BEFORE THE
ARKANSAS PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF ENTERGY ARKANSAS, INC. FOR APPROVAL OF CHANGES IN RATES FOR RETAIL ELECTRIC SERVICE	))))	DOCKET NO. 13-028-U

DIRECT TESTIMONY

OF

WILLIAM R. CREAN

PRINCIPLE ESTIMATOR, BLACK & VEATCH

ON BEHALF OF

ENTERGY ARKANSAS, INC.

MARCH 1, 2013

I. BACKGROUND AND INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A. My name is William R. Crean. I am a Principle Estimator for Black and Veatch. My business address is 3550 Green Court, Ann Arbor, Michigan, 48105.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Entergy Arkansas, Inc. ("EAI" or the "Company").

Q. PLEASE DESCRIBE YOUR DUTIES.

A. My duties at Black & Veatch are to prepare estimates for studies and proposals of the costs associated with the construction and dismantlement of power plants.

Q. PLEASE STATE YOUR EDUCATION, PROFESSIONAL AND WORK EXPERIENCE.

A. My education, professional, and work experience are set forth in EAI Exhibit WRC-1.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE A REGULATORY COMMISSION?

A. Yes, I have provided testimony in the State of Michigan in the following cases:

- Docket No. U - 16117 Detroit Edison Company Depreciation Rate Case;
- Docket No. U - 16991 Detroit Edison Company Renewal Depreciation Rate Case;
- Docket No. U - 16054 Consumers Energy Company Electric and Common Depreciation Rate Case; and
- Docket No. U - 16536 Consumers Energy Company Wind Depreciation Rate Case.

Q. WERE YOUR METHODOLOGIES AND TESTIMONY ACCEPTED IN THOSE PROCEEDINGS?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to present the results of the dismantlement cost study on specific EAI generation plants for use in determining the appropriate depreciation rates in this rate proceeding. The results of the dismantlement cost study are attached to my testimony as EAI Exhibit WRC-2.

II. BACKGROUND ON DISMANTLEMENT STUDY

Q. WHAT IS A DISMANTLEMENT COST STUDY?

A. A dismantlement cost study is an analysis of the costs required to safely manage the removal, dismantlement, and disposal of materials and equipment that remain at a generating unit following its retirement from service and restoring the site to a useable condition.

Q. WHAT IS THE PURPOSE OF THE DISMANTLEMENT STUDY IN THIS RATE PROCEEDING?

A. The results of this study were provided to EAI witness Donald J. Clayton for inclusion in his depreciation analysis.

Q. PLEASE DESCRIBE THE DISMANTLEMENT COST STUDY'S SCOPE.

A. The Dismantlement Cost Study covered the following fossil generating units: White Bluff Steam Electric Station ("White Bluff") Units 1 and 2, Independence Steam Electric Station ("ISES") Unit 1, Harvey Couch ("Couch") Units 1 and 2, Lake Catherine Units 1, 2, 3, and 4; Cecil Lynch ("Lynch") Units 1, 2, and 3; Hamilton Moses ("Moses") Units 1 and 2, and Robert Ritchie ("Ritchie") Units 1 and 3.

Q. WHAT WAS THE OBJECTIVE OF THE COST STUDY?

A. The object of the Dismantlement Cost Study was to estimate the complete dismantlement cost of the units at various plant sites in compliance with the following criteria:

- The dismantling and disposal of all structures to a depth of three feet below grade, equipment, and stacks at the site and restoration of the site to a safe and usable condition.
- Removal and disposal of hazardous waste.
- No need for immediate replacement of generating capacity at these sites.
- Abatement of asbestos containing materials prior to dismantling (where applicable).
- Cost credit associated with the disposition of scrap metals.
- Removal of all units at the plant site as a single dismantling operation.

Q. DID YOU MAKE ANY SITE VISITS TO ANY OF THE PLANTS FOR PURPOSES OF THIS STUDY?

A. An estimator from Black & Veatch performed a plant inspection at the White Bluff, Lake Catherine, Lynch, Moses, and Ritchie Plants. The inspections were performed under my direction.

Q. WHY DID YOU NOT VISIT THE INDEPENDENCE ("ISES") AND COUCH PLANTS?

A. No visit to these sites was needed to develop information needed for the study. Because ISES Unit 1 is similar to the White Bluff units and the Couch units are similar to Lake Catherine units, the study results for White Bluff and Lake Catherine were applied to ISES and Couch to develop dismantlement cost estimates.

III. DISMANTLEMENT COST STUDY METHODOLOGY

Q. PLEASE DESCRIBE THE GENERAL METHODOLOGY USED IN THIS STUDY.

A. The general approach to estimating each plant's dismantling costs was to estimate the cost for a reference plant consisting of several units in detail and then extrapolating the costs to the other units and adjusting common facility costs for specific site differences.

Q. WHAT ARE COMMON FACILITIES?

A. Common facilities are those facilities that are outside of the immediate footprint of the individual units but the functionality of these common facilities is shared by all the units on the plant site. For example, this includes the administration building, warehouses, roads, and water supply systems, and for the coal fired plants the coal handling equipment.

Q. PLEASE DESCRIBE THE EXTRAPOLATION PROCESS.

A. The extrapolating process is an estimating procedure to calculate the cost for an item of a known capacity from a source of a different capacity for which the costs are known.

Q. WHAT BASIS WAS USED TO EXTRAPOLATE COSTS TO EACH PLANT?

A. We used the maximum generator nameplate rating as the parameter to scale the costs from the reference unit to the subject unit.

Q. DID YOU EXTRAPOLATE ALL COSTS IN THIS STUDY?

A. No. A review of each of the plant's common facilities determined that extrapolating common facility dismantling costs from one plant to the others would not be representative. We determined that a more accurate method would be to estimate each plant's common facility dismantling costs, which is the method we applied.

Q. WHAT PLANTS WERE USED AS THE REFERENCE PLANTS IN THIS STUDY?

A. The Lake Catherine Plant and the Entergy Gulf States Louisiana, LLC Willow Glen Plant ("Willow Glen") were used as reference plants for the natural gas plants. The White Bluff dismantling estimate was used for ISES because the plants are identical in design.

Q. WHY WERE LAKE CATHERINE AND WILLOW GLEN CHOSEN AS THE REFERENCE PLANTS FOR THE GAS UNITS?

A. Lake Catherine and Willow Glen were chosen as the representative plants because those plants have different sizes of units that could be utilized to extrapolate to the remaining plant units.

Q. HOW WERE COMMON FACILITIES COSTS TREATED WHEN EAI'S OWNERSHIP OF A PLANT IS SHARED WITH ANOTHER COMPANY?

A. The total common facilities dismantling costs at ISES and Ritchie were prorated by the maximum generator rating of the EAI unit to the total maximum generating capacity of the plant site including the other non-EAI units at the plant site.

Q. IF EAI DID NOT FULLY OWN A PLANT, HOW DID YOU ADDRESS THAT ISSUE?

A. For White Bluff and ISES, where EAI shares ownership of the plants, my dismantlement costs represent 100 percent of the costs to dismantle, and no allocation has been made based on ownership percentage. EAI witness Gregory R. Zakrzewski explains how my dismantlement costs were adjusted and provided to EAI witness Mr. Clayton for inclusion in his depreciation analysis.

Q. DID EAI PROVIDE ANY OF THE COST ITEMS?

A. EAI provided estimates of asbestos removal costs based on a 2005 analysis of its asbestos asset retirement obligation. Black & Veatch escalated these 2005 costs to 2012 dollars by applying an annual escalation rate of 2.5 percent. This escalation rate is consistent with Black & Veatch's experience in the past with highly labor intensive construction and dismantlement activities and is consistent with the trend of the construction employment cost index published by the Bureau of Labor Statistics.

Q. DID EAI PROVIDE ANY OTHER OF THE COST ITEMS?

A. Yes, EAI provided copies of its submittal to the Arkansas Department of Environmental Quality of the financial assurances for the White Bluff and ISES Class 3N landfills. EAI also provided to Black & Veatch the actual costs for Entergy Site Administration and Oversight for the dismantling of the Entergy New Orleans, Inc. A. B. Paterson Plant Units 1, 2, 3, and 4 in Louisiana, which was completed in 2012. The dismantling activities included associated high pressure steam drum boilers, piping, valves, electrical equipment, turbine generators, surface water condensers, feedwater heaters, deaerators, heat exchangers, pumps, control rooms, large and small storage tanks, motors and auxiliary components. In addition to the generating units, all perimeter buildings and structures were removed; including two warehouses, an administration building, a natural gas metering station, a mechanical shop, and surface water intake

structures. Black & Veatch determined which of these costs were schedule driven, which costs were project-specific and which were fixed and not driven by the schedule or by size of project. Black & Veatch then applied this analysis to each of the plants to determine EAI Site Administration and Oversight costs.

Q. WHAT WERE THE VARIOUS COST BENCHMARKS USED IN THE STUDY?

A. There is limited publicly available information with respect to the dismantling costs for power plants, and what information is available required adjustments to match the parameters of the EAI study. The information from Florida Power and Light ("FPL") rate case Docket No. 080677-E1 before the Florida Public Service Commission for similar types of gas/oil plants indicates that scrap costs as a percent of the dismantling cost would be in the low 20s. For estimates of similar plants used in the other Entergy Operating Companies' dismantlement studies, the percentage of scrap to dismantling cost averages 33 percent, which is an indication of higher cost of scrap today as compared to the time frame of the FPL case. Similarly, the average cost per kilowatt to dismantle the FPL plants was $40 per kilowatt. The average is $49 per kilowatt for the EAI gas/oil fired plants without any adjustment for scope differences.

IV. DISMANTLEMENT STUDY RESULTS

Q. CAN YOU PLEASE SUMMARIZE THE RESULTS OF THE DISMANTLEMENT STUDY?

A. Yes. The 2012 costs for the dismantlement of the Company's plants, including asbestos removal, scrap recovery, and allowance for contingency, are:

Table 1
EAI 2012 Dismantlement Costs

Generating Facility	Costs
White Bluff Units 1 & 2	$43,049,019
ISES Unit 1	$22,233,369
Couch Units 1 & 2	$ 11,278,923
Lake Catherine Units 1, 2, 3, & 4	$ 26, 829,220
Lynch Units 1, 2, & 3	$ 14,128,564
Moses Units 1 & 2	$ 9,076,270
Ritchie Unit 1	$ 12,465,507

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

CERTIFICATE OF SERVICE

I, Steven K. Strickland, do hereby certify that a copy of the foregoing has been served upon all parties of record by forwarding the same by electronic mail and/or first class mail, postage prepaid, this 1st day of March, 2013.

/s/ Steven K. Strickland
Steven K. Strickland

BEFORE THE
ARKANSAS PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF ENTERGY ARKANSAS, INC. FOR APPROVAL OF CHANGES IN RATES FOR RETAIL ELECTRIC SERVICE	))))	DOCKET NO. 13-028-U

EAI EXHIBIT WRC-1

EDUCATION AND WORK EXPERIENCE

William R. Crean

William R. Crean is a Principle Estimator in the Energy Division, Ann Arbor office. His primary responsibilities include the cost estimating of all cogeneration projects, new generation including combustion turbines as well as solid fuel plants, and retrofit projects. Crean's experience includes projects in the United States as well as multiple international countries. He has also served as project manager and expert witness in property tax appeal cases and has also testified before the Michigan Public Service Commissioner regarding decommission costs.

REPRESENTATIVE PROJECT EXPERIENCE

Hawaii Electric Company, Inc. (HECO)
2012

Principle Estimator. Developed the costs for the updated Puna biomass conversation, Kahe biofuel conversion and the Maalae NAAQs Compliance studies

Entergy
2012

Principle Estimator. Developed the current decommissioning costs for all of the client's fossil fuel plants in Louisiana and Arkansas for use in their rate case before the their Public Service Commissions.

Confidential Client
2012

Principle Estimator. Developed the current decommissioning costs for all of the client's fossil fuel plants and renewal wind project for use in their rate case before the Michigan Public Service Commission.

FirstEnergy
2011

Principle Estimator. Authored the 2009 FirstEnergy Eastlake Station Replacement Cost Study which was used in the FirstEnergy appeal of their property tax.

Detroit Edison Company
2011

Principle Estimator. Developed the decommissioning cost for the Gratiot Wind Project. The information is used in Detroit Edison Company's rate case before the Michigan Public Service Company. In addition, developed similar costs for Detroit Edison's other wind projects.

Midland Cogeneration Venture
2011

Principle Estimator. Authored the 2009/2010 MCV Replacement Cost Study which was used in the MCV appeal of their property tax.

PRINCIPLE ESTIMATOR

Specialization:
Cost Estimating for new generation; Cogeneration; Retrofit projects

Education
Masters, Science in Management, Rensselaer Polytechnic Institute, 1975.

Bachelors, Mechanical Engineering, University of Detroit, 1966

Total Years Experience
42

Joined Black & Veatch
1993

Professional Associations
1976, Michigan, Engineer

American Association of Cost Engineers

Language Capabilities
English

Portland General Electric
2011
Principle Estimator. Developed the decommissioning cost of the 600 MW coal fired Boardman Plant .

AT&T-Charleston Waste-to-Energy Plant
2010
Chief Estimator. As part of the study to determine the disposition of the Charleston WTE plant, developed the demolition cost of the facility and the restoration of the site.

Vectren
2009
Chief Estimator. Developed the decommissioning costs for all of the client's three coal fuel plants as well as their combustion turbine plants.

Detroit Edison Company
2009
Chief Estimator. Developed the decommissioning costs for all of the client's nine coal and gas fuel plants as well as their two ash disposal sites.

Confidential Client
2008
Chief Estimator. Developed the decommissioning costs for all of the client's fossil fuel plants.

Renewable Projects
2008
Chief Estimator. Developed the following cost estimates:

- 100 MW biomass wood fired plant
- 15 MW repowering biomass project on the big island of Hawaii
- 7.5 MW, 250,000 lbs/hour combined fuel boiler at an existing paper mill

220 MW Coal Fired EPC Proposal, Guatemala
2008
Chief Estimator. Developed the EPC pricing for the installation of second unit at an existing site utilizing a pulverized coal fired boiler.

Vandolah Peaker, Berman, Rennert, Vogel and Mandler
2008
Project Manager and Expert Witness. Reproduction costs of a 4 unit simple cycle utilizing GE 7FAs.

3 x 600 MW Turbine Island EPC Proposal, Brazil
2007
Chief Estimator. Developed the EPC proposal for the turbine island

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

equipment for a 3 x 600 MW coal fired plant in Brazil.

Roseton/Panskammer, Garippa, Lotz & Giannuario
2007

Project Manager. Development of the reproduction costs for the Dynegy 2 x 600 MW Roseton oil fired plant and the 3 unit combined output of 534 MW coal fired Danskammer plant.

Shell Oil Company
2007

Chief Estimator. Developed capital cost estimate for various sizes of combined cycle plants in the Alberta Tar Sands.

DTE Belle River/St. Clair, Honigman, Miller, Schwartz and Cohn
2007

Project Manager and Expert Witness. Replacement costs for DTE Belle River and St. Clair coal fired property tax assessment challenge.

Combined Cycle EPC Proposal
2007

Chief Estimator. Developed the EPC proposal for the restart of the 500 MW PG&E Gateway project in California.

Simple Cycle EPC Proposal
2007

Chief Estimator. Developed the EPC proposal for the two unit LMS 100 installation at the EPCOR Clover Bar plant in Edmonton, Canada.

Combined Cycle/Cogeneration EPC Proposal
2007

Chief Estimator. Developed the EPC proposal for a 450 MW plant in Russia utilizing the GE 9FB combustion turbine.

Combined Cycle EPC Proposal
2007

Chief Estimator. Developed the EPC proposal for a 800 MW plant in Indonesia utilizing the GE 9FB combustion turbine.

Solar Thermal and Photovoltaic Projects
2006

- 3 x 100 MW Mojave CSP Plant, TES, 230 kV Switchyard
- 140 MW CSP Plant, 230 kV Switchyard
- 175 MW CSP Plant, 230 kV Switchyard
- 181 MW CSP Plant, 230 kV Switchyard
- 263 MW CSP Plant with TES, 230 kV Switchyard
- 10 MW Photovoltaic Plant, 4.16 kV Inter-tie

200 MW Cogeneration Plant, Synenco, Edmonton, Canada
2006

Chief Estimator. Developed capital cost estimates for DBM study for

upstream and downstream cogeneration facilities.

Western Coal Conversion-Confidential Client, Michigan
2005
Chief Estimator. Developed Capital Cost budget estimates for conversion of a coal unit to 100 % western coal from the current blended of western and eastern bituminous coal

Confidential Client, Michigan
2006
Chief Estimator. Developed Capital Cost Estimates for peakers, combined cycle and coal plants to be used by the client in their integrated Resource plan.

Cogeneration EPC Proposal, Conoco Phillips, Immingham England
2006
Chief Estimator. Developed the EPC Pricing for the installation of a GE 9FB cogeneration plant at an existing refinery.

