ -	$ 28,000	$ 28,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 2,000	$ 2,000	$ -
Wells	$ -	$ -	$ -	$ 5,000	$ 5,000	$ -
Flowable Fill	$ -	$ -	$ -	$ 2,369,000	$ 2,369,000	$ -
Mooring Cell and Debris Dam Removal	$ 44,000	$ 47,000	$ -	$ -	$ 91,000	$ -
Subtotal	**$ 44,000**	**$ 47,000**	**$ -**	**$ 2,416,000**	**$ 2,507,000**	**$ -**
Markland Hydro Subtotal	**$ 787,000**	**$ 744,000**	**$ 1,000**	**$ 2,416,000**	**$ 3,948,000**	**$ (662,000)**
TOTAL DECOM COST (CREDIT)					**$ 3,948,000**	**$ (662,000)**
PROJECT INDIRECTS (10%)					**$ 395,000**	
CONTINGENGY (20%)					**$ 790,000**	
PLANT INVENTORY COST (CREDIT)					**$ 213,000**	**$ (21,000)**
TOTAL PROJECT COST (CREDIT)					**$ 5,346,000**	**$ (683,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 4,663,000**	

Table A-11
Noblesville Station
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Noblesville Station						
CCGT						
Cooling Water Intakes & Circulating Water Equipment	$ 73,000	$ 74,000	$ -	$ 500,000	$ 647,000	$ -
CTs and HRSGs	$ 794,000	$ 799,000	$ -	$ -	$ 1,593,000	$ -
Steam Turbine & Building	$ 551,000	$ 554,000	$ -	$ -	$ 1,105,000	$ -
SCR	$ 48,000	$ 49,000	$ -	$ -	$ 97,000	$ -
Cooling Towers & Basin	$ 220,000	$ 221,000	$ -	$ -	$ 441,000	$ -
GSU & Foundation	$ 131,000	$ 131,000	$ -	$ -	$ 262,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 52,000	$ -	$ 52,000	$ -
Debris	$ -	$ -	$ 3,000	$ -	$ 3,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,259,000)
Subtotal	**$ 1,817,000**	**$ 1,828,000**	**$ 55,000**	**$ 500,000**	**$ 4,200,000**	**$ (3,259,000)**
Unit A						
Asbestos Removal	$ -	$ -	$ -	$ 349,000	$ 349,000	$ -
Boiler	$ 368,000	$ 370,000	$ -	$ -	$ 738,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 5,000	$ -	$ 5,000	$ -
Debris	$ -	$ -	$ 8,000	$ -	$ 8,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (505,000)
Subtotal	**$ 368,000**	**$ 370,000**	**$ 13,000**	**$ 349,000**	**$ 1,100,000**	**$ (505,000)**
Unit B						
Asbestos Removal	$ -	$ -	$ -	$ 349,000	$ 349,000	$ -
Boiler	$ 368,000	$ 370,000	$ -	$ -	$ 738,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 5,000	$ -	$ 5,000	$ -
Debris	$ -	$ -	$ 8,000	$ -	$ 8,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (505,000)
Subtotal	**$ 368,000**	**$ 370,000**	**$ 13,000**	**$ 349,000**	**$ 1,100,000**	**$ (505,000)**
Unit C						
Asbestos Removal	$ -	$ -	$ -	$ 349,000	$ 349,000	$ -
Boiler	$ 359,000	$ 361,000	$ -	$ -	$ 720,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 5,000	$ -	$ 5,000	$ -
Debris	$ -	$ -	$ 8,000	$ -	$ 8,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (490,000)
Subtotal	**$ 359,000**	**$ 361,000**	**$ 13,000**	**$ 349,000**	**$ 1,082,000**	**$ (490,000)**
Common						
Switchyard and Substation	$ 78,000	$ 79,000	$ -	$ -	$ 157,000	$ -
BOP Misc.	$ 10,000	$ 10,000	$ -	$ 14,000	$ 34,000	$ -
Roads	$ 42,000	$ 42,000	$ -	$ -	$ 84,000	$ -
All BOP Buildings	$ 62,000	$ 63,000	$ -	$ -	$ 125,000	$ -
All Other Tanks	$ 62,000	$ 62,000	$ -	$ -	$ 124,000	$ -
Mercury & Universal Waste Disposal	$ -	$ -	$ -	$ 8,000	$ 8,000	$ -
Lube Oil	$ -	$ -	$ -	$ 63,000	$ 63,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 267,000	$ 267,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 168,000	$ 168,000	$ -
Soil Remediation Beneath Fuel Oil Tank	$ -	$ -	$ -	$ 44,000	$ 44,000	$ -
Well Closures	$ -	$ -	$ -	$ 6,000	$ 6,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 4,000	$ -	$ 4,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 417,000	$ 417,000	$ -
Debris	$ -	$ -	$ 17,000	$ -	$ 17,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (135,000)
Subtotal	**$ 254,000**	**$ 256,000**	**$ 21,000**	**$ 987,000**	**$ 1,518,000**	**$ (135,000)**
Subtotal	**$ 3,166,000**	**$ 3,185,000**	**$ 115,000**	**$ 2,534,000**	**$ 9,000,000**	**$ (4,894,000)**
TOTAL DECOM COST (CREDIT)					**$ 9,000,000**	**$ (4,894,000)**
PROJECT INDIRECTS (10%)					**$ 900,000**	
CONTINGENGY (20%)					**$ 1,800,000**	
PLANT INVENTORY COST (CREDIT)					**$ 9,536,000**	**$ (954,000)**
TOTAL PROJECT COST (CREDIT)					**$ 21,236,000**	**$ (5,848,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 15,388,000**	

