PUBLIC VERSION—TRADE SECRET DATA HAS BEEN EXCISED

BEFORE THE

PUBLIC SERVICE COMMISSION OF THE STATE OF NORTH DAKOTA

MONTANA-DAKOTA UTILITIES CO., A DIVISION OF MDU RESOURCES GROUP, INC. APPLICATION FOR ADVANCE DETERMINATION OF PRUDENCE BIG STONE AIR QUALITY CONTROL SYSTEM PROJECT	)	DOCKET NO. PU-11-163
OTTER TAIL POWER COMPANY APPLICATION FOR ADVANCE DETERMINATION OF PRUDENCE BIG STONE AIR QUALITY CONTROL SYSTEM PROJECT	)	DOCKET NO. PU-11-165

REVISED REBUTTAL TESTIMONY

OF

JEFFREY T. KOPP

ON BEHALF OF

MONTANA-DAKOTA UTILITIES CO.

and

OTTER TAIL POWER COMPANY

November 10, 2011

PUBLIC VERSION—TRADE SECRET DATA HAS BEEN EXCISED

TABLE OF CONTENTS

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jeffrey ("Jeff") T. Kopp. My business address is Burns & McDonnell Engineering Company, 9400 Ward Parkway, Kansas City, Missouri, 64114.

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A. I am employed by Burns & McDonnell Engineering Company ("Burns & McDonnell"). I am the Manager of Project Development within the Energy Consulting Department of the Business & Technology Services Division.

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I received a Bachelor of Science degree in civil engineering from the Missouri University of Science and Technology in 1999. I received a Master of Business Administration degree from the University of Kansas in 2004. I am a registered professional engineer in the State of Missouri. I have 11 years of engineering experience, with 10 of those years in power generation. I have provided engineering and consulting support to investor-owned utilities, independent power producers, municipalities, and electric cooperatives.

As the manager of the Project Development group, I oversee the development activities for various new power generation resources, including feasibility studies, economic analysis, preliminary engineering design, due diligence reviews, cost estimates, and other development activity support. I have worked on and overseen development and consulting activities on coal, natural gas, wind, solar, and biomass power generation facilities. This experience has included preparing and reviewing economic analysis comparing power generation from various resource alternatives. These economic analyses have included comparing the relative economics of coal, natural gas, and wind

alternatives, similar to the analysis presented. My resume is attached to this testimony as Exhibit ___ (JTK-1).

Q. FOR WHOM ARE YOU PROVIDING TESTIMONY?

A. I am providing testimony on behalf of Montana-Dakota Utilities Co. ("Montana-Dakota") and Otter Tail Power Company ("Otter Tail").

II. PURPOSE

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. My testimony responds to the direct testimony of Mr. Richard S. Hahn, a witness for the North Dakota Public Service Commission Advocacy Staff.

III. UPDATED FUEL FORECASTS

Q. AT PAGE 1 OF HIS DIRECT TESTIMONY, MR. HAHN CONTENDS IT WAS NOT REASONABLE FOR OTTER TAIL TO BASE ITS LEVELIZED COST ANALYSIS ON A DECEMBER 2009 NATURAL GAS FORECAST. WHY WERE THE DECEMBER 2009 FUEL FORECASTS USED IN THE LEVELIZED COST ANALYSIS PREPARED BY BURNS & MCDONNELL FOR OTTER TAIL?

A. Burns & McDonnell used the same natural gas forecast and coal forecast included in Otter Tail's Integrated Resource Plan ("IRP") filing before the Minnesota Pubic Utilities Commission. This was done so the findings in the Strategist modeling for the IRP would be comparable to the levelized cost analysis performed for the ADP petition.