900 MW Coal EPC Proposal, LS Power, Texas
2006
Chief Estimator. Develop the EPC Cost Estimate for the installation of a supercritical 9000 MW coal plant.

SCR Conversion, Saint Johns River Power Project, Florida
2006
Chief Estimator. Developed the cost to retrofit two 600 MW coal fired units with SCR.

500 MW Coal Plant Assessment
Project Manager. Development of the reproduction cost for the year 200 of the two x 400 MW Keephills Generating Station in Alberta, Canada.

35 MW Wood Fired Plant, Public Service of New Mexico, New Mexico
2005
Chief Estimator. Developed capital cost estimates for the feasibility study for the development of a 35 MW wood fired power plant.

Cogeneration EPC Proposal, Worsley Aluminum, Western Australia
2005
Chief Estimator. Develop the EPC proposal of a cogeneration facility of a GE 9E and Heat Recovery Steam Generator.

Combined Cycle Retrofit EPC Proposal, CMS Generation, Ghana, Africa

2005

Chief Estimator. Develop the EPC proposal for the conversion of two GE 9E simple combustion turbines to a combined cycle plant. Coordinated the development of this proposal with the Turkish JV partner.

150 MW CFB Feasibility Study, Confidential Client, Guatemala
2005

Chief Estimator. Develop the equivalent an EPC cost estimate for the installation of second unit coal as well as petcoke fired CFB at an existing plant.

Peaker EPC Proposal, Idaho Power Company, Idaho
2005

Chief Estimator. Development of the EPC Pricing for the installation of a single 165 MW combustion turbine.

Auxiliary Power Generation EPC Proposal, Ontario Power Generation, Canada
2005

Chief Estimator. Development of the EPC Pricing for the installation of two unit 38 MW installation as the auxiliary system emergency backup at Pickering Nuclear Facility.

Peaking EPC Proposal, TransCanada Bridgeview, California
2005

Chief Estimator. Develop the EPC proposal for the installation of eight LM 6000 gas turbines with hot Selective Recovery Catalyst.

Peaking EPC Proposal, Pubic Service Gas and Electric, Peru
2005

Chief Estimator. Develop the EPC proposal for the installation of two 7EA combustion turbines.

Combined Cycle Retrofit EPC Proposal, Sumitomo, Indonesia
2005

Chief Estimator. Develop the EPC proposal for conversion of the existing 45 MW and 38 MW combustion turbines with a 44 MW steam turbine and associated BOP equipment.

Confidential Client, Michigan
2005

Chief Estimator. Developed capital cost budget estimates for retrofitting an existing 2, 550,000 lbs per hour supercritical coal plant to burn 100 % western coal.

Cogeneration EPC Proposal, Canadian National Resources Limited, Horizon Sands, Alberta, Canadian
2004-2005

Chief Estimator. Develop the EPC proposal including coordinating the JV partner development for the installation of a new central utility facility of 100 MWs of electrical capacity, water treatment facility and two major substations for new oil sands development.

Bowline/Lovett, Hiscock and Barclay, LLP, New York
2004

Project Manager. Preparation of the replacement and reproduction cost for the Mirant's 2 x 600 MW oil fired and 444 MW coal fired property tax assessment challenge. Appeared as an expert witness before the court on this tax appeal.

Belle River and St. Clair Plants , Detroit Edison Energy, Michigan
2004

Principal Consultant. Preparation of the replacement and costs for coal fired plants property tax assessment challenge.

Integrated Resources Planning Study, Hawaii Electric Light Company, Hawaii
2004

Chief Estimator. Developed capital cost estimates for simple cycle, combined cycle, and solid fuel options to meet the electrical needs of HELCO in the future.

Cogeneration Study, University of California – Irvine, Irvine, California
2004

Chief Estimator. Developed capital cost estimates for various cogeneration options.

Cogeneration EPC Proposal, Arizona State University, Tempe, Arizona
2004

Chief Estimator. Develop the EPC proposal for the installation of a new central utility facility of 18,300 tons of chilling capacity, 160,000 pounds of hour of heating and two solar Taurus gas turbines.

Peaking EPC Proposal, City of Riverside, California
2004

Chief Estimator. Develop the EPC proposal for the installation of a two LM 6000 gas turbines with hot Selective Recovery Catalyst.

Cogeneration EPC Proposal, Grain Processing Corporation, Washington, Indiana
2004

Chief Estimator. Develop the EPC proposal for the installation of 350,000 pounds per hour circulating fluidized bed boiler. Coordinated the development of the estimate with the JV partner.

General Motors, Delta Township Facility, Lansing Delta Township, Michigan

2004

Chief Estimator. Developed capital cost budget estimate for the new central utility facility consisting of chillers, hot water boilers, air compressors, electrical distribution and water treatment equipment.

Confidential Client, Michigan
2004

Chief Estimator. Developed capital cost budget estimates for retrofitting the three unit coal plant complex to burn 100 % western coal.

Phillips Biomass Facility, The Green Institute, Minneapolis, Massachusetts
2003

Chief Estimator. Developed capital cost estimates for the feasibility study for the utilizing a retired municipal waste incineration facility into a waste wood fueled cogeneration facility.

Combined Cycle Plant, Portlands Energy Centre , Toronto, Canada
2003-2004

Chief Estimator. Developed EPC proposal for the 550 MW gas combined cycle facility located in downtown Toronto, Canada. Coordinated the development of the estimate with the consortium partner.

Wood Waste Boiler Technology Assessment Project, Traverse City Light and Power, Traverse City, Michigan
2003

Chief Estimator. Developed capital cost estimates for a boiler assessment study for a proposed new wood waste power facility. The proposed facility would be located on a green or brown field site utilizing waste wood as its primary source of fuel.

Wood Waste Cofiring Study, City Water, Light, and Power, Springfield, Illinois
2003

Chief Estimator. Developed capital cost estimates for cofiring waste wood in two 80 MW coal fired cyclone boilers.

Bagassse Boiler Plant , U.S. Sugar, Clewiston, Florida
2003

Chief Estimator. Developed capital cost estimate for the installation of a 500,000 lb/hour boiler at the U.S. Sugar Clewiston, FL facility.

Bailly 8, Northern Indiana Public Service Company, Indiana
2002-2003

Chief Estimator. Preparation of capital costs and cash flows for the SCR retrofit of a 425 MWs plant. The scope includes cost estimates of all balance of plant equipment and modification, including draft

equipment, electrical equipment and structural modifications.

Cogeneration Study, University of California – San Francisco, San Francisco, California
2002
Chief Estimator. Developed capital cost estimates for various cogeneration options.

Coal Plant Feasibility Study, City Water Light and Power, Springfield, Illinois
2003
Chief Estimator. Preparation of capital costs and cash flows for several size options of 100 MW, 200 MW and 300 MW as the fourth unit an existing site.

Cogeneration Study, University of California – Davis, Davis, California
2001
Chief Estimator. Developed capital cost estimates for a large number of central plant and cogeneration plant options.

Zimmer Tax Appeal, Vorps, Stater, Seymour and Peace, Ohio
2001-2002
Project Manager. Development of the real and personal property for the boiler and turbine buildings associated with Zimmer Coal Conversion Project.

MCV, Midland Cogeneration Venture, Michigan
2002
Principal Consultant. Appeared before the Tax Tribunal as the expert witness presenting the finds in the Black & Veatch report.

Combined Cogeneration Plant, Alliant Energy, Madison, Wisconsin
2001
Chief Estimator. Development of the EPC pricing for the installation of a 2 on 1 combined cycle cogeneration based on GE LM 6000 and the installation of 20,000 tons of chillers located at the University of Wisconsin Madison West Campus.

Peaker, AmerenUE, Missouri
2001-2002
Chief Estimator. Development of the EPC Pricing for the installation of 4 Pratt & Whitney Twin Paks.

Dallman Units 31, 32 and 33, City Water Light and Power, Springfield, Illinois
2002
Chief Estimator. Preparation of capital costs and cash flows for the

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

SCR retrofit of 365 MWs of power.

Peaker, LG&E Power, Kentucky &Georgia
2000-2002

Chief Estimator. Development of the EPC pricing for the installation of 10 GE 7As at two sites.

Combined Cycle Plant, CMS Generation, Midland, Michigan
2000-2001

Chief Estimator. Development of the EPC pricing for the installation of a 2 on 1 nominal 500 MW combined cycle plant.

Peaker, LG&E Power, Georgia
1999-2001

Chief Estimator. Development of the EPC pricing for the installation of 3 Siemens Westinghouse Power Corp. V843a.

Michigan Unit 12 and Schaffer 14, Northern Indiana Public Service Company, Indiana
1999-2002

Chief Estimator. Preparation of capital costs and cash flows for the SCR retrofit of 500 MWs of Power at two plants. The scope includes cost estimates of all balance of plant equipment and modification, including draft equipment, electrical equipment and structural modifications.

Peaker, DPL Energy, Ohio
1999-2002

Chief Estimator. Development of the EPC pricing for the installation of 8 Pratt & Whitney FT8 Twin Paks at two sites and the installation of 4 GE7Es at another site.

Susquehanna Nuclear Plant, Pennsylvania Power & Light, Pennsylvania
1999-2002

Project Manager. Expert Witness in a property tax assessment challenge. Development of the replacement combined cycle plant capital costs and operating cost.

Power Plant Assessment, Rouge Steel/Ford, Michigan
1999-2002

Chief Estimator. Provided assessment and cost estimates to the damage to Rouge Steel Power Plant due to an explosion on Boiler No. 6.

Combined Cogeneration Plant, PPG/Entergy, Louisiana
1999-2002

Chief Estimator. Development of the EPC pricing for the installation of a 2 on 1 combined cycle cogeneration with the SWPC 501 FC at an

existing chemical plant.

Hudson and Mercer, PSE&G, New Jersey
1999

Chief Estimator. Preparation of capital costs and cash flows for the SCR retrofit of 920 MWs of power at two plants. The scope includes cost estimates of all balance of plant equipment and modification, including draft equipment, electrical equipment and structural modifications.

Edgewater Plant, Wisconsin Power & Light, Wisconsin
1999

Chief Estimator. Preparation of capital costs and cash flows for the SCR retrofit preliminary study and balance draft conversion.

Roseton/Danskammer, Central Hudson Gas & Electric, New York
1999

Principal Consultant. Preparation of the replacement and reproduction cost for the 2 x 600 MW oil fired and 350 MW coal fired property tax assessment challenge.

LTV Steel, First Energy, Ohio
1999

Chief Estimator. Preparation of capital costs for the retrofit of a blast furnace gas cogeneration proposal of 130MWs at an existing steel mill

Clean Horizon, National Steel, Michigan
1998-1999

Chief Estimator. Preparation of capital costs for the retrofit of a blast furnace gas cogeneration proposal 120 MWs at an existing steel mill.

AK Steel, Trigen-Cinergy, Ohio
1998-1999

Chief Estimator. Preparation of capital costs for the retrofit of a blast furnace gas cogeneration proposal of 175 MWs at existing steel mill.

Albany Steam Station, Niagara Mohawk, New York
1998-2002

Principal Consultant. Preparation of the replacement and reproduction cost for the 4 x 100 MW oil/gas fired property tax assessment challenge.

MCV, Midland Cogeneration Venture, Michigan
1997

Principal Consultant. Preparation of the replacement and reproduction cost for the 1500 MW combined cogeneration facility property tax assessment challenge. Appeared before the Tax Tribunal as the expert witness presenting the finds in the Black & Veatch report.

Central Termica Agua del Cajon, CAPEX, Argentina
1997-2000

Commercial Manager. Supervision of the estimating, cost control and procurement activities associated with for the conversion of six simple cycle units to a 300 MW combined cycle unit.

Ardila Lulle Bagasse, Illinova Generating Company, Columbia
1997-1998

Chief Estimator. Preparation of capital costs for a 70 MW cogeneration facility at a existing sugar mills located outside Cali, Colombia.

Lujan de Cuyo, CMS Generation, Argentina
1996-1998

Commercial Manager. Supervision of the estimating, cost control and procurement activities associated with a 300 MW repowering unit with SWPC V94.3A gas turbines.

Central Genelba, Perez Company, Argentina
1995-1998

Commercial Manager. Supervision of the estimating, cost control and procurement activities associated with a 660 MW combined cycle unit with SWPC V94.3A gas turbines.

La Plata Cogeneration, Perez Company, Argentina
1995-1997

Commercial Manager. Supervision of the estimating, cost control and procurement activities associated with a 125MW cogeneration plant with a GE 9EA.

Escuintla Energy Center, Indeck, Guatemala
1995-1996

Chief Estimator. Development of the EPC pricing for the installation of 40 MW diesel Plant.

Unit 5 Costanera, Central Termoelectrica Buenos Aires, S.A., Argentina
1994-1996

Commercial Manager. Supervision of the estimating, cost control and procurement activities associated with a 320 MW repowering unit with SWPC V94.3A gas turbines.

Lindsey Oil Refinery, National Power, England
1993-1994

Chief Estimator. Development of the EPC pricing for the installation of LM 6000 cogeneration facility.

Santee Cooper Cross Generating Station
1990-1993

Project Controls Manager. Responsible to supervisor and prepared all cost and schedule data for this 540 MW coal fired plant.

DOE

1986-1990

Project Manager. Responsible to control each task budget and the technical quality of the reviews performed on the DOE projects

Various

1986-1990

Manager Cost Engineering. Provided administrative and technical supervision for all estimating and cost engineering services performed within the company. Key projects included the 55 MW EPC combined cycle project called the Capital District Energy Center and the Zimbabwe Electricity Supply Authority, Hwange Power Station, Stage 3 (2 x 220 coal-fired) Power Plant Addition.

Michigan Electricity Option Studies

1986

Project Manager. Provided the cost data for plant life extensions and fuel conversion.

Marble Hill 2x1150 Option Studies, Public Service of Indiana, Indiana

1981-1984

Project Manager. Provided the cost data for plant life extensions and fuel conversion.

Lakhra Power Plant, Pakistan

1984-1986

Lead Estimator. Lead estimator for the development of the cost data for the 2 x 250 MW power plant located in Pakistan.

Various Energy Projects, Ohio

1979-1986

Section Manager. Supervised approximately a 20 person group responsible to prepare estimates, cost trends, and develop project control systems. Also, the task leader for cost reviews of the Department of Energy major system acquisitions projects.

Bruce Mansfield, Ohio Edison, Ohio

1978-1979

Project Cost Supervisor. Supervisor of approximately a 6 person staff who were providing cost engineering services for the 3 x 825 MW coal plant.

Various

1975-1978

Estimating Supervisor. Prepared mechanical equipment portion of all estimates prepared in company. Also responsible as the project cost engineer on a 2 x 1250 MW nuclear plant. Developed project budgets, cash flows, cost control procedures, and economic data to support the licensing activity.

West Phoenix Combined Cycle Plant, Arizona Public Service

Company, Arizona

1973-1975

Project Cost Engineer. Developed the capital cost estimate, study estimates, and budget estimates. Also assisted the client in preparation of financial information required in sale-lease back of the plant.

1973-1975

Associate Engineer. Evaluated financial merits of design improvements in the fossil and nuclear products supplied by ABB Combustion Engineering.

1968-1970

Associate Engineer. Ran performance test on completed utility boilers as supplied by ABB Combustion Engineering for comparison to contract guarantees.

BEFORE THE
ARKANSAS PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF ENTERGY ARKANSAS, INC. FOR APPROVAL OF CHANGES IN RATES FOR RETAIL ELECTRIC SERVICE	))))	DOCKET NO. 13-028-U

EAI EXHIBIT WRC-2

DISMANTLEMENT COST STUDY

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

DISMANTLEMENT COST STUDY

PREPARED FOR

Entergy Arkansas, Inc.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

Summary

This study provides cost estimates for the dismantlement of the following Entergy gas/oil/coal fossil fired generating facilities located in the State of Arkansas:

- Entergy Arkansas, Inc. (EAI)
  - White Bluff Units 1 and 2.
  - ISES Units 1.
  - Couch Units 1 and 2.
  - Lake Catherine Units 1, 2, 3, and 4.
  - Lynch Units 1, 2 and 3.
  - Moses Units 1 and 2.
  - Ritchie Units 1 and 3.

All of the plants are located in the State of Arkansas.

The objective of this study is to calculate the costs that would result in the event of such dismantlement for use in determining the appropriate depreciation rates for ratemaking purposes. This study is not intended to suggest that there exists any current plan to dismantle any of these plants.

The dismantlement scope for each representative unit was developed based on a site visit to five sites. Those sites are White Bluff, Lake Catherine, Lynch, Moses, and Ritchie.