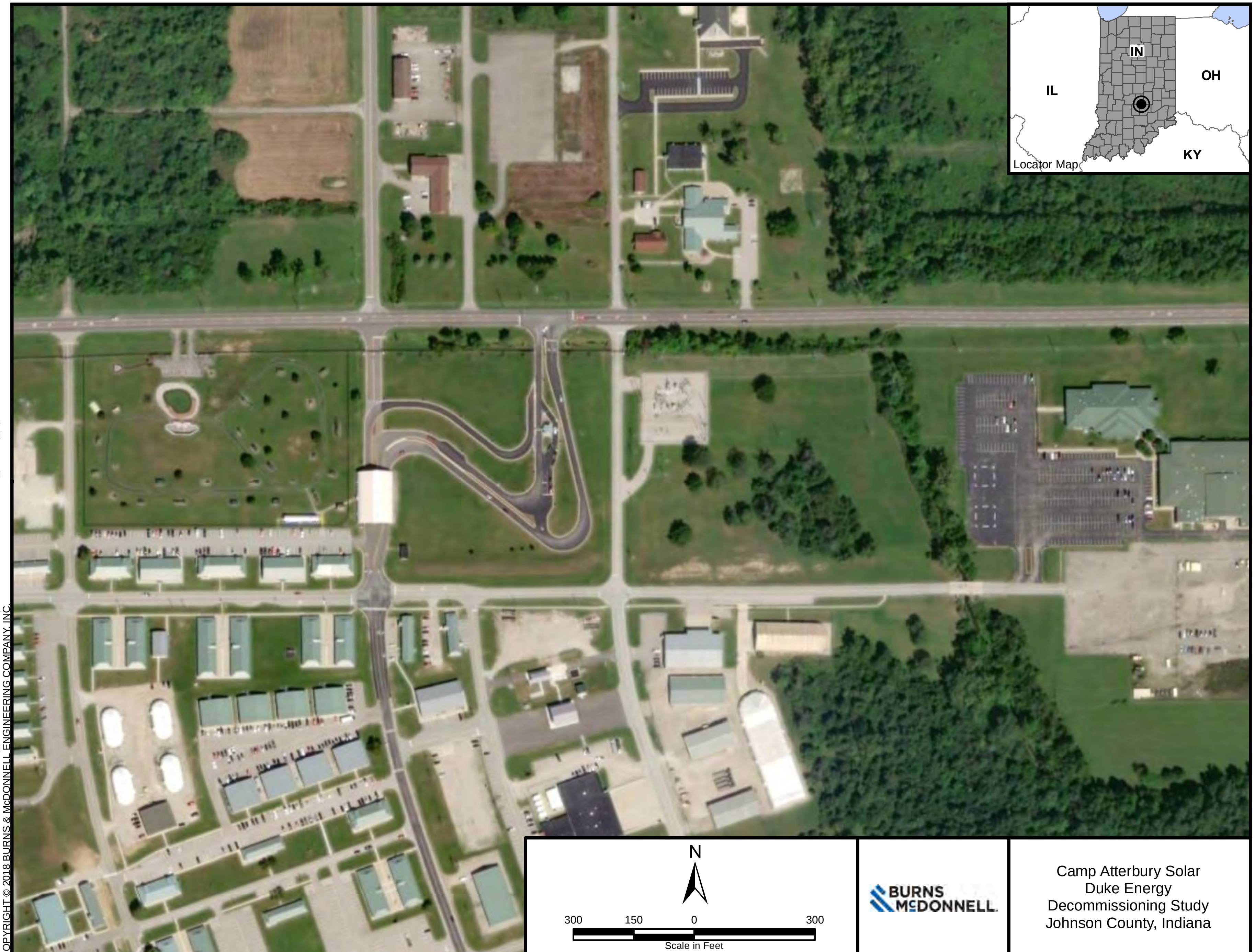
Table A-12
Vermillion CT Station
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Vermillion CT Station						
Units 1-8						
CTs	$ 1,230,000	$ 1,237,000	$ -	$ -	$ 2,467,000	$ -
Stack (metal)	$ 30,000	$ 30,000	$ -	$ -	$ 60,000	$ -
GSU, Electrical, & Foundation	$ 278,000	$ 280,000	$ -	$ -	$ 558,000	$ -
On-Site Concrete Crushing	$ -	$ -	$ 44,000	$ -	$ 44,000	$ -
Debris	$ -	$ -	$ 12,000	$ -	$ 12,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (3,560,000)
Subtotal	**$ 1,538,000**	**$ 1,547,000**	**$ 56,000**	**$ -**	**$ 3,141,000**	**$ (3,560,000)**
Common						
Switchyard and Substation	$ 54,000	$ 55,000	$ -	$ -	$ 109,000	$ -
BOP Misc.	$ 6,000	$ 6,000	$ -	$ -	$ 12,000	$ -
Roads	$ 48,000	$ 48,000	$ -	$ -	$ 96,000	$ -
All BOP Buildings	$ 41,000	$ 41,000	$ -	$ -	$ 82,000	$ -
Fuel Equipment	$ 8,000	$ 8,000	$ -	$ -	$ 16,000	$ -
Mercury & Universal Waste Disposal	$ -	$ -	$ -	$ 15,000	$ 15,000	$ -
Lube Oil	$ -	$ -	$ -	$ 49,000	$ 49,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 200,000	$ 200,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 63,000	$ 63,000	$ -
Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 5,000	$ -	$ 5,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 758,000	$ 758,000	$ -
Debris	$ -	$ -	$ 23,000	$ -	$ 23,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (99,000)
Subtotal	**$ 197,000**	**$ 198,000**	**$ 28,000**	**$ 1,085,000**	**$ 1,508,000**	**$ (99,000)**
Vermillion CT Station Subtotal	**$ 1,735,000**	**$ 1,745,000**	**$ 84,000**	**$ 1,085,000**	**$ 4,649,000**	**$ (3,659,000)**
TOTAL DECOM COST (CREDIT)					**$ 4,649,000**	**$ (3,659,000)**
PROJECT INDIRECTS (10%)					**$ 465,000**	
CONTINGENGY (20%)					**$ 930,000**	
PLANT INVENTORY COST (CREDIT)					**$ 2,919,000**	**$ (730,000)**
TOTAL PROJECT COST (CREDIT)					**$ 8,963,000**	**$ (4,389,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 4,574,000**	