Q. IN ITS LEVELIZED COST ANALYSIS, DID BURNS & MCDONNELL TAKE INTO ACCOUNT THE POSSIBILITY OF FUTURE FUEL PRICE CHANGES?

A. Yes. Burns & McDonnell's sensitivity analyses evaluated the resulting levelized busbar costs for the AQCS project and each natural gas alternative over a range of fuel costs from 20% lower than the base case to 20% higher than the base case. The fuel cost sensitivity analysis confirms the proposed AQCS project is the least cost project should natural gas or coal prices increase or decrease by 20%.

Q. WHO PREPARED THE FUEL FORECASTS RELIED UPON BY BURNS & MCDONNELL?

A. Wood Mackenzie, a global energy research and consulting firm.

Q. HOW DID BURNS & MCDONNELL OBTAIN WOOD MACKENZIE'S FUEL FORECASTS FOR USE IN THIS CASE?

A. The forecasts were provided to Burns & McDonnell by Otter Tail.

Q. HAS OTTER TAIL PROVIDED BURNS & MCDONNELL WITH ANY FUEL FORECASTS OTHER THAN THE DECEMBER 2009 FORECASTS THAT BURNS & MCDONNELL RELIED UPON TO PREPARE ITS LEVELIZED COSTS ANALYSIS?

A. Yes. In August 2011, Otter Tail obtained and provided Burns & McDonnell with updated fuel forecasts prepared by Wood Mackenzie. Otter Tail provided Wood Mackenzie's North America Power Service - Long Term View for natural gas and coal, which was released in April 2011. For both the 2009 and 2011 coal price forecasts, Otter Tail modified the Wood Mackenzie forecast to reflect the specific coal transportation costs from the Powder River Basin to the Big Stone Plant.

Q. HOW DO THE UPDATED WOOD MACKENZIE FUEL FORECASTS COMPARE TO THE FUEL FORECASTS USED IN BURNS & MCDONNELL'S LEVELIZED COST ANALYSIS?

A. The updated Wood Mackenzie natural gas price and coal price forecasts are both lower than the fuel forecasts used in our levelized costs analysis. However, both current price forecasts fall within the range of fuel costs evaluated in Burns & McDonnell's sensitivity analyses, i.e. both fall within the 20% sensitivity range below the base case.

Q. UNDER THE REVISED FUEL FORECASTS, IS THE BIG STONE PLANT WITH THE AQCS PROJECT THE MOST ECONOMICALLY ATTRACTIVE OPTION?

A. Yes. As previously presented in the fuel forecast sensitivity analysis, the Big Stone Plant with the AQCS project remains the least cost alternative under a range of fuel costs from 20% lower than the base case to 20% higher than the base case. Since the updated fuel forecasts fall within this range, it does not change our conclusions.

IV. COSTS OF WIND POWER

Q. MR. HAHN SUGGESTS THE BISON 2 AND BISON 3 WIND PROJECTS PROVIDE A GOOD APPROXIMATION OF THE LIKELY COSTS OF FUTURE WIND POWER. DO YOU AGREE?

A. No. Bison 2 and Bison 3 will utilize the Siemens SWT-3.0-101 direct-drive wind turbines. These will be the first production class Siemens SWT-3.0-101 units installed in the world. Manufacturers commonly offer significantly discounted turbine pricing for the first production units installed. Based on publicly available information, the total installed cost of Bison 2 is $157 million for 105 MW[1], and the total installed cost of

[1] David Phelps, *Bison 2 Wind Farm in N.D. Gets PUC's Go-Ahead*, Star Tribune, Sept. 1, 2011, *available at* http://www.startribune.com/business/128904833.html.

Bison 3 is also $157 million for 105 MW[2]. This results in an installed capital cost of $1495/kW. Given these very low capital costs, the Bison 2 and Bison 3 projects are unique, and they are not a reasonable approximation of the future cost of wind power.

Q. AT PAGE 15 OF HIS TESTIMONY, MR. HAHN REPORTS THE LAWRENCE BERKELEY NATIONAL LABORATORY ("LBNL") HAS RECENTLY SEEN PPAs IN THE HEARTLAND REGION IN THE LOW $40 PER MWH OR LOWER. HOW DO THESE VALUES FOR PURCHASED WIND COMPARE TO THE VALUES USED BY BURNS & MCDONNELL?