The general approach to estimating each plant's dismantling costs is to estimate the cost for a reference plant consisting of several units in detail and then extrapolating the costs to the other units and adjusting common facility costs for specific site differences. The extrapolating process is an estimating procedure that permits calculating the cost for an item of a known capacity from a source of a different capacity for which the costs are known. The plants utilized as the reference plant are White Bluff for the coal fired plants and Lake Catherine and Entergy Gulf States Willow Glen for the gas/oil plants. The Lake Catherine and Willow Glen Plants are chosen as the representative plants since these plants have different sizes of units that could be utilized to extrapolate to the remaining plants. With the exception of some of the common facilities, the White Bluff and ISES plants are identical. The general criteria used in this study are:

- The dismantling and disposal of all structures, equipment, and stacks at the site and restoration of the site to a safe and usable condition.
- Careful consideration in the removal and disposal of hazardous waste.
- No need for immediate replacement of generating capacity at these sites.
- Abatement of asbestos containing materials prior to dismantling (where applicable).
- Cost credit associated with the disposition of scrap metals.

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

- Ongoing environmental monitoring after completion of dismantlement is not included.
- Removal of all units at the plant site as a single dismantling operation. If this sequence could not be followed and units had to remain in operation, the cost for dismantlement would increase.

Since asbestos abatement is a major consideration in the dismantlement of any fossil power plant built prior to the 1970s, the determination of the amount of asbestos is a central consideration. Entergy provided estimates of asbestos removal costs based on a 2005 analysis of asbestos asset retirement obligation. Black & Veatch had no means of independently verifying these costs since the quantity of asbestos has not been provided and therefore has accepted these estimates. Black & Veatch did compare the costs against other sources. The Entergy asbestos removal costs seem reasonable, but the cost for asbestos removal at the end of a unit's service life varies widely depending on the amount removed during the service life of a unit. No asbestos removal costs were assumed for White Bluff or ISES since these plants were built in the early eighties after asbestos was no longer used in power plants. Black & Veatch escalated these 2005 costs to 2012 dollars by applying an annual escalation rate of 2.5 percent. This escalation rate is consistent with Black & Veatch's experience in the past with highly labor intensive construction and dismantlement activities and is consistent with the trend of the construction employment cost index published by the Bureau of Labor Statistics.

During the site visits any significant physical changes from their configuration at the time of the initial commercial operation that would impact the dismantlement costs were determined.

The dismantlement method considered in this study is to drop any structure to the ground as early in the dismantling sequence as possible. The structure and equipment can then be accessed with hydraulic excavators equipped with shears and cutters. This equipment would size the material for removal in trailers to the scrap disposal site. Any item that cannot be sheared would be cut by torch.

For the purposes of developing these estimates, a schedule was developed for the dismantlement of the various generating facilities (refer to Appendix C). Key milestones include the asbestos abatement occurring prior to the physical removal of the structures and any free-standing stacks being imploded after the main boiler and turbine structure are removed. Site backfill and restoration would occur after the removal of the dismantlement material.

The estimates were prepared based on using three primary contractors. One would be responsible for performing the asbestos removal, another for dismantlement and the third would be responsible for site restoration. The site restoration may be executed by many subcontractors. The activities of these contractors would be managed by Entergy personnel.

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

A credit has been provided for the value of the dismantlement salvage material which offsets the cost of dismantlement. The market for scrap metal appears to have returned to the level prior to the downturn in 2008 caused by the financial crisis. With the slow economy recovery, the market for scrap metal to be used in finish products is generally rising to the level back in 2008. The volatility of the value of scrap metal is illustrated on Figure S-1. Since then, scrap prices rose to slightly over $400 per ton in 2011, reaching a peak of about $440 per ton in January 2012 and have declined again to a value currently below $300 a ton. The market for this scrap is a world market and is influenced by many suppliers and producers. Even the recent announcements of power plant retirements will not significantly impact the quantity of scrap. The United States steel market is about 56 million tons on an annual basis and if all of the 30,321 MW of announced plants were to be dismantled in a single year, the tonnage would only be about 3 percent of the total.

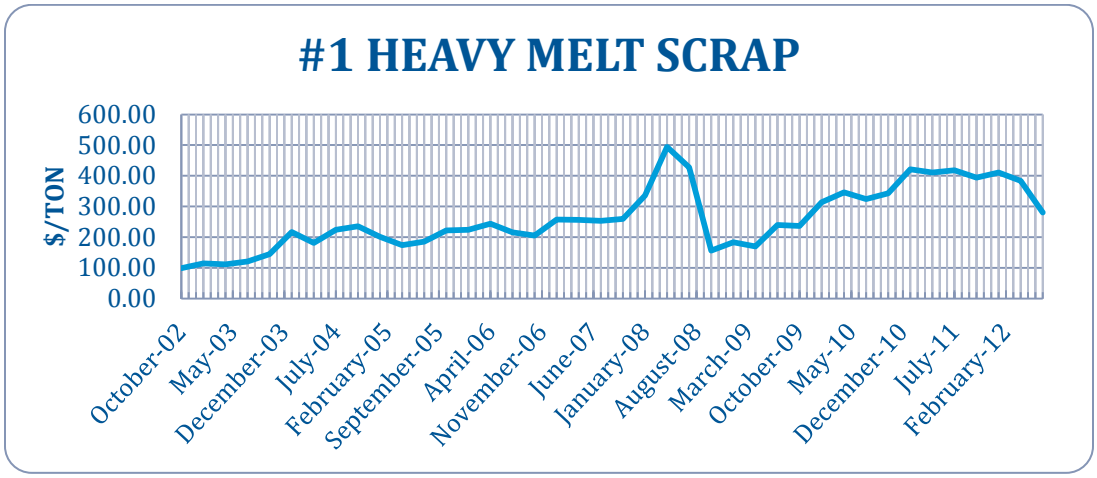


Figure S-1 Scrap Prices Trend

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

The 2012 costs for dismantlement including scrap off sets are shown in Table S-1. Unit sizes have been shown as generator maximum nameplate rating.

Table S-1 Summary of 2012 Costs of Dismantlement

PLANT	NO. OF UNITS	MAX NAMEPLATE (MW)	FUEL TYPE	COSTS
White Bluff	2	1,800	Coal	$43,375,419
ISES	1[1]	900	Coal	$22,233,369
Couch	2	190	Gas/Oil	$11,278,923
Lake Catherine	4	746	Gas/Oil	$26,829,220
Lynch	4[2]	265	Gas/Oil	$14,128,564
Moses	2	138	Gas/Oil	$9,070,270
Ritchie	2[3]	380	Gas/Oil	$12,465,507

[1]ISES is a two unit site, but only one unit is owned by Entergy Arkansas and is included in this study as well as its proportional share of common facilities
[2]One of the Lynch Units consists of two internal combustion engines.
[3]There are three units at the Ritchie plant, but one of the units is not owned by Entergy Arkansas and is not included in this study. One of the Entergy Arkansas Units is a combustion turbine.

1.0 Introduction

1.1 PROJECT OVERVIEW

The scope of the work performed by Black & Veatch includes conducting dismantlement cost estimates of the power plants owned by Entergy Arkansas, Inc ("EAI"). The plants are all located in the State of Arkansas. At several of the plants, units are either on reserve shutdown or on inactive reserve. Regardless of their status, the dismantling costs for a plant site include the costs for the complete removal of all units.

This study is not intended to be a dismantling plan for each of the plants, but rather provides an estimate of the cost for dismantling, which can be used in preparation of depreciation rates that will be considered in a base rate case before the Arkansas Public Service Commission.

This study includes all disposal costs and excludes any potential resale costs of any component of the power plant based on the assumption that by the time of dismantlement, there will be no market for any of the components utilized in the operation of the power plant other than as scrap. The age of the equipment with the associated wear precludes use in other facilities.

Black & Veatch utilized its experience in the design of power plants and in the preparation of decommissioning cost estimates for other electrical generating facilities to establish the estimating approach for this estimate. A spreadsheet was used to tabulate material quantities, which were grouped into categories of cost: site work, concrete, piping, equipment, electrical, construction support, and project support activities. There is a separate estimate for each unit in the plant and a separate estimate for the common facilities. The dismantling estimate includes the cost for the removal of the boilers, turbine generators, fuel supply, and systems and structures which support these major components.

The commercial arrangement assumed between the dismantlement contractor and EAI is for EAI to receive bids from dismantlement contractors who will accept responsibility for quantities, schedule, and productivity and will have the salvage rights to all plant equipment and material.

The scrap value for the ferrous and non-ferrous materials is based on January 2013 published prices. Preparation and handling adjustments to the quote prices have been included to account for the effort of the scrap dealer. Pieces must comply with certain specifications as published by the Institute of Scrap Recycling Industries.

The scope of the units' dismantling was developed on the basis of the following criteria:

- The plant is de-energized by the operating staff and all systems are drained, chemicals are disposed off site, any parts and components that can be used at other plants are removed.
- Abatement of asbestos containing material prior to dismantling. The cost for abatement of asbestos is included in the dismantling cost estimates.

- The dismantling and disposal of all structures and equipment at the site and the restoration of the site to a usable condition.
- No re-sale or reuse of the plant components.
- No immediate replacement of generating capacity at these sites.
- Owner's on-site management, oversight and security staff.
- Ongoing environmental monitoring of the facilities after the completion of the dismantling is not included.

Site backfill and restoration would occur after the removal of the dismantlement material.

The estimates were prepared assuming that there would be multiple contractors: a contractor responsible for asbestos removal, another for dismantlement, and a third responsible for site restoration. The activities of these contractors would be managed by Entergy personnel.

Credit has been provided for the scrap value of the dismantlement material to offset the cost of dismantlement. The value of ferrous scrap has risen after the downtick at the end of 2008 back to the level in the early part of 2008. Copper experienced major increases in 2004, with a collapse in 2009 and another uptick in 2011 and is slightly down from 2011.

1.2 PLANT DESCRIPTIONS

White Bluff is a two unit coal fired plant located in Redfield, Arkansas (refer to Figure 1-1 and Figure 1-2). The maximum generator nameplate rating for both plants is 900 MW. The dismantling costs consider the treatment of the coal pile and the ash field. The plant receives coal by unit train. The plant's coolant system is individual natural draft cooling towers with make–up water from a pumping station located on the Arkansas River. White Bluff is co-owned. The dismantling cost estimates are for the entire unit and don't consider the co-ownership. The units entered commercial operation between 1980 and 1981. The estimated dismantling costs for each of the units in this plant formed the basis for the dismantling costs for the other coal fired plant - ISES in this study. ISES and White Bluff Plants both operate coal ash landfills permitted by the ADEQ Solid Waste Management Division. These landfills have been utilized for ash disposal since the plants went into operation, and are currently classified as Class 3N facilities. Historical disposal areas that have been closed under previous requirements have been grandfathered into the current permit and are not subject to additional closure requirements at this time. It is assumed that the landfills will be left in place following the closure and dismantlement of the plants. ISES and White Bluff also operate a number of ponds. ISES has a surge pond, two recycle ponds, and two sedimentation ponds. White Bluff has a surge pond, two recycle ponds, two sedimentation ponds, and a clear water holding pond. The surge ponds at both facilities function as the storm-water runoff collection for the entire plant sites, including the two landfills. These ponds are permitted through the plants' NPDES permits, and currently no regulations specify their closure requirements. Due to the use of the surge ponds as storm-water holding areas for both landfills,

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

which would remain after the plants closure, for this dismantling study these surge ponds will remain after the dismantlement of the plant. However, future regulation of coal combustion residuals could potentially impact some or all of the ponds by designating them as "surface impoundments" subject to the regulation, with the greatest likelihood of this for the recycle ponds since they accumulate small amounts of bottom ash over time. This designation would create closure requirements including removing the solids, dewatering and closing with a liner.

For White Bluff, the clear water holding pond which is an 80-acre lake will also remain after dismantlement of the plant.

Figure 1-1 White Bluff

Figure 1-2 White Bluff

ISES is a two-unit coal fired plant located in Newark, Arkansas (refer to Figure 1-3). Unit 1 has a maximum generator nameplate rating of 900 MW. Unit 2 is not owned by EAI and is not included in this study. Unit 1's proportional share of common facilities is included in the cost study. The study assumes that unit 2 would be dismantle at the same time as unit 1. The units entered commercial operation between 1983 and 1984.

Figure 1-3 ISES

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

Couch is a two unit gas/oil plant located in Stamps, Arkansas (refer to Figure 1-4). Unit 1 which is in extended forced outage has a maximum generator rating of 27 MW. Unit 2 has a maximum generator rating of 156 MW. Unit 1 entered commercial operation in 1943 and Unit 2 1954.

Figure 1-4 Couch Plant

Lake Catherine is a four-unit gas/oil plant located in Jones Mill, Arkansas (refer to Figure 1-5). Units 1 and 2 have a maximum generator rating of 40 MW each. Unit 3 has a maximum generator rating of 113 MW. Unit 4 has a maximum generator rating of 553 MW. The Units 1 thru 3 entered commercial operation between 1950 and 1953, while Unit 4 commercial operation date is 1970.

Figure 1-5 Lake Catherine

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

Lynch is a three-unit gas/oil plant located in North Little Rock, Arkansas (refer to Figure 1-6). Unit 1 is retired and had a maximum generator nameplate rating of 34 MW. Unit 2 which is in inactive reserve has a maximum generator rating of 69 MW. Unit 3 has a maximum generator nameplate rating of 156 MW. There are also two peaking diesel plants rated at 3 MW on the site. The units entered commercial operation between 1949 and 1954.

Figure 1-6 Lynch Plant

Moses is a two-unit gas/oil plant located in Forrest City, Arkansas (refer to Figure 1-7). The units are in extended force outage. Each unit's maximum generator nameplate rating is 69 MW. The units entered commercial operation in 1951.

Figure 1-7 Moses Plant

Ritchie is a three-unit gas/oil plant located in Helena, Arkansas (refer to Figure 1-8). Unit 1 with a maximum generator rating of 359 MW has been in inactive reserve shutdown. Unit 2 is in reserve seasonal shutdown and has a maximum generator rating of 545MWe; it is not owned by EAI and therefore not included in this study While not included in the cost study, the assumption for the study is that Unit 2 would be dismantle at the same time as the remaining units.. Unit 3 is a gas turbine peaking plant with a maximum generator rating of 21 MW and is in extended forced outage.

Figure 1-8 Ritchie Plant

2.0 Price Basis and Assumptions

2.1 GENERAL

1. The general approach to developing the estimates was to establish from the Lake Catherine and the Entergy Gulf States Willow Glen plant a unit specific equipment building materials inventory which would be representative of a plant size (electrical generation capacity) for the gas/oil fired plants. This unit specific inventory was established using a site walk-down and station provided equipment data bases. For the two coal fired plants, the White Bluff plant was selected as the representative plant.

   Since there are many similar components and characteristics between generating plants of similar size and generation method, these representative unit inventories were modified to reflect an estimate of the installed major plant equipment and building materials for units of similar size. Where significant physical differences exist between the representative unit and estimated units, appropriate considerations and adjustments were made.

   Common facilities, i.e. warehouses, administration, circulating water pump structure, roads, oil storage, fencing , railroad, etc. were estimated from data books and site plans.
2. This cost estimate is prepared on an item-by-item basis using unit factors developed for each cost item from prior dismantling experience or similar related experience. The costs for project management, equipment and consumables, and similar types of costs are estimated on a period-dependent basis (i.e., the magnitude of the expense depends, in part, on the duration of the project).
3. The estimated labor cost was based on a dismantlement contractor working a straight 50 hour workweek, paying non-union wage rates for its personnel. Man-hours used in the estimate were based on the removal of material as scrap. Scrap is defined as the site material that has value due to its metal content. The values used in this study were established using Iron Mike.com indices and will be paid to the owner of the material, which will be the dismantlement contractor.
4. Concrete material will not be recycled and will be used as fill on-site or landfilled.
5. All dismantling work is in compliance with OSHA requirements.
6. A security force will be maintained by EAI during dismantling.
7. The dismantling at a plant site would occur after the last unit was removed from service.
8. No performance bond would be required of the dismantlement and site restoration contractors.
9. Any plant insurance costs and property taxes were not included.

10. Equipment rental pricing was taken from *Equipment Watch.*
11. Scrap material will be in transportable sizes. The transportation cost for removal from the site storage area will be to a scrap dealer which will have the capability to process the scrap into smaller pieces.
12. Equipment has no salvage value, only scrap value of the materials.
13. A 15 percent contingency allowance was included in the estimate for the major power plants. These dismantling cost estimates would be classified as a Class 4 within the AACE International classification. The addition of this contingency results in a 90% confidence that the actual costs will fall within the bounds of -30 % on the low side and +50% on the high end. Contingency is defined as the specific provision or allowance for unforeseeable elements of cost within the defined project scope where previous experience, related estimates, and actual costs have shown that unforeseeable events which increase costs are likely to occur. Thus, contingency is an amount added to an estimate that is expected to be spent as an allowance for uncertainty that has a historical precedent. Refer to the following:
    a. Items Excluded from Contingency--New licensing, environmental or safety requirements, excessive changes in the labor market.
    b. Items of Uncertainty Included in Contingency--Estimate errors or omissions: Take-off variations, oversight, judgment, allowance errors, labor productivity, crew makeup, unknown site conditions, errors in factoring assumptions.