Table A-13
Wheatland CT
Decommissioning Cost Summary

	Labor	Material and Equipment	Disposal	Environmental	Total Cost	Scrap Value
Wheatland CT						
Units 1-4						
CTs	$ 843,000	$ 848,000	$ -	$ -	$ 1,691,000	$ -
GSUs, Electical, & Foundation	$ 79,000	$ 80,000	$ -	$ -	$ 159,000	$ -
On-site Concrete Crushing & Disposal	$ -	$ -	$ 15,000	$ -	$ 15,000	$ -
Debris	$ -	$ -	$ 18,000	$ -	$ 18,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (2,227,000)
Subtotal	**$ 922,000**	**$ 928,000**	**$ 33,000**	**$ -**	**$ 1,883,000**	**$ (2,227,000)**
Common						
Switchyard and Substation	$ 20,000	$ 20,000	$ -	$ -	$ 40,000	$ -
BOP Misc.	$ 2,000	$ 2,000	$ -	$ -	$ 4,000	$ -
Roads	$ 35,000	$ 35,000	$ -	$ -	$ 70,000	$ -
All BOP Buildings	$ 33,000	$ 33,000	$ -	$ -	$ 66,000	$ -
All Other Tanks	$ 106,000	$ 107,000	$ -	$ -	$ 213,000	$ -
Transformers & Foundation	$ 10,000	$ 10,000	$ -	$ -	$ 20,000	$ -
Mercury & Universal Waste Disposal	$ -	$ -	$ -	$ 15,000	$ 15,000	$ -
Transformer Oil Disposal	$ -	$ -	$ -	$ 55,000	$ 55,000	$ -
Lube Oil Disposal	$ -	$ -	$ -	$ 67,000	$ 67,000	$ -