A. If we were to take the LBNL cost ($40/MWh (2011 dollars)) and levelize it, the LBNL value is consistent with the cost of wind Burns & McDonnell used in its analysis. This is achieved by taking the $40/MWh (2011 dollars), escalating it 2.5% per year up to 2016, further escalating at 2.5% per year throughout a 20-year PPA term, and then levelizing these costs over the 20-year PPA term at Otter Tail's discount rate of **[TRADE SECRET DATA BEGINS…** ...**TRADE SECRET DATA ENDS]**. The result is a levelized cost of wind of $60.98 in 2016 dollars. If we perform the same calculation using a 2011 starting PPA price of $44.02 (which falls within the low-to-mid $40/MWh range published by LBNL), the result is a levelized cost of wind of $67.11, which is the price used in Burns & McDonnell's analysis. These calculations demonstrate that the value used in Burns & McDonnell's analysis is reasonable and consistent with the information in the LBNL report.

[2] Paul Dvorak, *Bison 3 Gallops Along in North Dakota*, Windpower Engineering & Development, Sept. 7, 2001, *available at* http://www.windpowerengineering.com/construction/bison-3-gallops-along-in-north-dakota/.

Q. HOW DO YOU RESPOND TO MR. HAHN THAT BURNS & MCDONNELL INCORRECTLY HANDLED THE PRODUCTION TAX CREDIT IN ITS ANALYSIS?

A. I believe Mr. Hahn is overstating the value of the PTC. Burns & McDonnell used an estimated impact of the PTC on the levelized cost of wind in PPA pricing of $20/MWh in 2009 dollars. This value is based on our experience with economic modeling of wind projects with and without the PTC. While we agree with Mr. Hahn's contention that tax rates can impact the value of the PTC in an individual project, there are other considerations that lower the value of the PTC. These considerations include the possibility that a project cannot take advantage of the full PTC if the project does not have sufficient tax liabilities to be offset by the tax credits. The resulting potential tax partner structures, transactional costs, etc. would reduce the value of the PTC available to the wind farm. When considering these factors, we believe that a $20/MWh impact to levelized wind PPA pricing in 2009 dollars is a reasonable assumption. Burns & McDonnell's estimated value of the PTC is further verified by the fact that our levelized wind PPA pricing with the PTC is consistent with the LBNL published values, as discussed above. Even assuming a higher value of the impact of the PTC, as Mr. Hahn suggests, the difference would not be material in the analysis. This is because a higher value of the PTC would only increase the price of our assumed PPA pricing of wind without the PTC, rather than decrease the PPA price of wind with the PTC.

V. STRANDED COSTS

Q. MR. HAHN CONTENDS IT WAS UNREASONABLE FOR BURNS & MCDONNELL TO CONSIDER STRANDED COSTS IN ITS MODELING OF THE ALTERNATIVE OPTIONS. WHAT IS YOUR RESPONSE?

A. Burns & McDonnell did not consider stranded costs in its base case or any of the sensitivity analyses presented in Figures 1-3 of Appendix 9. Rather, Burns & McDonnell

modeled the impact of the stranded costs in a single sensitivity case, reported in Table 2 of Attachment 9, under the line titled "Stranded Asset Cost Scenario Adder." The impact of stranded costs was not taken into account in any of Burns & McDonnell's conclusions regarding the economic benefits of the AQCS over the other alternatives considered. Even when they are considered, stranded costs are not material in the comparison of the proposed AQCS and the alternatives, and the conclusion that the AQCS project is the least cost option remains the same.

VI. ALTERNATIVES CONSIDERED

Q. MR. HAHN PROPOSES THAT BURNS & MCDONNELL SHOULD HAVE EVALUATED AN ALTERNATIVE OPTION BASED ON MISO PURCHASES. WHAT IS YOUR RESPONSE?