2.2 ESTIMATE SCOPE

The general scope of work included in the cost estimates is as follows:

1. All structures in the plant will be removed. Structures to be demolished at the plant include: boiler and turbine building, control complex, auxiliary service building, circulating water pump house, maintenance buildings, warehouses, miscellaneous buildings, water intake and discharge pipe will be capped, and any river structures removed. Concrete will only be removed to approximately 36 inches below existing grade.
2. Large equipment and components will be removed prior to structure dismantlement.
3. Turbine pedestals will be either removed by controlled blasting or knocked down.
4. Concrete chimney stacks and cooling towers will be blasted to the ground and broken into rubble and the steel liners cut and removed.
5. The terminal point for electrical is the dead end tower inside of the plant substation.

6. Structural steel, equipment, piping, valves, motors, electrical conduit and wire, transformers, reinforcing steel protruding from concrete rubble, organic materials, aluminum, and other metals will be removed from the site.
7. The disturbed foundation area will be filled with clean sub-grade material of quality comparable with the immediate surrounding area.
8. Rubble (concrete and bricks) will be disposed of onsite after recycling as backfill material in lagoons and deep structures prior to backfilling with dirt.
9. Entergy provided Black & Veatch the estimated costs of asbestos removal for each of the plants. These costs were developed in 2005. These 2005 costs were escalated to 2012 by applying an annual escalation rate of 2.5 percent for 7 years. The 2005 costs were derived from a Washington Group Oil/Gas Fired Unit Decommissioning Assessment Supplemental Report. This report estimated the cost to remove the Hazards (asbestos, chemicals, oils, etc.) from four units in the Entergy fleet with no further removal or dismantlement of materials or equipment. The four units were Patterson Unit 4, Ritchie Unit 1, Willow Glen Unit 3, and Gerald Andrus. From this estimate a $/MW cost was determined for each of the units studied. This $/MW cost estimate was then applied to similar units to determine cost for asbestos removal. It is important to note that this report was based on visual observations and no destructive sampling was performed. It may be possible that asbestos-containing materials are present in interstitial spaces, inaccessible areas of the property, or below grade. In general, asbestos containing material was identified as floor tile, ceiling tile, gaskets, sprayed on fan coats, joint compound, and roof sealant. This material will be specially handled, packaged, and removed to an approved disposal site. Also, plant siding considered to contain asbestos will be specially handled, packaged, and removed to an approved disposal site.
10. To be in compliance with Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Section 404 of the Clean Water Act (33 U.S.C. 1344), 33 CFR 330, which require that structures located in areas where waters of the US are prevalent, including periodic inundation of areas associated with the flood plan, shall require mitigation by removal and restoring of the river bottom to its original natural condition. Subsequently, there is a requirement that all structures located on the Arkansas, White and Mississippi River upon the determination that they are no longer required, retired or past their usefulness shall be removed in their entirety and the bottom of the water body restored to its original condition. This requirement impacts White Bluff, ISES, Lynch and Ritchie.
11. Water intakes will have temporary sheet pile installed along Arkansas, White and Mississippi River shorelines to permit removal of the water make–up pump house. The outfall structures will also be removed.

12. Disturbed areas of the plant site, including roads, will be covered with 1 foot of soil including a minimum of 4" of top soil, sloped to prevent ponding, seeded, and mulched.
13. Railroad embankments will be graded and contoured to the existing grade, seeded, and mulched.
14. The oil storage tank area will be covered with soil, seeded, and mulched after removal of the oil storage tanks. The existing berms will be used for backfill material and if additional material is required, imported soil will make up the balance. The area will be graded to the existing contours.
15. Drainage will occur by sheet flow across the site into several drainage ditches. Once final grading is completed, erosion control will be placed to prevent erosion and displacement of the final grading soils.
16. Landscaping will be limited to the site grading and seeding necessary for site drainage and erosion control. Any topsoil deficiency and trench settling shall be mitigated with imported topsoil consistent with the quality of the affected site.
17. Any surrounding unexcavated areas compacted by equipment used in the decommissioning process would be tilled in a manner adequate to restore the topsoil and sub-grade material to the density of the surrounding fields.
18. The disturbed areas would be seeded with a mix of native grasses and mulched. All disturbed soil surfaces will be seeded with a seed mixture reasonably similar to the area's original condition.
19. The plant site will be cleared of any underground obstacles (foundations, cable and duct bank) to 3 feet below the ground surface.
20. The estimate assumes that all structural steel, miscellaneous building steel, decking grating, piping, and equipment will be separate and removed to drop-off containers as provided and removed by the scrap company. The estimate assumes that there will be a charge for transportation offsite and that the recycling company will assume all responsibility for the safe removal/disposal of lead paint and processing of the steel, which is reflected in the value of scrap metal.
21. Borrow fill material similar to the soil found in the immediate disturbed area will be hauled in from offsite.
22. The liquid in the recycle and sedimentation ponds will be discharged in accordance with the pertinent NPDES permits and the remaining will be allowed to evaporate. The wastewater residuals would be removed and disposed of in accordance with pertinent environmental regulations by the dismantlement contractor. These ponds would be backfilled with soil and no capping requirements.

23. Any liners in ponds/lagoons will be removed and the dikes around these ponds/lagoons backfilled into the ponds. The ponds/lagoons will be backfilled to the site elevation in the immediate area of the ponds/lagoons.
24. Coal bunkers and ash silos will be empty prior to the start of dismantling.
25. The coal storage area will be covered with soil, seeded, and mulched after removal of 2 feet of surface below the coal pile, and the area backfilled with imported soil. The area will be graded to the existing contours.
26. At White Bluff, the dismantling estimate is based on removal of the three dams.
27. Potential resale values for the equipment were not included in the estimates, since a market for this equipment is not foreseen.
28. All equipment and materials onsite are considered to have reached the end of their useful life. They will be cut, removed, and sold for scrap.
29. Pipes and conduits containing no materials known to be harmful to the environment will be cut back to a depth of least 36 inches below grade. All conduit and pipe buried deeper than 36 inches will be left in place and abandoned. These utilities include but are not limited to circulating water pipe, duct banks, drainage, service and make-up water, fire protection, and other electrical systems. The estimate does not include preparation/preventative maintenance for utilities below grade.
30. Except to separate non-ferrous and alloy materials, conduit and electrical buss will be removed in the most cost-effective manner. They will be sold as scrap.
31. All fencing on the property lines will be removed.
32. Strip all insulation and covering, package, and remove to acceptable landfill.
33. Removal of any two–lane asphalt surfaced roads where it connects with the public road system.
34. All structures in the substation will remain.
35. The nonhazardous material waste disposal site will be located within a reasonable drive time from the site. This site will accept the disposal of construction materials such as interior office finishes, concrete asphalt pavement, and other miscellaneous building materials. The disposal costs will include transportation and dumping fees for nonhazardous materials.
36. Entergy provided to Black & Veatch the actual costs for Entergy Site Administration and Oversight for the dismantling of the Paterson Plant. Black & Veatch determined which of these costs were schedule driven, which costs are project specific and which may be fixed and not driven by the schedule or by size of project. Black & Veatch then applied this analysis to each of the plants to determine Entergy's Site Administration and Oversight costs.

2.3 EXCLUSIONS FROM ESTIMATES

The following was excluded from the estimates:

1. Escalation beyond September 2012 on material and labor costs.
2. Restoration of the site to its original contour (before installation of the original structures).
3. All foundations, cable, below grade pipe, and culverts below 3'.
4. Environmental Site Assessment.
5. Entergy personnel costs and any corporate overhead other than those shown for Site Administration and Oversight charges.
6. Cost of removing mobile equipment and machinery. Mobile equipment and machinery are assumed to be transported to other company plants or sold for cost of removal.
7. Cost of groundwater monitoring.
8. Remediation/removal of PCBs (polychlorinated biphenyls) is not included.
9. No remediation or removal of contaminated spills or significant plumes.
10. Disposition of surplus bulk chemicals, flushing and cleaning of inactive storage tanks, and gas storage containers.
11. Any future federal or state regulations for coal ash landfills. The surge pond and recycle ponds at White Bluff and ISES Plants could be deemed Coal Combustion Residual (CCR) surface Impoundments subject to the impending 2013 EPA closure rules.
12. Any future federal regulations for materials not currently classified as hazardous.

2.4 PRE DISMANTLING OPERATION ACTIVITIES

The estimates are based on the units being shut down and placed into a post shutdown configuration by the plant staff. The length of time that the entire plant is in this configuration is indeterminate and is not included within the scope of this dismantling effort. The activities to be completed post-shutdown but prior to dismantling the station include:

- Removal of all consumables and supplies not needed.
- Consumption of all fuels (including oil/coal).
- Removal of acids and caustics; flushing and cleaning of storage tanks.
- Removal of combustible materials.
- If the unit is to be maintained requiring lighting, electricity and building services, reconfigure these systems to minimize maintenance requirements. These services will remain in service to support the dismantling operations until no longer required.
- Disposition of surplus bulk chemicals and gas storage containers.
- Completion of a hazardous materials survey of the station.

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

Since these activities would be expected to be performed by the plant operations and maintenance staff shortly after final shutdown, costs for these activities have not been included in the estimates.

2.5 DISCUSSION OF RECOVERABLE COSTS

The value of ferrous and non-ferrous scrap of $280 per ton was estimated from current market published information and also confirmed by experience for the Paterson dismantlement. The website http://www.877ironmike.com was used in determining the price of scrap. Appendix B contains listings of the values used in this study. The quoted values are the cost per pound or per ton paid to a scrap dealer who has prepared and shipped the material to the end user and not the dismantlement contractor. It is assumed the scrap materials would be removed from their existing locations and would be placed in containers to be hauled off by the dismantlement contractor. The material would be sized at the plant sites so that standardized transportation conveyance could be used.

Pieces must comply with certain specifications as published by the Institute of Scrap Recycling Industries. For example, #1 heavy melting steel (#1 HMS) is individually priced for sizes not over 60 x 24 inches and greater than ¼" thick, prepared in such a manner to insure compact charging. No 1 copper wire has to be clean, untinned, uncoated, unalloyed copper wire and cable, not smaller than No. 16 AWG.

For non-ferrous materials, the price is for cable composition of different percentages of copper with insulation, and for the aluminum cable weight is based on the specified transmission cable. The estimated alloy weight of the condenser tubes, electrical motors and transformer core has been based on data from other studies and not from specific data for the various Entergy plants.

2.6 PROCESSING AND DISPOSAL COSTS

The transportation costs from the plant site to a scrap dealer within the State of Arkansas have been included as a component of the disposal costs. These costs were determined based on the weight limit of a trailer or the capacity of a dump truck.

2.7 SCHEDULE

The schedule for a typical 500 MW plant dismantlement is 12 months with the sequence of work being to commence dismantling the Power Block equipment, then the foundations, and finally complete the site restoration effort. These activities would be sequential by area. However, it is possible that several of the activities will be ongoing at the same time. Appendix C is the anticipated schedule for the multi unit Lake Catherine Plant.

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

3.0 Cost Estimates

The approach taken in developing the Lake Catherine and White Bluff unit dismantling estimates which is the basis for the other estimates is to quantify the activity dependent costs such as removal of steel, equipment, cable, raceway, piping and siding and apply appropriate unit labor man-hours associated with plant dismantling.

A typical schedule for the total dismantling of a plant is used to determine the period dependent costs for contractor supervision, safety, equipment rental, temporary facilities. A contractor's fee of 12 percent is applied to account for the contractor's overhead and profit.

These accounts are combined to yield the direct dismantling costs. A contingency is then applied.

A credit for the scrap metal based on the estimate tonnage of ferrous and non-ferrous metals and current value of scrap for these categories is included.

The estimate for the other plant units was scaled using the generator maximum nameplate rating from a similar size of unit from Willow Glen using the six-tenths rule. The AACE International recommended practices No 59R-10 outlines the procedure by which the cost of new plant is derived from the cost of a similar plant of a known capacity as long as the equipment remains the same generically. It relies on the nonlinear relationship between capacity and cost as per the following equation:

$$\text{Cost}_B/\text{Cost}_A = (\text{Capacity}_B/\text{Capacity}_A)^R$$

Where Cost_A and Cost_B are the costs of the two similar plants, Capacity_A and Capacity_B are the capacities of the two plants and *R* is the exponent, or proration factor. The value of the exponent typically lies between 0.5 and 0.85 when applying against process plants. For the factor used to adjust the costs in this study 0.6 has been used. The six-tenth rule is the universally accepted factor when no other data is available to suggest a different factor.

This rule was only applied when the electrical generating capacity was greater than or less than 10 percent of the Lake Catherine and the Entergy Gulf States Willow Glen units. If the other plant output was within the band width, then same cost was used as was developed for Lake Catherine and Willow Glen unit.

Separate common facility estimates were prepared for all of the plants. For the Ritchie Plant, its common facilities were allocated based on megawatts between Unit 1 and Unit 2. Similarly for the ISES Plant, the common facilities dismantling costs was allocated between Units 1 and 2

Tables 3-1 through 3-7 provide the results of the analyses.

Table 3-1 Summary of Dismantling Cost Estimate – White Bluff Plant

Entergy Dismantling Study
White Bluff PC Units 1, 2 & Common
Summary of Dismantling Cost Estimate

	Unit 1	Unit 2	Common	Total
Plant Size - MWe	900	900		
Permits	$0	$0	$200,000	$200,000
Asbestos Remediation	$0	$0	$0	$0
Intake & Discharge Demolition			$1,859,982	$1,859,982
Earthwork & Site Work	$428,754	$433,727	$13,267,876	$14,130,357
Concrete	$4,353,941	$4,453,917	$2,107,202	$10,915,060
Architectural & Metals	$2,577,896	$2,597,266	$886,178	$6,061,339
Piping, Valves & Hangers	$467,107	$436,489	$328,742	$1,232,337
Mechanical Equipment	$3,669,891	$3,450,111	$2,615,188	$9,735,190
Electrical Equipment	$304,649	$368,918	$234,047	$907,614
Heavy Equipment	$3,058,169	$3,058,169	$5,687,448	$11,803,786
Small Tool Allowances	$645,399	$639,023	$617,802	$1,902,224
Mobilize and Demobilze	$370,357	$369,719	$630,525	$1,370,601
Temporary Facilities	$1,432,785	$1,418,631	$1,371,521	$4,222,937
Field Expenses	$286,557	$283,726	$274,304	$844,587
Demolition contractors Field Staff	$900,000	$900,000	$1,800,000	$3,600,000
Contractor's Overhead and Profit	$2,219,460	$2,209,163	$3,825,698	$8,254,321
Contractor's Bond	$207,200	$222,900	$35,600	$465,700
Subtotal Direct Dismantling	$20,922,164	$20,841,758	$35,742,111	$77,506,034
Contingency	$3,138,325	$3,126,264	$5,361,317	$11,625,905
Entergy Site Admin and Oversight			$4,305,880	$4,305,880
Project Total	$24,060,489	$23,968,022	$45,409,308	$93,437,819
Scrap Credit	$20,121,200	$20,232,020	$9,709,180	$50,062,400
Project Total Less Scrap Credit	$3,939,289	$3,736,002	$35,700,128	$43,375,419

Entergy Dismantling Study
White Bluff PC Units 1, 2 & Common
Summary of Dismantling Cost Estimate

	Unit 1	Unit 2	Common	Total
Plant Size - MWe	900	900		
Permits	$0	$0	$200,000	$200,000
Asbestos Remediation	$0	$0	$0	$0
Intake & Discharge Demolition			$1,859,982	$1,859,982
Earthwork & Site Work	$428,754	$433,727	$13,267,876	$14,130,357
Concrete	$4,353,941	$4,453,917	$2,107,202	$10,915,060
Architectural & Metals	$2,577,896	$2,597,266	$886,178	$6,061,339
Piping, Valves & Hangers	$467,107	$436,489	$328,742	$1,232,337
Mechanical Equipment	$3,669,891	$3,450,111	$2,615,188	$9,735,190
Electrical Equipment	$304,649	$368,918	$234,047	$907,614
Heavy Equipment	$3,058,169	$3,058,169	$5,687,448	$11,803,786
Small Tool Allowances	$645,399	$639,023	$617,802	$1,902,224
Mobilize and Demobilze	$370,357	$369,719	$630,525	$1,370,601
Temporary Facilities	$1,432,785	$1,418,631	$1,371,521	$4,222,937
Field Expenses	$286,557	$283,726	$274,304	$844,587
Demolition contractors Field Staff	$900,000	$900,000	$1,800,000	$3,600,000
Contractor's Overhead and Profit	$2,219,460	$2,209,163	$3,825,698	$8,254,321
Contractor's Bond	$207,200	$222,900	$35,600	$465,700
Subtotal Direct Dismantling	$20,922,164	$20,841,758	$35,742,111	$77,506,034
Contingency	$3,138,325	$3,126,264	$5,361,317	$11,625,905
Entergy Site Admin and Oversight			$4,305,880	$4,305,880
Project Total	$24,060,489	$23,968,022	$45,409,308	$93,437,819
Scrap Credit	$20,121,200	$20,232,020	$9,709,180	$50,062,400
Project Total Less Scrap Credit	$3,939,289	$3,736,002	$35,700,128	$43,375,419