Transformer Pad and Soil Removal	$ -	$ -	$ -	$ 2,000	$ 2,000	$ -
On-site Concrete Removal, Crushing, & Disposal	$ -	$ -	$ 9,000	$ -	$ 9,000	$ -
Grading & Seeding	$ -	$ -	$ -	$ 528,000	$ 528,000	$ -
Debris	$ -	$ -	$ 9,000	$ -	$ 9,000	$ -
Scrap	$ -	$ -	$ -	$ -	$ -	$ (123,000)
Subtotal	**$ 206,000**	**$ 207,000**	**$ 18,000**	**$ 667,000**	**$ 1,098,000**	**$ (123,000)**
Wheatland CT Subtotal	**$ 1,128,000**	**$ 1,135,000**	**$ 51,000**	**$ 667,000**	**$ 2,981,000**	**$ (2,350,000)**
TOTAL DECOM COST (CREDIT)					**$ 2,981,000**	**$ (2,350,000)**
PROJECT INDIRECTS (10%)					**$ 298,000**	
CONTINGENGY (20%)					**$ 596,000**	
PLANT INVENTORY COST (CREDIT)					**$ 8,855,000**	**$ (2,214,000)**
TOTAL PROJECT COST (CREDIT)					**$ 12,730,000**	**$ (4,564,000)**
TOTAL NET PROJECT COST (CREDIT)					**$ 8,166,000**	

APPENDIX B – PLANT AERIALS



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Source: ESRI, Owensboro Municipal Utilities, and Burns & McDonnell Engineering.

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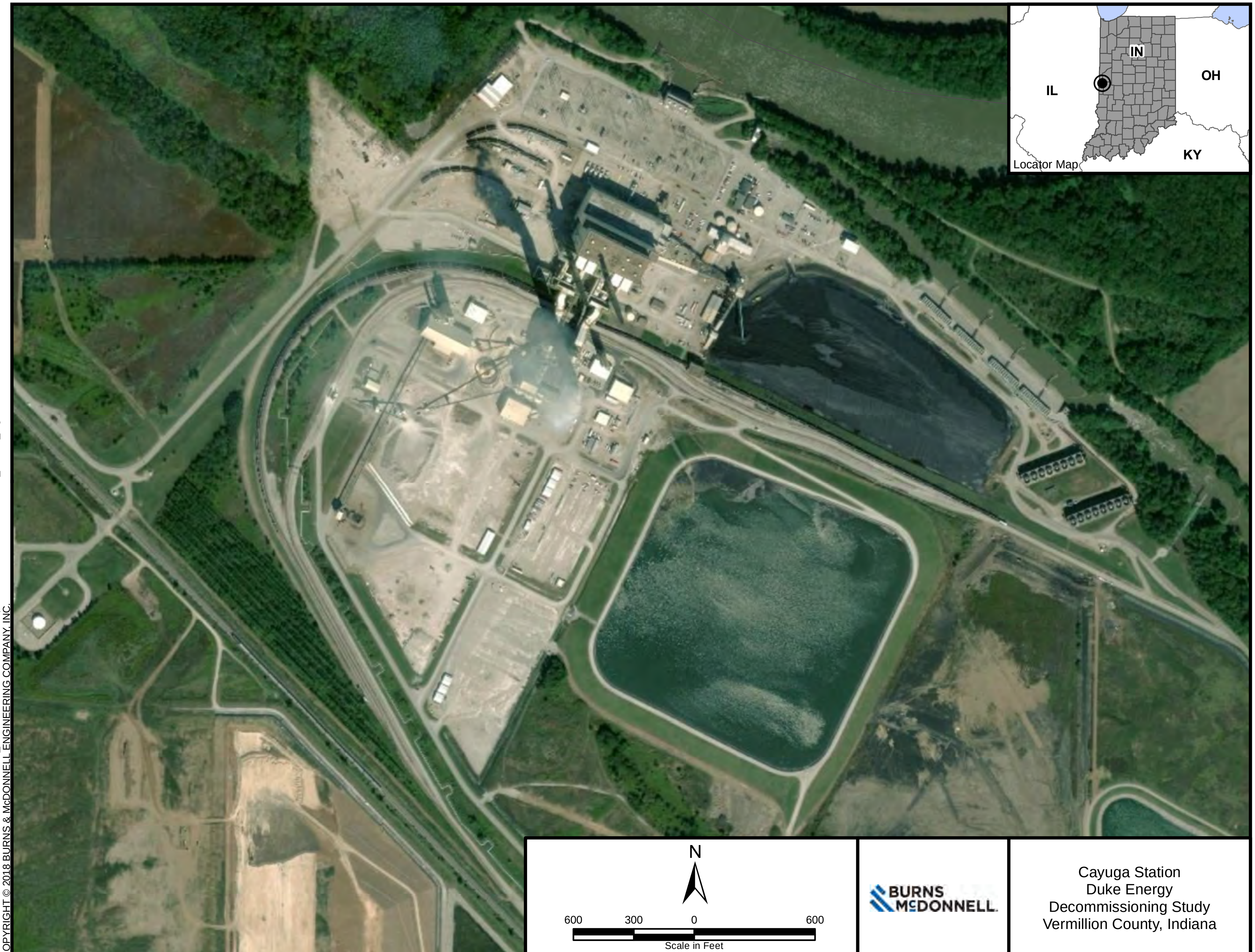

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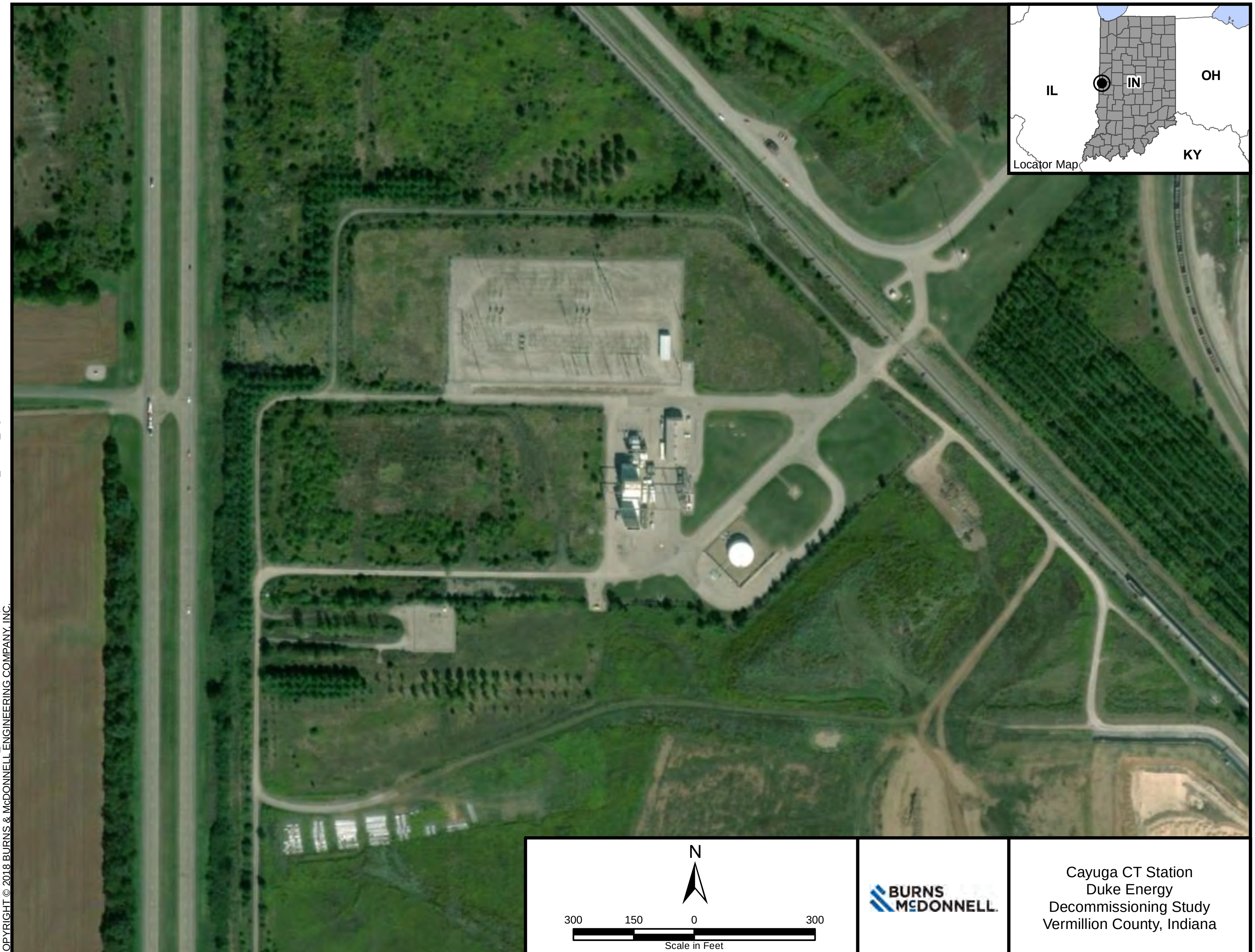