Table 3-2 Summary of Dismantling Cost Estimate – ISES Plant

Entergy Dismantling Study
Independence PC Units 1, 2 & Common
Summary of Dismantling Cost Estimate

	Unit 1	Unit 2	Common	Total
Plant Size - MWe	900	Not Part of EAI		
Permits	$0		$100,000	$100,000
Asbestos Remediation	$0		$0	$0
Intake & Discharge Demolition			$929,991	$929,991
Earthwork & Site Work	$428,754		$6,781,859	$7,210,613
Concrete	$4,353,941		$1,053,601	$5,407,542
Architectural & Metals	$2,577,896		$351,695	$2,929,591
Piping, Valves & Hangers	$467,107		$164,371	$631,477
Mechanical Equipment	$3,669,891		$1,307,594	$4,977,485
Electrical Equipment	$304,649		$117,024	$421,672
Heavy Equipment	$3,058,169		$2,843,724	$5,901,893
Small Tool Allowances	$645,399		$304,596	$949,995
Mobilize and Demobilze	$370,357		$314,832	$685,189
Temporary Facilities	$1,432,785		$676,203	$2,108,988
Field Expenses	$286,557		$135,241	$421,798
Demolition contractors Field Staff	$900,000		$900,000	$1,800,000
Contractor's Overhead and Profit	$2,219,460		$1,917,688	$4,137,148
Contractor's Bond	$222,000		$186,700	$408,700
Subtotal Direct Dismantling	$20,936,964		$18,085,118	$39,022,082
Contingency	$3,140,545		$2,712,768	$5,853,312
Entergy Site Admin and Oversight			$2,152,940	$2,152,940
Project Total	$24,077,509		$22,950,825	$47,028,335
Scrap Credit	$20,121,200		$4,673,766	$24,794,966
Project Total Less Scrap Credit	$3,956,309		$18,277,059	$22,233,369

Table 3-3 Summary of Dismantling Cost Estimate – Couch Plant

Entergy Dismantling Study
Plant Couch
Summary of Dismantling Cost Estimate

	Unit 1	Unit 2	Common	Total
Plant Size - MWe	27	156		
Unit Used as Cost Basis	Lake Catherine Unit 1	Lake Catherine Unit 3		
Size of Unit Basis	40	113		
Permits			$100,000	$100,000
Asbestos Remediation	$713,211	$1,188,686		$1,901,897
Intake, Discharge Demolition			$0	$0
Earthwork & Site Work	$40,931	$74,824	$746,912	$862,667
Concrete	$167,708	$136,430	$76,613	$380,750
Architectural & Metals	$130,140	$219,049	$146,010	$495,198
Piping, Valves & Hangers	$49,840	$136,411	$320,005	$506,256
Mechanical Equipment	$559,286	$968,012	$373,508	$1,900,806
Electrical Equipment	$60,187	$129,561	$8,171	$197,919
Heavy Equipment	$924,052	$1,115,394	$639,348	$2,678,794
Small Tool Allowances	$33,054	$52,171	$18,549	$103,774
Mobilize and Demobilize	$75,063	$142,601	$65,790	$283,454
Temporary Facilities	$73,379	$115,820	$41,178	$230,377
Field Expenses	$14,676	$23,164	$8,236	$46,075
Demolition contractors Field Staff	$177,750	$363,000	$270,000	$810,750
Contractor's Overhead and Profit	$362,313	$559,815	$337,718	$1,259,846
Contractor's Bond	$24,490	$43,560	$32,000	$100,050
Subtotal Direct Dismantling	$3,406,080	$5,268,499	$3,184,035	$11,858,614
Contingency	$510,912	$790,275	$477,605	$1,778,792
Entergy Site Admin and Oversight			$1,703,815	$1,703,815
Project Total	$3,916,992	$6,058,774	$5,365,455	$15,341,222
Scrap Credit	$1,299,638	$2,506,290	$256,370	$4,062,298
Project Total Less Scrap Credit	$2,617,354	$3,552,484	$5,109,085	$11,278,923

Table 3-4 Summary of Dismantling Cost Estimate – Lake Catherine Plant

Entergy Dismantling Study
Plant Lake Catherine
Summary of Dismantling Cost Estimate

	Unit 1	Unit 2	Unit 3	Unit 4	Common	Total
Plant Size - MWe	40	40	113	553		
Permits					$300,000	$300,000
Asbestos Remediation	$713,211	$713,211	$781,204	$4,031,309		$6,238,936
Intake, Discharge Demolition					$706,115	$706,115
Earthwork & Site Work	$51,811	$51,811	$61,838	$234,249	$1,198,385	$1,598,094
Concrete	$212,289	$212,289	$112,752	$726,354	$255,375	$1,519,058
Architectural & Metals	$164,734	$164,734	$181,032	$324,313	$1,075,565	$1,910,377
Piping, Valves & Hangers	$63,089	$63,089	$112,737	$219,946	$406,009	$864,870
Mechanical Equipment	$264,919	$221,603	$428,109	$1,250,057	$1,015,939	$3,180,627
Electrical Equipment	$76,186	$68,070	$107,075	$246,702	$13,618	$511,652
Heavy Equipment	$908,324	$908,324	$1,135,405	$1,362,486	$2,724,972	$7,039,511
Small Tool Allowances	$41,840	$38,952	$43,117	$150,329	$65,829	$340,067
Mobilize and Demobilize	$95,016	$94,728	$117,852	$151,282	$279,080	$737,958
Temporary Facilities	$92,885	$86,473	$95,719	$333,730	$146,140	$754,949
Field Expenses	$18,577	$17,295	$19,144	$66,746	$29,228	$150,990
Demolition contractors Field Staff	$300,000	$300,000	$300,000	$450,000	$900,000	$2,250,000
Contractor's Overhead and Profit	$360,346	$352,870	$419,518	$1,145,700	$1,093,951	$3,372,384
Contractor's Bond	$33,600	$33,000	$39,200	$107,000	$102,100	$314,900
Subtotal Direct Dismantling	$3,396,828	$3,326,449	$3,954,703	$10,800,201	$10,312,306	$31,790,487
Contingency	$509,524	$498,967	$593,205	$1,620,030	$1,546,846	$4,768,573
Entergy Site Admin and Oversight					$2,384,760	$2,384,760
Project Total	$3,906,352	$3,825,416	$4,547,908	$12,420,231	$14,243,912	$38,943,820
Scrap Credit	$1,645,111	$1,512,187	$2,071,314	$6,004,967	$881,020	$12,114,600
Project Total Less Scrap Credit	$2,261,241	$2,313,229	$2,476,594	$6,415,264	$13,362,892	$26,829,220

Table 3-5 Summary of Dismantling Cost Estimate – Lynch Plant

Entergy Dismantling Study
Plant Lynch
Summary of Dismantling Cost Estimate

	Unit 1	Unit 2	Unit 3	Common	Total
Plant Size - Mwe	34	69	156		
Unit Used as Cost Basis	Lake Catherine 1	Lake Catherine 3	Lake Catherine 3		
Size of Unit Basis	40	113	113		
Permits				$200,000	$200,000
Asbestos Remediation	$235,835	$ 713,211	$ 1,188,686	$ 44,219	$2,181,952
Intake, Discharge Demolition				$148,612	$148,612
Earthwork & Site Work	$47,148	$45,760	$74,824	$1,395,523	$1,563,256
Concrete	$193,183	$83,436	$136,430	$68,100	$481,149
Architectural & Metals	$149,908	$133,964	$219,049	$325,724	$828,644
Piping, Valves & Hangers	$57,411	$83,425	$136,411	$221,205	$498,453
Mechanical Equipment	$591,076	$666,801	$968,012	$224,087	$2,449,976
Electrical Equipment	$69,329	$79,236	$129,561	$8,171	$286,297
Heavy Equipment	$915,516	$927,830	$888,313	$908,694	$3,640,354
Small Tool Allowances	$38,075	$31,906	$52,171	$39,353	$161,505
Mobilize and Demobilize	$86,465	$70,407	$115,124	$94,805	$366,801
Temporary Facilities	$84,525	$70,832	$115,820	$87,363	$358,541
Field Expenses	$16,905	$14,166	$23,164	$17,473	$71,708
Demolition contractors Field Staff	$273,000	$222,000	$363,000	$270,000	$1,128,000
Contractor's Overhead and Profit	$331,005	$377,157	$529,268	$486,399	$1,723,830
Contractor's Bond	$28,210	$26,640	$43,560	$45,400	$143,810
Subtotal Direct Dismantling	$3,117,592	$3,546,772	$4,983,394	$4,585,128	$16,232,886
Contingency	$467,639	$532,016	$747,509	$687,769	$2,434,933
Entergy Site Admin and Oversight				$1,754,735	$1,754,735
Project Total	$3,585,231	$4,078,788	$5,730,904	$7,027,632	$20,422,554
Scrap Credit	$1,497,051	$1,532,773	$2,506,290	$757,876	$6,293,990
Project Total Less Scrap Credit	$2,088,180	$2,546,015	$3,224,613	$6,269,756	$14,128,564

Table 3-6 Summary of Dismantling Cost Estimate – Moses Plant

Entergy Dismantling Study
Plant Moses
Summary of Dismantling Cost Estimate

	Unit 1	Unit 2	Common	Total
Plant Size - Mwe	69	69		
Unit Used as Cost Basis	Lake Catherine Unit 3	Lake Catherine Unit 3		
Size of Unit Basis	113	113		
Permits			$100,000	$100,000
Asbestos Remediation	$713,211	$713,211		$1,426,423
Intake, Discharge Demolition			$289,066	$289,066
Earthwork & Site Work	$45,760	$45,760	$455,095	$546,616
Concrete	$83,436	$83,436	$170,250	$337,123
Architectural & Metals	$133,964	$133,964	$168,814	$436,742
Piping, Valves & Hangers	$83,425	$83,425	$315,201	$482,051
Mechanical Equipment	$316,801	$316,801	$197,731	$831,332
Electrical Equipment	$79,236	$79,236	$8,171	$166,642
Heavy Equipment	$927,830	$927,830	$822,437	$2,678,097
Small Tool Allowances	$31,906	$31,906	$27,034	$90,847
Mobilize and Demobilize	$70,407	$70,407	$84,947	$225,760
Temporary Facilities	$70,832	$70,832	$60,015	$201,680
Field Expenses	$14,166	$14,166	$12,003	$40,336
Demolition contractors Field Staff	$222,000	$222,000	$210,000	$654,000
Contractor's Overhead and Profit	$335,157	$335,157	$350,492	$1,020,806
Contractor's Bond	$26,640	$26,640	$33,800	$87,080
Subtotal Direct Dismantling	$3,154,772	$3,154,772	$3,305,056	$9,614,600
Contingency	$473,216	$473,216	$495,758	$1,442,190
Entergy Site Admin and Oversight			$1,471,175	$1,471,175
Project Total	$3,627,988	$3,627,988	$5,271,989	$12,527,965
Scrap Credit	$1,532,773	$1,532,773	$392,150	$3,457,695
Project Total Less Scrap Credit	$2,095,215	$2,095,215	$4,879,839	$9,070,270

Table 3-7 Summary of Dismantling Cost Estimate – Ritchie Plant

Entergy Dismantling Study
Plant Richie
Summary of Dismantling Cost Estimate

	Unit 1	Unit 3		
Plant Size - Mwe	359	21		
Unit Used as Cost Basis	Willow Glen Unit 4		Common	Total
Size of Unit Basis	592			
Permits			$100,000	$100,000
Asbestos Remediation	$ 2,623,667	$ 132,657		$2,756,325
Intake, Discharge Demolition			$2,095,401	$2,095,401
Earthwork & Site Work	$120,540	$234,152	$1,017,733	$1,372,424
Concrete	$375,572	$34,800	$246,881	$657,253
Architectural & Metals	$285,571	$0	$76,544	$362,115
Piping, Valves & Hangers	$162,760	$0	$457,167	$619,927
Mechanical Equipment	$896,716	$31,688	$162,563	$1,090,967
Electrical Equipment	$176,813	$8,188	$14,070	$199,070
Heavy Equipment	$1,425,191	$95,618	$606,672	$2,127,481
Small Tool Allowances	$102,568	$4,115	$64,142	$170,826
Mobilize and Demobilize	$111,081	$9,973	$67,081	$188,136
Temporary Facilities	$227,702	$9,135	$142,396	$379,233
Field Expenses	$45,540	$1,827	$28,479	$75,847
Demolition contractors Field Staff	$333,000	$4,688	$216,000	$553,688
Contractor's Overhead and Profit	$826,407	$68,021	$635,416	$1,529,843
Contractor's Bond	$78,440	$7,500	$59,300	$145,240
Subtotal Direct Dismantling	$7,791,569	$642,361	$5,989,846	$14,423,776
Contingency	$1,168,735	$96,354	$898,477	$2,163,566
Utility Management and Oversight	$0	$0	$1,720,490	$1,720,490
Project Total	$8,960,304	$738,716	$8,608,813	$18,307,833
Scrap Credit	$4,888,563	$87,640	$866,122	$5,842,325
Project Total Less Scrap Credit	$4,071,741	$651,076	$7,742,691	$12,465,507

Appendix A. Entergy Decommissioning Cost Estimate Details for White Bluff

White Bluff Unit 1 Decommissioning

COUNTRY / REGION: Arkansas
B&V PROJECT #: 177835
PLANT TYPE: Coal
CLIENT / OWNER: ENTERGY
ESTIMATE TYPE: Order of Magnitude
PROJECT ESTIMATOR: Ron Fields
FILENAME: Rev.0 10/19/2012