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Crane Solar
Duke Energy
Decommissioning Study
Martin County, Indiana

Source: ESRI, Owensboro Municipal Utilities, and Burns & McDonnell Engineering.

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Edwardsport IGCC
Duke Energy
Decommissioning Study
Knox County, Indiana

Source: ESRI, Owensboro Municipal Utilities, and Burns & McDonnell Engineering.

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Gallagher Station
Duke Energy
Decommissioning Study
Floyd County, Indiana

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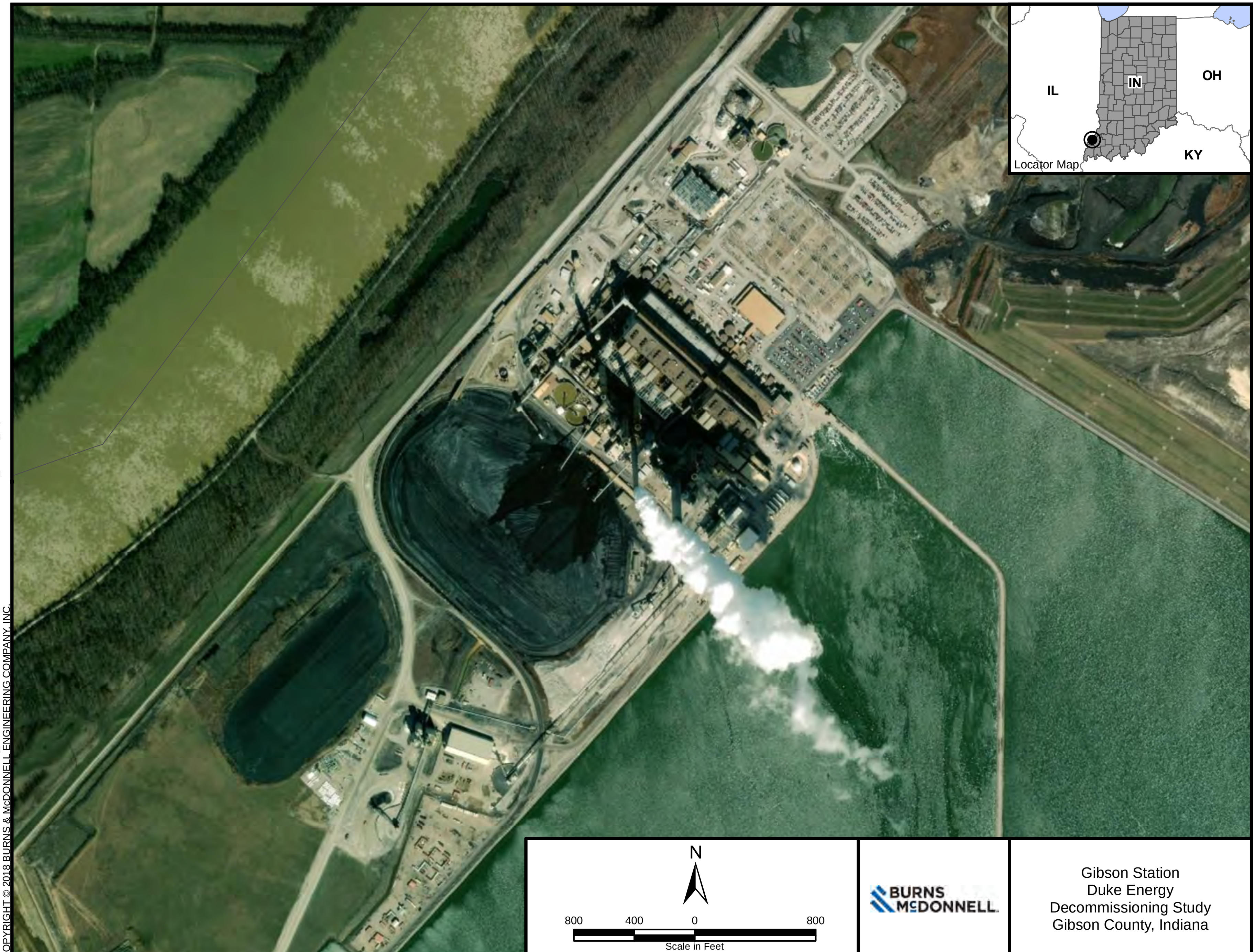

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Gibson Station
Duke Energy
Decommissioning Study
Gibson County, Indiana

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Markland Hydro Station
Duke Energy
Decommissioning Study
Switzerland County, Indiana

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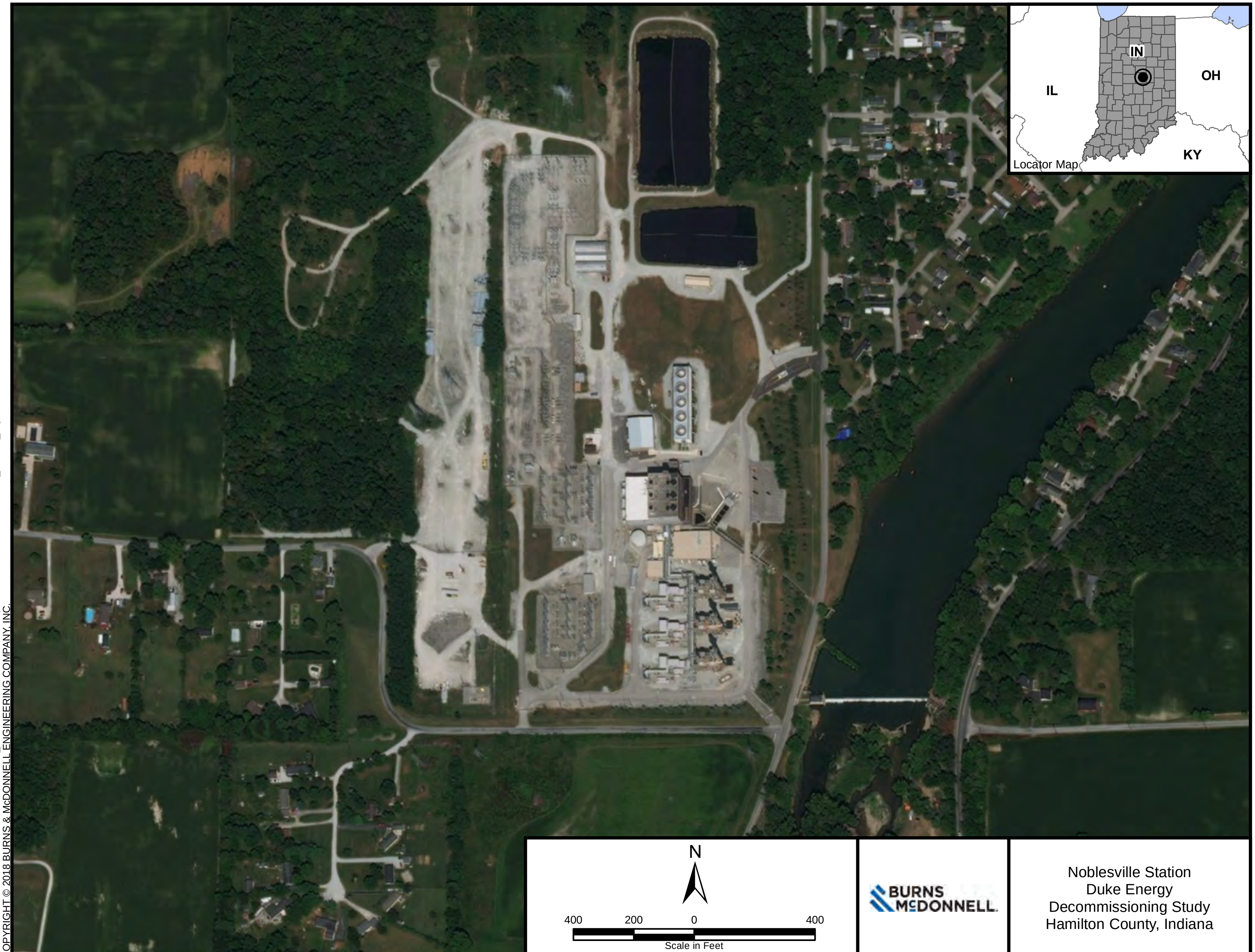

Source: ESRI, Owensboro Municipal Utilities, and Burns & McDonnell Engineering.