Cost Code	Level 1 Description	Level 2 Description	Quantity	UM	Unit Manhours MH/UM	Labor Rate	Disposal Fee	Material & Subcontract Costs	Total Labor	Total Manhours	Total	Scrap Unit price	Estimated Scrap Value
		Asbestos Removal & Disposal											
,000000	Site work	Cost based on Entergy study from 2005 escalated to 2012 @ 2.5%	0	LS	0.000	$0.00	$0	$0	$0	0	$0		$0
		Subtotal Asbestos Removal & Disposal					**$0**	**$0**	**$0**	**0**	**$0**		**$0**
		Earthwork & Site Work Demolition											
,000000	Site work	Excavation -Unit 1 Site area	13,000	CY	0.160	$37.00	$0	$0	$76,960	2,080	$76,960		$0
,000000	Site work	Backfill - Unit 1 site area	14,300	CY	0.060	$37.00		$214,500	$31,746	858	$246,246		$0
,000000	Site work	Backfill - Cooling Tower Basin	5,000	CY	0.060	$37.00		$75,000	$11,100	300	$86,100		$0
,000000	Site work	Finish grading and seeding Power block area	34,300	SY	0.011	$37.00	$5,488	$0	$13,960	377	$19,448		$0
		Subtotal Earthwork Demolition					**$5,488**	**$289,500**	**$133,766**	**3,615**	**$428,754**		**$0**
		Concrete Demolition											
1000000	Concrete	Concrete - Slabs & Superstructures, minor footings	20027	CY	1.55	$37.00	$500,675	$0	$1,148,548	31,042	$1,649,223		$0
1000000	Concrete	Concrete - Mass foundations	11940	CY	1.55	$37.00	$298,500	$0	$684,759	18,507	$983,259		$0
1000000	Concrete	Concrete - Cooling Tower Structure	11216	CY	1.55	$37.00	$280,400	$0	$643,238	17,385	$923,638		$0
1000000	Concrete	Concrete - Cooling Tower basin	7935	CY	1.55	$37.00	$198,375	$0	$455,072	12,299	$653,447		$0
1000000	Concrete	Rebar & embeds scrap	3902	TN	1.00	$37.00			$144,374	3,902	$144,374	$280	$1,092,560
		Subtotal Concrete Demolition at Grade					**$1,277,950**	**$0**	**$3,075,991**	**83,135**	**$4,353,941**		**$1,092,560**
		Arch & Metals Demolition											
2000000	Arch & Metals	Structural Steel - Boiler, Turbine, Ductwork	22330	TN	2.500	$37.00	$0	$0	$2,065,525	55,825	$2,065,525	$280	$6,252,400
2000000	Arch & Metals	Structural Steel - ESP, SCR	3250	TN	2.500	$37.00	$0	$0	$300,625	8,125	$300,625	$280	$910,000
2000000	Arch & Metals	Metal Siding Scrap	330	TN	1.00	$37.00	$0	$0	$12,210	330	$12,210	$280	$92,400
2000000	Arch & Metals	Structure - CT Chem Treatment Bldg	1600	SF	0.000	$37.00	$2,400	$0	$0	0	$2,400	$0	$0
2000000	Arch & Metals	Mics steel, Handrail, ladders, decking, grating	1776	TN	3.00	$37.00	$0	$0	$197,136	5,328	$197,136	$280	$497,280
													$0
		Subtotal Arch & Metals	**27,686**	**TN**			**$2,400**	**$0**	**$2,575,496**	**69,608**	**$2,577,896**		**$7,752,080**
		Piping, Valves, Hangers/Supports Demolition											
3000000	Piping	SB piping	406	TN	2.500	$37.00	$0	$0	$37,555	1,015	$37,555	$280	$113,680
3000000	Piping	Meduim Bore piping	2735	TN	2.500	$37.00	$0	$0	$252,988	6,838	$252,988	$280	$765,800
3000000	Piping	Large bore Piping - alloy	518	TN	2.500	$37.00	$0	$0	$47,915	1,295	$47,915	$280	$145,040
3000000	Piping	Large bore Piping - Carbon Steel and stainless steel	1294	TN	2.500	$37.00	$0	$0	$119,695	3,235	$119,695	$280	$362,320
3000000	Piping	Copper tube	11	TN	2.500	$37.00	$0	$0	$1,018	28	$1,018	$3,540	$38,940
3000000	Piping	SS tube	9	TN	2.500	$37.00	$0	$0	$833	23	$833	$280	$2,520
3000000	Piping	Piping - cap-off below grade and abandoned in place	1	LS	192.000	$37.00	$0	$0	$7,104	192	$7,104		$0
		Subtotal Piping & Insl	**4,973.00**	**TN**			**$0**	**$0**	**$467,107**	**12,625**	**$467,107**		**$1,428,300**
		Mechanical Equipment Demolition											
4000000	Mech Equip	Pumps, FW Heaters, Motors listed below	5756	TN	3.000	$37.00	$0	$0	$638,916	17,268	$638,916	$280	$1,611,680
4000000	Mech Equip	Steam Turbine	1400	TN	3.000	$37.00	$0	$0	$155,400	4,200	$155,400	$280	$392,000
4000000	Mech Equip	Ductwork & vessels, ESP,	in common	TN	3.000	$37.00	$0	$0			$0	$280	$0
4000000	Mech Equip	Precipitator -	1980	TN	3.000	$37.00	$0	$0	$219,780	5,940	$219,780	$280	$554,400
4000000	Mech Equip	Flues and ducts -	665	TN	3.000	$37.00	$0	$0	$73,815	1,995	$73,815	$280	$186,200
4000000	Mech Equip	FD Fans & motors	9	TN	3.000	$37.00	$0	$0	$999	27	$999	$280	$2,520
4000000	Mech Equip	PA Fans & motors	9	TN	3.000	$37.00	$0	$0	$999	27	$999	$280	$2,520
4000000	Mech Equip	Feedwater Heaters - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Deaerator - Included		TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Air Preheater - Oncluded		TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Steam Turbine Generator	14265	TN	3.000	$37.00	$0	$0	$1,583,415	42,795	$1,583,415	$280	$3,994,200
4000000	Mech Equip	Condensers	337	TN	3.000	$37.00	$0	$0	$37,407	1,011	$37,407	$280	$94,360
4000000	Mech Equip	Feed water Pumps - included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	CW Pumps - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Condensate Pumps - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Natural Draft Cooling Tower- prep and explosives	1	LS	7,680.000	$37.00	$0	$75,000	$284,160	7,680	$359,160	$280	$280
4000000	Mech Equip	Condensate storage tank - 300,000 gal	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Shop Tanks - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Air Compressors - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Removal of Fly ash from ductwork and precipitator	1	LS	0.000	$37.00	$0	$600,000	$0	0	$600,000	$280	$280
4000000	Mech Equip	Bottom Ash System - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Fly Ash system - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
		Subtotal Mech Equipment Demolition	**24,423**	**TN**			**$0**	**$675,000**	**$2,994,891**	**80,943**	**$3,669,891**		**$6,838,440**
		Electrical Demolition											
5000000	Electrical	Copper and Aluminum bus	6	TN	20.000	$37.00	$0	$0	$4,440	120	$4,440	$5,160	$30,960
5000000	Electrical	Turbine Generator	400	TN	2.500	$37.00	$0	$0	$37,000	1,000	$37,000	$280	$112,000
5000000	Electrical	Turbine Generator windings	100	TN	2.500	$37.00	$0	$0	$9,250	250	$9,250	$5,160	$516,000
5000000	Electrical	Transformers - Main, Aux, Reserve	423	TN	3.750	$37.00	$0	$0	$58,691	1,586	$58,691	$280	$118,440
5000000	Electrical	Transformers - Main, Aux, Reserve - Cores	106	TN	3.750	$37.00	$0	$0	$14,708	398	$14,708	$5,160	$546,960
5000000	Electrical	BOP Electrical equipment, switchgerar, Motor Contro centers, cabiners, panels	100	TN	3.000	$37.00	$0	$0	$11,100	300	$11,100	$768	$76,800
5000000	Electrical	Cable - copper	425	TN	6.400	$37.00	$0	$0	$100,640	2,720	$100,640	$3,540	$1,504,500
5000000	Electrical	Conduit & Cable tray	372	TN	5.000	$37.00	$0	$0	$68,820	1,860	$68,820	$280	$104,160
		Subtotal Electrical Demolition	**1,932.00**	**TN**			**$0**	**$0**	**$304,649**	**8,234**	**$304,649**		**$3,009,820**
		Demolition Equipment											
5000000	Equipment	Small Tools	1	LS	0.000	$37.00	$0	$645,399	$0	0	$645,399	$0	$0
5000000	Equipment	Loader	12	MO	0.000	$37.00	$0	$237,504	$0	0	$237,504	$0	$0
5000000	Equipment	Loader - Cooling Tower Demolition	4	MO	0.000	$37.00	$0	$197,920	$0	0	$197,920	$0	$0
5000000	Equipment	150 T crane	12	MO	0.000	$37.00	$0	$427,152	$0	0	$427,152	$0	$0
5000000	Equipment	Excavator	12	MO	0.000	$37.00	$0	$1,473,984	$0	0	$1,473,984	$0	$0
5000000	Equipment	SkidSteer	12	MO	0.000	$37.00	$0	$110,184	$0	0	$110,184	$0	$0
5000000	Equipment	man Lift - Cooling Tower Demolition	1	MO	0.000	$37.00	$0	$16,525	$0	0	$16,525	$0	$0
5000000	Equipment	man Lift	12	MO	0.000	$37.00	$0	$594,900	$0	0	$594,900	$0	$0
		Subtotal Equipment					**$0**	**$3,703,568**	**$0**	**0**	**$3,703,568**		
		Subtotals					**$1,285,838**	**$4,668,068**	**$9,551,900**	**258,159**	**$15,505,805**		**$20,121,200**
		Total FerrousScrap	62,268	TN									
		Total Non-Ferrous Scrap	648	TN									
		Total Scrap	**62,916**										

Indirect Costs

Mobilize and Demobilze	**$370,357**
Site Demolition Permits and Fee (See common estimate)	**$0**
Temporary Facilities	**$1,432,785**
Field Office Expenses	**$286,557**
Demolition Contractor's Staff	**$900,000**
Demolition Contractor's Overhead and Profit	**$2,219,460**
Demolition Contractor's Bond	**$207,200**
Sub-total Dismantlement Costs	**$20,922,164**
Contingency 15%	**$3,138,325**
Entergy Site Admin and Oversight (see Common Estimate)	**$0**
Total Project Costs Dismantlement at 3' Below Grade (Before scrap credit)	**$24,060,489**
Total Scrap Credit	**$20,121,200**
Project total Less Scrap Credit	**$3,939,289**

White Bluff Unit 2 Decommissioning

COUNTRY / REGION: Arkansas
B&V PROJECT #: 177835
PLANT TYPE: Coal
CLIENT / OWNER: ENTERGY
ESTIMATE TYPE: Order of Magnitude
PROJECT ESTIMATOR: Ron Fields
FILENAME: Rev.0 10/19/2012

Cost Code	Level 1 Description	Level 2 Description	Quantity	UM	Unit Manhours MH/UM	Labor Rate	Disposal Fee	Material & Subcontract Costs	Total Labor	Total Manhours	Total	Scrap Unit price	Estimated Scrap Value
		Asbestos Removal & Disposal											
,000000	Site work	Cost based on Entergy study from 2005 escalated to 2012 @ 2.5%	0	LS	0.000	$0.00	$0	$0	$0	0	$0		$0
		Subtotal Asbestos Removal & Disposal					**$0**	**$0**	**$0**	**0**	**$0**		**$0**
		Earthwork & Site Work Demolition											
,000000	Site work	Excavation -Unit 2 Site area	13,200	CY	0.160	$37.00	$0	$0	$78,144	2,112	$78,144		$0
,000000	Site work	Backfill - Unit 2 site area	14,520	CY	0.060	$37.00		$217,800	$32,234	871	$250,034		$0
,000000	Site work	Backfill - Cooling Tower Basin	5,000	CY	0.060	$37.00		$75,000	$11,100	300	$86,100		$0
,000000	Site work	Finish grading and seeding Power block area	34,300	SY	0.011	$37.00	$5,488	$0	$13,960	377	$19,448		$0
		Subtotal Earthwork Demolition					**$5,488**	**$292,800**	**$135,439**	**3,661**	**$433,727**		**$0**
		Concrete Demolition											
1000000	Concrete	Concrete - Slabs & Superstructures, minor footings	25000	CY	1.55	$37.00	$625,000	$0	$1,433,750	38,750	$2,058,750		$0
1000000	Concrete	Concrete - Mass foundations	8137	CY	1.55	$37.00	$203,425	$0	$466,657	12,612	$670,082		$0
1000000	Concrete	Concrete - Cooling Tower Structure	11216	CY	1.55	$37.00	$280,400	$0	$643,238	17,385	$923,638		$0
1000000	Concrete	Concrete - Cooling Tower basin	7935	CY	1.55	$37.00	$198,375	$0	$455,072	12,299	$653,447		$0
1000000	Concrete	Rebar & embeds scrap	4000	TN	1.00	$37.00			$148,000	4,000	$148,000	$280	$1,120,000
		Subtotal Concrete Demolition at Grade					**$1,307,200**	**$0**	**$3,146,717**	**85,046**	**$4,453,917**		**$1,120,000**
		Arch & Metals Demolition											
2000000	Arch & Metals	Structural Steel - Boiler, Turbine, Ductowrk	22330	TN	2.500	$37.00	$0	$0	$2,065,525	55,825	$2,065,525	$280	$6,252,400
2000000	Arch & Metals	Structural Steel - ESP, SCR	3250	TN	2.500	$37.00	$0	$0	$300,625	8,125	$300,625	$280	$910,000
2000000	Arch & Metals	Metal Siding Scrap	215	TN	1.00	$37.00	$0	$0	$7,937	215	$7,937	$280	$60,060
2000000	Arch & Metals	Structure - CT Chem Treatment Bldg	1600	SF	0.000	$37.00	$2,400	$0	$0	0	$2,400	$0	$0
2000000	Arch & Metals	Mics steel, Handrail, ladders, decking, grating	1989	TN	3.00	$37.00	$0	$0	$220,779	5,967	$220,779	$280	$556,920
													$0
		Subtotal Arch & Metals	**27,784**	**TN**			**$2,400**	**$0**	**$2,594,866**	**70,132**	**$2,597,266**		**$7,779,380**
		Piping, Valves, Hangers/Supports Demolition											
3000000	Piping	SB piping	458	TN	2.500	$37.00	$0	$0	$42,365	1,145	$42,365	$280	$128,240
3000000	Piping	Medium Bore piping	2735	TN	2.500	$37.00	$0	$0	$252,988	6,838	$252,988	$280	$765,800
3000000	Piping	Large bore Piping - Alloy	518	TN	2.500	$37.00	$0	$0	$47,915	1,295	$47,915	$280	$145,040
3000000	Piping	Large bore Piping - Carbon Steel	919	TN	2.500	$37.00	$0	$0	$85,008	2,298	$85,008	$280	$257,320
3000000	Piping	Copper tube	3	TN	2.500	$37.00	$0	$0	$278	8	$278	$3,540	$10,620
3000000	Piping	SS tube	9	TN	2.500	$37.00	$0	$0	$833	23	$833	$280	$2,520
3000000	Piping	Piping - cap-off below grade and abandoned in place	1	LS	192.000	$37.00	$0	$0	$7,104	192	$7,104		$0
		Subtotal Piping & Insl	**4,643.00**	**TN**			**$0**	**$0**	**$436,489**	**11,797**	**$436,489**		**$1,309,540**
		Mechanical Equipment Demolition											
4000000	Mech Equip	Pumps, FW Heaters, Motors listed below	6421	TN	3.000	$37.00	$0	$0	$712,731	19,263	$712,731	$280	$1,797,880
4000000	Mech Equip	Steam Turbine	1400	TN	3.000	$37.00	$0	$0	$155,400	4,200	$155,400	$280	$392,000
4000000	Mech Equip	Ductwork & vessels, ESP,		TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Precipitator - Included		TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Flues and ducts - Inlcuded		TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	FD Fans & motors	9	TN	3.000	$37.00	$0	$0	$999	27	$999	$280	$2,520
4000000	Mech Equip	PA Fans & motors	9	TN	3.000	$37.00	$0	$0	$999	27	$999	$280	$2,520
4000000	Mech Equip	Feedwater Heaters - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Deaerator - Included		TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Air Preheater - Oncluded		TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Steam Turbine Generator	14265	TN	3.000	$37.00	$0	$0	$1,583,415	42,795	$1,583,415	$280	$3,994,200
4000000	Mech Equip	Condensers	337	TN	3.000	$37.00	$0	$0	$37,407	1,011	$37,407	$280	$94,360
4000000	Mech Equip	Feed water Pumps - included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	CW Pumps - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Condensate Pumps - Included		TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Natural Draft Cooling Tower- prep and explosives	1	LS	7,680.000	$37.00	$0	$75,000	$284,160	7,680	$359,160	$280	$280
4000000	Mech Equip	Condensate storage tank - 300,000 gal	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Shop Tanks - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Air Compressors - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Removal of Fly ash from ductwork and precipitator	1	LS	0.000	$37.00	$0	$600,000	$0	0	$600,000	$280	$280
4000000	Mech Equip	Bottom Ash System - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Fly Ash system - Included	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
		Subtotal Mech Equipment Demolition	**22,443**	**TN**			**$0**	**$675,000**	**$2,775,111**	**75,003**	**$3,450,111**		**$6,284,040**
		Electrical Demolition											
5000000	Electrical	Copper and Aluminum bus	7	TN	20.000	$37.00	$0	$0	$5,180	140	$5,180	$5,160	$36,120
5000000	Electrical	Turbine Generator	420	TN	2.500	$37.00	$0	$0	$38,850	1,050	$38,850	$280	$117,600
5000000	Electrical	Turbine Generator windings	105	TN	2.500	$37.00	$0	$0	$9,713	263	$9,713	$5,160	$541,800
5000000	Electrical	Transformers - Main, Aux, Reserve	445	TN	3.750	$37.00	$0	$0	$61,744	1,669	$61,744	$280	$124,600
5000000	Electrical	Transformers - Main, Aux, Reserve - Cores	110	TN	3.750	$37.00	$0	$0	$15,263	413	$15,263	$5,160	$567,600
5000000	Electrical	BOP Electrical equipment, switchgerar, Motor Contro centers, cabiners, panels	110	TN	3.000	$37.00	$0	$0	$12,210	330	$12,210	$768	$84,480
5000000	Electrical	Cable - copper	605	TN	6.400	$37.00	$0	$0	$143,264	3,872	$143,264	$3,540	$2,141,700
5000000	Electrical	Conduit & Cable tray	447	TN	5.000	$37.00	$0	$0	$82,695	2,235	$82,695	$280	$125,160
		Subtotal Electrical Demolition	**2,249.00**	**TN**			**$0**	**$0**	**$368,918**	**9,971**	**$368,918**		**$3,739,060**
		Demolition Equipment											
5000000	Equipment	Small Tools	1	LS	0.000	$37.00	$0	$639,023	$0	0	$639,023	$0	$0
5000000	Equipment	Loader	12	MO	0.000	$37.00	$0	$237,504	$0	0	$237,504	$0	$0
5000000	Equipment	Loader - Cooling Tower Demolition	4	MO	0.000	$37.00	$0	$197,920	$0	0	$197,920	$0	$0
5000000	Equipment	150 T crane	12	MO	0.000	$37.00	$0	$427,152	$0	0	$427,152	$0	$0
5000000	Equipment	Excavator	12	MO	0.000	$37.00	$0	$1,473,984	$0	0	$1,473,984	$0	$0
5000000	Equipment	SkidSteer	12	MO	0.000	$37.00	$0	$110,184	$0	0	$110,184	$0	$0
5000000	Equipment	man Lift - Cooling Tower Demolition	1	MO	0.000	$37.00	$0	$16,525	$0	0	$16,525	$0	$0
5000000	Equipment	man Lift	12	MO	0.000	$37.00	$0	$594,900	$0	0	$594,900	$0	$0
		Subtotal Equipment					**$0**	**$3,697,192**	**$0**	**0**	**$3,697,192**		
		Subtotals					**$1,315,088**	**$4,664,992**	**$9,457,539**	**255,609**	**$15,437,618**		**$20,232,020**
		Total FerrousScrap	60,073	TN									
		Total Non-Ferrous Scrap	830	TN									
		Total Scrap	**60,903**										

Indirect Costs

Mobilize and Demobilze	**$369,719**
Site Demolition Permits and Fee (see common estimate)	**$0**
Temporary Facilities	**$1,418,631**
Field Office Expenses	**$283,726**
Demolition Contractor's Staff	**$900,000**
Demolition Contractor's Overhead and Profit	**$2,209,163**
Demolition Contractor's Bond	**$222,900**
Sub-total Dismantlement Costs	**$20,841,758**
Contingency 15%	**$3,126,264**
Entergy Site Admin and Oversight (see Common estimate)	**$0**
Total Project Costs Dismantlement at 3' Below Grade (Before scrap credit)	**$23,968,022**
Total Scrap Credit	**$20,232,020**
Project total Less Scrap Credit	**$3,736,002**

White Bluff Common Decommissioning

COUNTRY / REGION: Arkansas
B&V PROJECT #: 177835
PLANT TYPE: Coal
CLIENT / OWNER: ENTERGY
ESTIMATE TYPE: Order of Magnitude
PROJECT ESTIMATOR: Ron Fields
FILENAME: Rev.0 10/19/2012

Cost Code	Level 1 Description	Level 2 Description	Quantity	UM	Unit Manhours MH/UM	Labor Rate	Disposal Fee	Material & Subcontract Costs	Total Labor	Total Manhours	Total	Scrap Unit price	Estimated Scrap Value
		Intake, Discharge Civil and CW Pipe Demolition											
,000000	Site work	Coffer Dam - Intake, discharge Structures - Allowance	1	LS	0.000	$37.00	$0	$800,000	$0	0	$800,000		$0
,000000	Site work	Excavation - Pilings, Intake, CW Pump & Outfall Structures	2,000	CY	0.160	$37.00	$0	$0	$11,840	320	$11,840		$0
,000000	Site work	Backfill - Intake & Outfall stuctures	4,000	CY	0.060	$37.00	$0	$60,000	$8,880	240	$68,880		$0
1000000	Concrete	Concrete - Intake Structure	922	CY	1.55	$37.00	$23,050	$0	$52,877	1,429	$75,927		$0
1000000	Concrete	Concrete - Intake Structure - remove piling	1	LS	1,395	$37.00	$15,000	$0	$51,615	1,395	$66,615		$0
1000000	Concrete	Concrete - Discharge Outfall	49	CY	1.55	$37.00	$1,225	$0	$2,810	76	$4,035		$0
1000000	Concrete	Concrete - Spillway	5,224	CY	1.55	$37.00	$130,600	$0	$299,596	8,097	$430,196		$0
3000000	Piping	Excavate and Remove Intake 409 LF 96" pipe and backfill	1	LS	960	$37.00	$0	$100,000	$35,520	960	$135,520	$0	$0
3000000	Piping	Excavate and Remove discharge 1010 LF 36" pipe and backfill	1	LS	1,757	$37.00	$0	$150,000	$65,009	1,757	$215,009	$0	$0
3000000	Piping	Discharge Pipe-36 " carbon steel- 1010 LF	126	TN	2.570	$37.00	$3,150	$0	$11,981	324	$15,131	$280	$35,280
1000000	Concrete	Rebar & embeds, Stop logs, Screens	594	TN	1.00	$37.00	$14,850		$21,978	594	$36,828	$280	$166,320
		Subtotal Intake & Discharge Demolition					**$187,875**	**$1,110,000**	**$562,107**	**15,192**	**$1,859,982**		**$201,600**
		Earthwork & Site Work Demolition											
,000000	Site work	Excavation -Outlying area	21,000	CY	0.160	$37.00	$0	$0	$124,320	3,360	$124,320		$0
,000000	Site work	Excavation - coal yard - 66 Acres - 2' depth	212,960	CY	0.160	$37.00	$0	$0	$1,260,723	34,074	$1,260,723		$0
,000000	Site work	Backfill - coal Yard - 2 ' backfill w/ith 1' cap.	351,400	CY	0.060	$37.00		$5,271,000	$780,108	21,084	$6,051,108		$0
,000000	Site work	Backfill - site area	21,000	CY	0.060	$37.00		$315,000	$46,620	1,260	$361,620		$0
,000000	Site work	Dredge 3' depth of North and South Recycle & Sedimentation ponds	87,100	CY	0.160	$37.00	$0	$0	$515,632	13,936	$515,632		$0
,000000	Site work	Push in berm walls -A & B Recycle and sedimentation ponds	93,000	CY	0.071	$37.00	$0	$0	$244,311	6,603	$244,311		$0
,000000	Site work	Backfill - Recycle Ponds A and B	222,100	CY	0.060	$37.00		$1,332,600	$493,062	13,326	$1,825,662		$0
,000000	Site work	Backfill - Sediment Ponds A and B	71,426	CY	0.060	$37.00		$428,556	$158,566	4,286	$587,122		$0
,000000	Site work	Remediation of Landfill (Entergy Estimate) escalated 2.6% for 2012.	1	LS	0.000	$37.00		$980,000	$0	0	$980,000		$0
,000000	Site work	Onsite paved Roads & Parking	53,780	SY	0.000	$37.00	$0	$376,460	$0	0	$376,460		
1000000	Sitework	Concrete Paved roads	3,080	CY	1.55	$37.00	$77,000	$0	$176,638	4,774	$253,638		$0
2000000	Site work	Railroad approx. 37600 total LF of rail (assumes code 150 rail)	940	TN	1.00	$37.00	$0	$0	$34,780	940	$34,780	$280	$263,200
2000000	Site work	Railroad ballast 18800 LF x 14' x 18" d	1422	CY	0.16	$37.00	$0	$0	$86,562	2,340	$86,562	$0	$0
,000000	Site work	Finish grading and seeding outlying areas	961,400	SY	0.011	$37.00	$153,824	$0	$391,290	10,575	$545,114		$0
,000000	Site work	Remove Pond Liners	95,000	SY	0.002	$37.00	$15,200	$0	$5,624	152	$20,824		$0
		Subtotal Earthwork Demolition					**$246,024**	**$8,703,616**	**$4,318,236**	**116,709**	**$13,267,876**		**$263,200**
		Concrete Demolition											
1000000	Concrete	Concrete - Slabs & Superstructures, minor footings	20,224	CY	1.55	$37.00	$505,600	$0	$1,159,846	31,347	$1,665,446		$0
1000000	Concrete	Concrete - Mass foundations	4,889	CY	1.55	$37.00	$122,225	$0	$280,384	7,578	$402,609		$0
1000000	Concrete	Rebar & embeds scrap	**1,058**	TN	1.00	$37.00			$39,146	1,058	$39,146	$280	$296,240
		Subtotal Concrete Demolition at Grade					**$627,825**	**$0**	**$1,479,377**	**39,983**	**$2,107,202**		**$296,240**
		Arch & Metals Demolition											
2000000	Arch & Metals	Structural Steel	4443	TN	2.500	$37.00	$0	$0	$410,978	11,108	$410,978	$280	$1,244,040
2000000	Arch & Metals	Metal Siding Scrap	600	TN	3.00	$37.00	$0	$0	$66,600	1,800	$66,600	$280	$168,000
2000000	Arch & Metals	Mics steel	1200	TN	3.00	$37.00	$0	$0	$133,200	3,600	$133,200	$280	$336,000
2000000	Arch & Metals	Structure - Admin bldg	5848	SF	0.000	$37.00	$8,772	$0	$0	0	$8,772	$0	$0
2000000	Arch & Metals	Structure - Electrical Shop	800	SF	0.000	$37.00	$1,200	$0	$0	0	$1,200	$0	$0
2000000	Arch & Metals	Structure -Assembly room & Resporator Test Bldg	1700	SF	0.000	$37.00	$2,550	$0	$0	0	$2,550	$0	$0
2000000	Arch & Metals	Structure - Warehouses #10, 11, 12, 13, 14, 15, 16	57160	SF	0.000	$37.00	$85,740	$0	$0	0	$85,740	$0	$0
2000000	Arch & Metals	Structure - Warehouses #2	15200	SF	0.000	$37.00	$22,800	$0	$0	0	$22,800	$0	$0
2000000	Arch & Metals	Structure - River Intake Switchgear bldg	969	SF	0.000	$37.00	$1,454	$0	$0	0	$1,454	$0	$0
2000000	Arch & Metals	Structure - Fly Ash Silo control Bldg	672	SF	0.000	$37.00	$1,008	$0	$0	0	$1,008	$0	$0
2000000	Arch & Metals	Structure - Water Treatment Bldg	3800	SF	0.000	$37.00	$5,700	$0	$0	0	$5,700	$0	$0
2000000	Arch & Metals	Structure - Surge Pond Pump Structure	466	SF	0.000	$37.00	$699	$0	$0	0	$699	$0	$0
2000000	Arch & Metals	Structure - Sand blast shop	3700	SF	0.000	$37.00	$5,550	$0	$0	0	$5,550	$0	$0
2000000	Arch & Metals	Structure - Electrcial shop	3000	SF	0.000	$37.00	$4,500	$0	$0	0	$4,500	$0	$0
2000000	Arch & Metals	Structure - Aux Boiler control Bldg	1110	SF	0.000	$37.00	$1,665	$0	$0	0	$1,665	$0	$0
2000000	Arch & Metals	Structure - LP SW Pump Structure	1500	SF	0.000	$37.00	$2,250	$0	$0	0	$2,250	$0	$0
2000000	Arch & Metals	Structure - LP Swgr Bldg	2100	SF	0.000	$37.00	$3,150	$0	$0	0	$3,150	$0	$0
2000000	Arch & Metals	Structure - LP Ash Water Pump House	1900	SF	0.000	$37.00	$2,850	$0	$0	0	$2,850	$0	$0
2000000	Arch & Metals	Structure - Ground Maint shop	3400	SF	0.000	$37.00	$5,100	$0	$0	0	$5,100	$0	$0
2000000	Arch & Metals	Structure - skills Center	20000	SF	0.000	$37.00	$30,000	$0	$0	0	$30,000	$0	$0
2000000	Arch & Metals	Structure - Lab & Coal Personnel bldg	5800	SF	0.000	$37.00	$8,700	$0	$0	0	$8,700	$0	$0
2000000	Arch & Metals	Structure - fuel Storage	975	SF	0.000	$37.00	$1,463	$0	$0	0	$1,463	$0	$0
2000000	Arch & Metals	Structure - Maint. Strage Bldg	16000	SF	0.000	$37.00	$24,000	$0	$0	0	$24,000	$0	$0
2000000	Arch & Metals	Structure - Crusher Tower	4800	SF	0.000	$37.00	$7,200	$0	$0	0	$7,200	$0	$0
2000000	Arch & Metals	Structure - Coal Yard Storage	1800	SF	0.000	$37.00	$2,700	$0	$0	0	$2,700	$0	$0
2000000	Arch & Metals	Structure - Vehicle Maint Garage	12000	SF	0.000	$37.00	$18,000	$0	$0	0	$18,000	$0	$0
2000000	Arch & Metals	Structure - Instrument Bldg	300	SF	0.000	$37.00	$450	$0	$0	0	$450	$0	$0
2000000	Arch & Metals	Structure -Fly ash Contractor's office	600	SF	0.000	$37.00	$900	$0	$0	0	$900	$0	$0
2000000	Arch & Metals	Structure -Fly ash Contractor's Garage	700	SF	0.000	$37.00	$1,050	$0	$0	0	$1,050	$0	$0
2000000	Arch & Metals	Structure - Seage treatment plant	1700	SF	0.000	$37.00	$2,550	$0	$0	0	$2,550	$0	$0
2000000	Arch & Metals	Structure - Plant betterment shop	1800	SF	0.000	$37.00	$2,700	$0	$0	0	$2,700	$0	$0
2000000	Arch & Metals	Structure - SW Chem. Bldg	500	SF	0.000	$37.00	$750	$0	$0	0	$750	$0	$0
2000000	Arch & Metals	Structure - Fire/HP SW Pump House	1400	SF	0.000	$37.00	$2,100	$0	$0	0	$2,100	$0	$0
2000000	Arch & Metals	Structure - Lube/Paint Storage	600	SF	0.000	$37.00	$900	$0	$0	0	$900	$0	$0
2000000	Arch & Metals	Structure - Misc. Storage	1000	SF	0.000	$37.00	$1,500	$0	$0	0	$1,500	$0	$0
2000000	Arch & Metals	Structure - Contract labor Office and shop	5500	SF	0.000	$37.00	$8,250	$0	$0	0	$8,250	$0	$0
2000000	Arch & Metals	Structure - Office	4800	SF	0.000	$37.00	$7,200	$0	$0	0	$7,200	$0	$0
2000000	Arch & Metals	Site Fencing -29,500 LF included in misc. steel	0	TN	2.00	$37.00	$0	$0	$0	0	$0	$0	$280
			183,600.00										$0
		Subtotal Arch & Metals	**6,243**	**TN**			**$275,400**	**$0**	**$610,778**	**16,508**	**$886,178**		**$1,748,320**
		Piping, Valves, Hangers/Supports Demolition											
3000000	Piping	SB piping	33	TN	2.500	$37.00	$0	$0	$3,053	83	$3,053	$280	$9,240
3000000	Piping	Meduim Bore piping	495	TN	2.500	$37.00	$0	$0	$45,788	1,238	$45,788	$280	$138,600
3000000	Piping	Large bore Piping	785	TN	2.500	$37.00	$0	$0	$72,613	1,963	$72,613	$280	$219,800
3000000	Piping	Copper tube	1	TN	2.500	$37.00	$0	$0	$93	3	$93	$3,540	$3,540
3000000	Piping	SS tube	1	TN	2.500	$37.00	$0	$0	$93	3	$93	$280	$280
3000000	Piping	Water Wells - cap off	5	EA	0.000	$37.00	$0	$0	$200,000	0	$200,000	$280	$1,400
3000000	Piping	Piping - cap-off below grade and abandoned in place	1	LS	192.000	$37.00	$0	$0	$7,104	192	$7,104		$0
		Subtotal Piping & Insl	**1,314**	**TN**			**$0**	**$0**	**$328,742**	**3,480**	**$328,742**		**$372,860**
		Mechanical Equipment Demolition											
4000000	Mech Equip	Ductwork for Boilers and Precipitator	8,000	TN	3.000	$37.00	$0	$0	$888,000	24,000	$888,000	$280	$2,240,000
4000000	Mech Equip	Aux Boiler	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Stack -Concrete - 90' dia x 1000' high w/ Steel Liner	1	EA	2,700.000	$37.00	$455,000	$200,000	$99,900	2,700	$754,900	$0	$0
4000000	Mech Equip	Stack Steel Liners 2 liners 35' dia average x 1000 LF approx 1" thick @ 40 lbs /SF	4,400	TN	3.000	$37.00	$0	$0	$488,400	13,200	$488,400	$280	$1,232,000
4000000	Mech Equip	Shop Tanks	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Air Compressors	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Standby Diesel/Fire Pump generator	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Bottom Ash System	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Fly Ash system	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Water Treatment system	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Fuel Oil Storage Tank - 3,360,000 gal	406	TN	3.000	$37.00	$0	$0	$45,066	1,218	$45,066	$280	$113,680
4000000	Mech Equip	Oil Tank and piping cleaning	1	LS	0.000	$37.00	$0	$150,000	$0	0	$150,000	$280	$0
4000000	Mech Equip	Water StorageTank - 1,000,000 gal	121	TN	3.000	$37.00	$0	$0	$13,431	363	$13,431	$280	$33,880
4000000	Mech Equip	Diesel Engine 750 kva 7 500 gal day tank	1	TN	3.000	$37.00	$0	$0	$111	3	$111	$280	$0
4000000	Mech Equip	Fire Pumps , 1 Diesel and 1 mortor driven	0	LS	0.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Filtered water tank	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	flush water reclaim tank	0	TN	3.000	$37.00	$0	$0	$0	0	$0	$280	$0
4000000	Mech Equip	Coal Dumper	400	TN	3.000	$37.00	$0	$0	$44,400	1,200	$44,400	$280	$112,000
4000000	Mech Equip	Coal Handlind conveyors with transfer towers and crusher	1,280	TN	3.000	$37.00	$0	$0	$142,080	3,840	$142,080	$280	$358,400
4000000	Mech Equip	Stacker Reclaimer	800	TN	3.000	$37.00	$0	$0	$88,800	2,400	$88,800	$280	$224,000
		Subtotal Mech Equipment Demolition	**15,410**	**TN**			**$455,000**	**$350,000**	**$1,810,188**	**48,924**	**$2,615,188**		**$4,313,960**
		Electrical Demolition											
5000000	Electrical	Transformers - Reserve	40	TN	3.750	$37.00	$1,000	$0	$5,550	150	$6,550	$280	$11,200
5000000	Electrical	Transformers - Reserve - core	10	TN	3.750	$37.00	$250	$0	$1,388	38	$1,638	$5,160	$51,600
5000000	Electrical	BOP Electrical equipment, switchgerar, Motor Contro centers, cabiners, panels	130	TN	3.000	$37.00	$0	$0	$14,430	390	$14,430	$768	$99,840
5000000	Electrical	Cable - copper	654	TN	6.400	$37.00	$0	$0	$154,867	4,186	$154,867	$3,540	$2,315,160
5000000	Electrical	Conduit & Cable tray	350	TN	5.000	$37.00	$0	$0	$64,750	1,750	$64,750	$280	$98,000
		Subtotal Electrical Demolition	**1,134.00**	**TN**			**$0**	**$0**	**$234,047**	**6,326**	**$234,047**		**$2,513,000**
		Demolition Equipment											
5000000	Equipment	Small Tools	1	LS	0.000	$37.00	$0	$617,802	$0	0	$617,802	$0	$0
5000000	Equipment	Loader	24	MO	0.000	$37.00	$0	$475,008	$0	0	$475,008	$0	$0
5000000	Equipment	150 T crane	24	MO	0.000	$37.00	$0	$854,304	$0	0	$854,304	$0	$0
5000000	Equipment	Excavator	24	MO	0.000	$37.00	$0	$2,947,968	$0	0	$2,947,968	$0	$0
5000000	Equipment	Skidsteer	24	MO	0.000	$37.00	$0	$220,368	$0	0	$220,368	$0	$0
5000000	Equipment	man Lift	24	MO	0.000	$37.00	$0	$1,189,800	$0	0	$1,189,800	$0	$0
		Subtotal Equipment					**$0**	**$6,305,250**	**$0**	**0**	**$6,305,250**		
		Subtotals					**$1,792,124**	**$16,468,866**	**$9,343,473**	**247,121**	**$27,604,464**		**$9,709,180**
		Total FerrousScrap	26,205	TN									
		Total Non-Ferrous Scrap	665	TN									
		Total Scrap	**26,870**										

Indirect Costs

Mobilize and Demobilze	**$630,525**
Site Demolition Permits and Fee (allowance)	**$200,000**
Temporary Facilities	**$1,371,521**
Field Office Expenses	

Appendix B. Scrap Values

"If you don't sell your metals to me, we both lose money!"