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Vermillion CT Station
Duke Energy
Decommissioning Study
Vermillion County, Indiana

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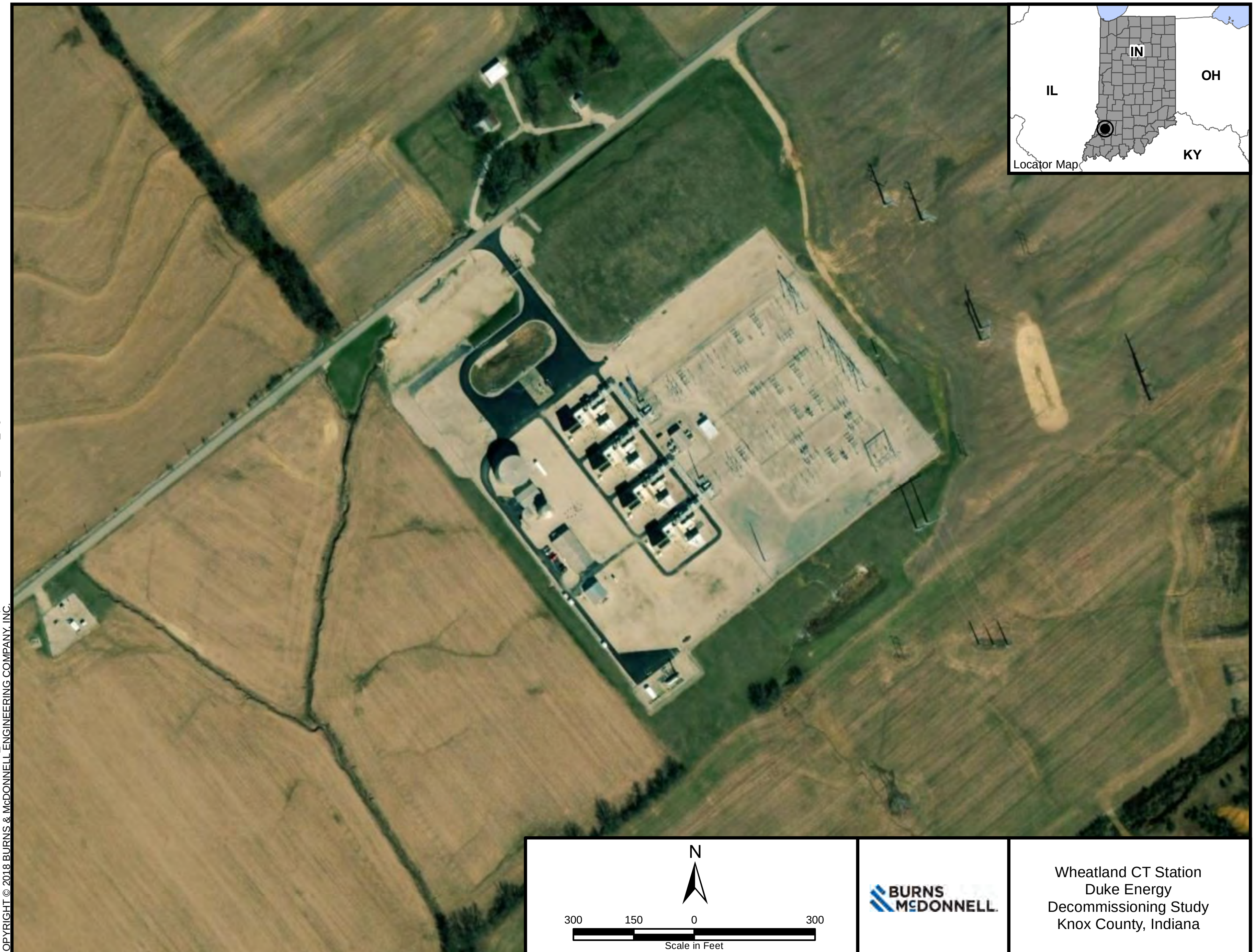

Wheatland CT Station
Duke Energy
Decommissioning Study
Knox County, Indiana

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CREATE AMAZING.

VERIFICATION

I hereby verify under the penalties of perjury that the foregoing representations are true to the best of my knowledge, information and belief.

Signed: Jeffrey T Kopp
Jeff Kopp

Dated: 7/2/2019