Scrap Metal Prices: Tuesday January 22nd., 2012.

Ferrous Scrap Metal	Market Price	Your Price *
Scrap #1 Dealer Bundles	$315.00 gt	$270.00 gt
Scrap #2 Dealer Bundles	$295.00 gt	$260.00 gt
Scrap #1 Busheling	$315.00 gt	$270.00 gt
Scrap #1 Baling	$310.00 gt	$270.00 gt
Scrap #2 Baling	$260.00 gt	$220.00 gt
Scrap Plate and Struct 2'x 5'	$320.00 gt	$280.00 gt
Scrap Plate and Struct scrap (unprep)	N/A	$255.00 gt
Scrap Heavy Melt 2'x 5'	$300.00 gt	$250.00 gt
Scrap Heavy Melt scrap (unprep)	N/A	$225.00 gt
Scrap automobiles (must have title)	N/A	$140.00 gt
Scrap Auto Cast	$330.00 gt	$280.00 gt
Scrap Yard Cast(breakable)	$240.00 gt	$195.00 gt
Scrap Sheet Iron	$230.00 gt	$180.00 gt
Scrap #1 Shredder Frag	$370.00 gt	$320.00 gt
Scrap Engine Block (clean)	$335.00 gt	$285.00 gt
Scrap Engine Block (dirty)	$320.00 gt	$270.00 gt
Scrap Punchings	$390.00 gt	$340.00 gt
Scrap Turnings	$155.00 gt	$110.00 gt
Scrap Borings	N/A	Call
Scrap Aluminum Bearing Steel(smelter ready)	$ .27 lb-% call	$ .17 lb-% call
Scrap Machinery (high yield cast)	N/A	$220.00 gt
Scrap Racks and Bins	N/A	$180.00 gt
Scrap Random length rail (Widocs)	$310.00 gt	$260.00 gt
Scrap OTM (Widocs)	$305.00 gt	$255.00 gt
Scrap Crushed Cars (Full trailer loads)	N/A	$190.00 gt*
Non-Ferrous Scrap Metal	**Market Price**	**Your Price ***
Scrap Bare Bright Copper	$3.11 lb	$3.02 lb
Scrap #1 Copper	$3.02 lb	$2.90 lb
Scrap #2 Copper	$2.82 lb	$2.70 lb
Scrap insul Hvy Wire 85% Recovery	$2.69 lb	$2.50 lb
Scrap insulated Light Wire 50% Recovery	$1.38 lb	$1.21 lb
Scrap EDM Wire	$2.15 lb	$2.00 lb
Scrap Brass (hard)	$2.60 lb	$2.44 lb
Scrap copper Rads	$2.03 lb	$1.90 lb
Scrap Brass (red)	$2.24 lb	$2.15 lb
Scrap Brass (yellow)	$2.03 lb	$1.92 lb
Scrap copper Rads (w/ light attach)	$1.59 lb	$1.38 lb
Scrap Rod Brass	$2.12 lb	$1.90 lb
Scrap Cupro-Nickel	$2.95 lb	$2.72 lb
Scrap Soft Lead (clean)	$0.61 lb	$0.51 lb
Scrap Wheel Weights	$ .40 lb	$ .30 lb
Scrap Ampco Bronze	$2.05 lb	$1.90 lb
Scrap Electric Motors	$0.39 lb	$0.24 lb
Scrap Batteries	$0.39 lb	$0.33 lb

LME/Comex	Price
Copper	Click Here
Nickel	Click Here
Aluminum	Click Here
Zinc	Click Here
Lead	Click Here
Ferrous Scrap Metal	**Your Price ***
Scrap #1 Busheling	$270.00 gt
Scrap #1 Baling	$270.00 gt
Scrap Plate and Struct 2'x 5'	$280.00 gt
Scrap Plate and Struct scrap (unprep)	$255.00 gt
Scrap Heavy Melt 2'x 5'	$250.00 gt
Scrap Auto Cast	$280.00 gt
Scrap Yard Cast(breakable)	$195.00 gt
Scrap Sheet Iron	$180.00 gt
Scrap Engine Block (clean)	$285.00 gt
Scrap Engine Block (dirty)	$270.00 gt
Scrap Machinery (high yield cast)	$220.00 gt
Scrap Crushed Cars (Full trailer loads)	$190.00 gt*
Non-Ferrous Scrap Metal	**Your Price ***
Scrap Bare Bright Copper	$3.02 lb
Scrap #1 Copper	$2.90 lb
Scrap #2 Copper	$2.70 lb
Scrap insul Hvy Wire 85% Recovery	$2.50 lb
Scrap insulated Light Wire 50% Recovery	$1.21 lb
Scrap Alum-CU Rads(clean)	$1.38 lb
Nickel Alloy Scrap Metal	**Your Price ***
Scrap Ni Solids (clean)	$6.00 lb
Scrap 304 (18-8)	$0.50 lb
Scrap 316 (16-10)	$0.75 lb
Scrap Carbide Insert	$10.00 lb
Scrap M-1	$0.62 lb
Scrap M-2	$0.83 lb
Scrap M-42	$0.91 lb
Scrap H-13	$0.12 lb
Scrap Titanium 6-4 Clips	$ 2.21 lb

Prices courtesy of
Scrap Metal Prices Online

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

Non-Ferrous Scrap Metal	Market Price	Your Price *
Scrap Aluminum Siding	$0.62 lb	$0.51 lb
Scrap New Cast Aluminum	$0.67 lb	$0.52 lb
Scrap Old Cast Aluminum	$0.58 lb	$0.47 lb
Scrap Old Sheet Aluminum	$0.48 lb	$0.40 lb
Scrap MLCC	$0.68 lb	$0.57 lb
Scrap Aluminum Wheels (clean)	$0.86 lb	$0.74 lb
Scrap Aluminum Wheels (w/ attachments)	$0.73 lb	$0.64 lb
Scrap Auto Rads	$0.55 lb	$0.45 lb
Scrap Alum. Extrusions	$0.74 lb	$0.62 lb
Scrap Alum. Extrusions (w/ attachments)	$0.61 lb	$0.50 lb
Scrap Aluminum Turnings	$0.47 lb	$0.37 lb
Scrap Aluminum Breakage	$0.20 lb	$0.14 lb
Scrap Litho Sheet	$0.71 lb	$ .61 lb
Scrap Alum-CU Rads(clean)	$1.59 lb	$1.38 lb
Scrap Aluminum Insulated Wire	$0.34 lb	$0.23 lb
Nickel Alloy Scrap Metal	**Market Price**	**Your Price ***
Prime Nickel	$6.73 lb	$6.50 lb
Scrap Ni Solids (clean)	$6.80 lb	$6.00 lb
Scrap 304 (18-8)	$0.61 lb	$0.50 lb
Scrap 304 (18-8) Turnings	$0.50 lb	$0.40 lb
Scrap 316 (16-10)	$0.84 lb	$0.75 lb
Scrap 316 (16-10) Turnings	$0.81 lb	$0.69 lb
Scrap 409-410 Solids	$0.19 lb	$0.13 lb
Scrap Inconel 600	$4.40 lb	$4.00 lb
Scrap Inconel 625	$5.40 lb	$5.00 lb
Scrap Inconel 718	$4.88 lb	$4.25 lb
Scrap Cobalt-Nickel	$4.10 lb	$3.80 lb
Scrap Carbide Insert	$11.00 lb	$10.00 lb
Scrap Carbide Drills and Reamers (no steel)	$10.00 lb	$9.50 lb
Scrap Columbium	$16/$40 lb	$15/$35 lb
Scrap Hastoloy C (Air melt)	$5.00 lb	$4.10 lb
Scrap Hastoloy X (Air melt)	$4.00 lb	$3.55 lb
Scrap Molybdenum	$12.00 lb	$10.20 lb
Scrap Niobium	$20/$40 lb	$15/$30 lb
Scrap R Monel	$4.18 lb	$3.78 lb
Scrap Tantalum (Air-Vac melt)	$130 to $200 lb	Call
Scrap Tungsten 99.9%	$20.09 lb	$17.90 lb
Scrap Tungston Carbide	$11.00 lb	$10.00 lb
Scrap Waspaloy	$3.00 lb	$2.50 lb
Scrap T-1	$2.02 lb	$1.70 lb
Scrap T-15	$2.09 lb	$1.79 lb
Scrap M-1	$0.78 lb	$0.62 lb
Scrap M-2	$1.01 lb	$0.83 lb
Scrap M-42	$1.18 lb	$0.91 lb
Scrap H-13	$0.17 lb	$0.12 lb
Scrap Titanium 6-4 Clips	$ 2.48 lb	$ 2.21 lb

BEST PRICE GUARANTEE

***DELIVERED TO YARD, MINIMUM WEIGHTS APPLY TO ALL METAL AND PLASTIC TRANSACTIONS* - The scrap metal prices displayed on this website can and will change without notice.** 877ironmike.com should be used as a reference only. Metal Prices USA, LLC. or any authorized, liscensed, Iron Mike Service Center, may pick up your scrap material or cause your scrap material to be picked up by a third party. The prices DO NOT include deductions for

APSC FILED Time: 3/1/2013 2:34:03 PM: Recvd 3/1/2013 1:46:46 PM: Docket 13-028-u-Doc. 52

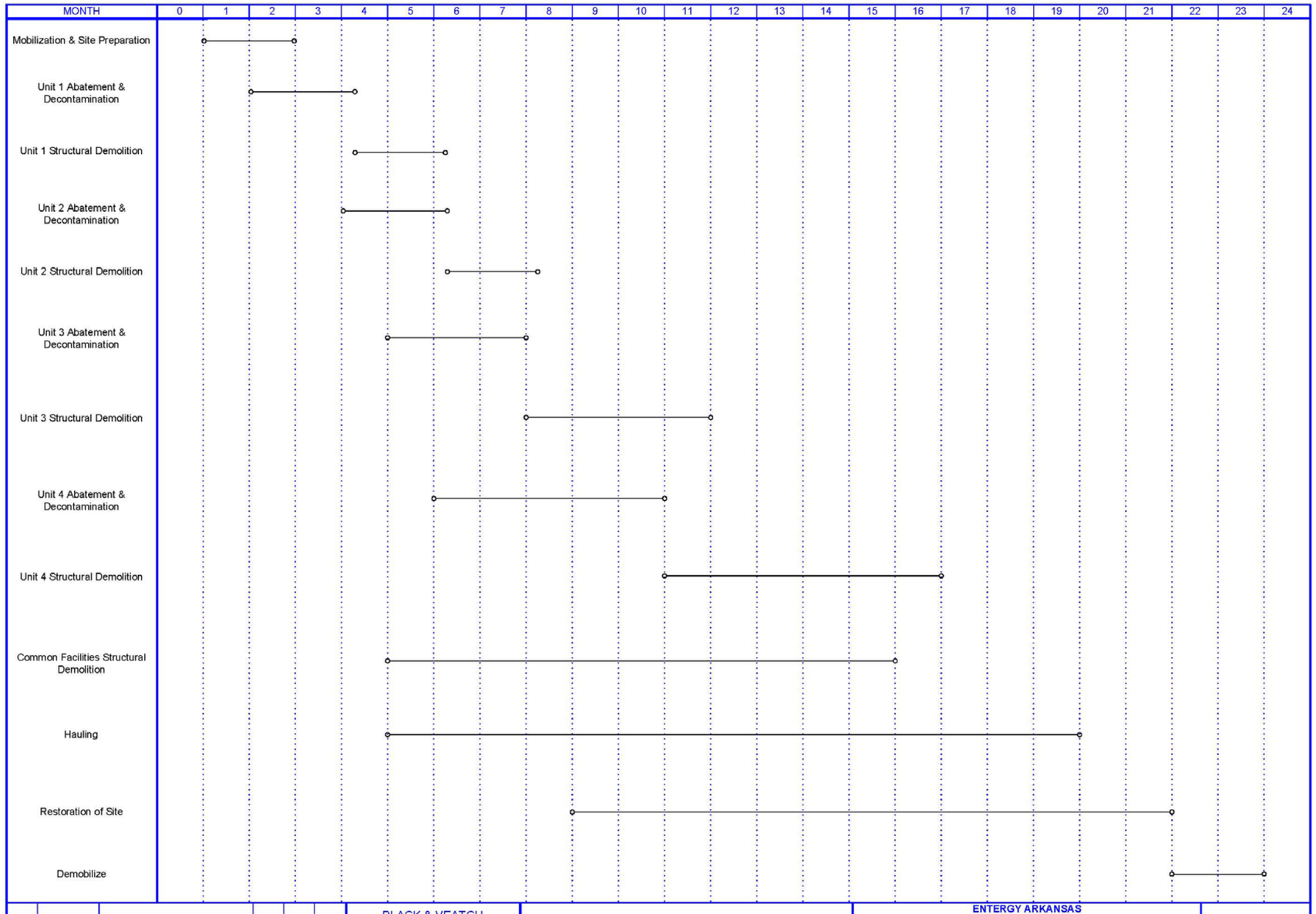
BEST PRICE GUARANTEE

**** DELIVERED TO YARD, MINIMUM WEIGHTS APPLY TO ALL METAL AND PLASTIC TRANSACTIONS* - The scrap metal prices displayed on this website can and will change without notice.*** 877ironmike.com should be used as a reference only. **Metal Prices USA, LLC. or any authorized, liscensed, Iron Mike Service Center,** may pick up your scrap material or cause your scrap material to be picked up by a third party. **The prices DO NOT include deductions for transporting, sorting, loading, operating equipment, commissions paid to Metal Prices USA, LLC. or others and or a % of gross sale, proceeds or material, paid to broker as agreed.** ***Minimum weights for pick up service apply. Metal Prices USA, LLC. or other third party liscensed facilities' grading, weights, and adjustments will govern all scrap metal transactions. "Best Price Guarantee" and "Iron Mike's Price Guarantee" refers to the highest value starting point (Market or Near Market Value, based on that days listed price, using several industry sources and perceived market directions for any metal listed on this website, on any particular hour, day, week or month), before the deductions mentioned above.***

To request a quote, please call: **1-877-IRONMIKE (877-476-6645)** or E-mail your request to: 877ironmike@sbcglobal.net

Iron Mike Enterprises | 900 Wilshire Drive Suite 202 Troy, MI 48084 | call 1.877.476.6645 fax 248.615.1316

Appendix C. Schedule



NO.	DATE	REVISIONS & RECORD OF ISSUE	DWN	CHK	APPD
1	15-NOV-12	PRELIMINARY SCHEDULE	TMD	BRC	BRC

BLACK & VEATCH

ENGINEER	DRAWN
T. DALLAL	T. DALLAL
CHECKED	DATE
B. CREAN	15-NOV-12

ENTERGY ARKANSAS
DISMANTLING STUDY
LAKE CATHERINE PLANT SCHEDULE

LEVEL 1 SCHEDULE

CODE AREA

PAGE 1 OF 1

Appendix D. Site Photos

White Bluff

Lake Catherine

Lynch




Moses



Ritchie