A. In our analysis, Burns & McDonnell evaluated alternatives for a baseload resource. MISO market purchases do not meet this criteria. In practical terms, the reliance on MISO purchases to replace a substantial portion of the energy provided by the Big Stone Plant would expose Montana-Dakota and Otter Tail and their customers to significant market risk. Since the MISO market pricing is set by the marginal unit, or the last unit to come online, Otter Tail and Montana-Dakota customers would be subject to pricing set by the unit with the highest variable cost dispatched to the market at any given time. This risk is reduced by maintaining generation resources with known efficiencies and variable costs, rather than being at the mercy of purchasing power based on pricing from the least efficient unit at any given point in time.

Q. MR. HAHN ALSO PROPOSES BURNS & MCDONNELL SHOULD HAVE CONSIDERED A SIMPLE CYCLE NATURAL GAS COMBUSTION TURBINE AS A POTENTIALLY CHEAPER MEANS TO PROCURE CAPACITY. WHY WAS THIS OPTION NOT EVALUATED?

A. Since our analysis was based on alternative baseload generation resources, simple cycle alternatives were not considered because this technology is generally utilized as a peaking resource, rather than a baseload resource. While simple cycle technology has the least installed cost and cheapest capacity cost, it also has the highest energy cost. In the alternative proposed by Mr. Hahn, he gives the wind energy portion of the alternative a 10% capacity factor, and therefore, reduces the size of his simple cycle unit by 47.5 MW to an installed capacity of 427.5MW. The simple cycle unit is then dispatched at a capacity factor of approximately 11%. Wind generation is assumed to operate at a 40% capacity factor and the remainder of the energy comes from market purchases. Of the total energy provided in this alternative, 13% is provided by the simple cycle unit, 53% is provided by wind energy, and 34% comes from market purchases. Therefore, approximately one third of the energy previously provided by BSP would now be purchased from the market. This would result in significant reliance on purchases of market energy – especially during peak demand in the summer months when wind resources may be idle – exposing the Applicants to unreasonable market risk. As a result, we did not include this alternative in our analysis.

VII. COST-OF-SERVICE MODELING

Q. MR. HAHN CLAIMS THE SPREADSHEET MODEL USED BY BURNS & MCDONNELL FOR ITS BUSBAR CALCULATION DOES NOT ACCURATELY SIMULATE THE COST OF SERVICE MODEL USED IN UTILITY RATE-SETTING PROCESSES. DO YOU AGREE?

A. The spreadsheet model used by Burns & McDonnell to calculate the busbar costs include the cost of depreciation, return, interest, fuel, fixed O&M, variable O&M, and taxes. Our model calculates the revenue requirements for each alternative based on a buildup of these costs. Although there are some differences in the details of the modeling, both models are based on building up revenue requirements, using the same major costs categories and the conclusions are consistent.

Q. WHAT ARE THE DIFFERENCES BETWEEN THE SPREADSHEET MODEL USED BY BURNS & MCDONNELL AND THE COST OF SERVICE MODEL FAVORED BY MR. HAHN?

A. There are two major differences. Burns & McDonnell used a simplified assumption of basing the equity return on a book value calculated using straight-line depreciation, rather than the accelerated depreciation and deferred income tax liability to calculate rate base used in the La Capra modeling. La Capra also calculated interest costs based on the percentage of capital financed and the financing rate multiplied by the rate base, while Burns & McDonnell's model used a more straightforward method of calculating interest costs based on a debt payment stream calculated based on the debt terms.

Q. ARE THE MODELING DIFFERENCES SIGNIFICANT IN THIS CASE?

A. No, I don't believe so. Burns & McDonnell evaluated the proposed AQCS and the alternatives by the same spreadsheet method. In addition, the differences in the La Capra

model result in a levelized cost of the AQCS option of $2.03/MWh lower than the values calculated by Burns & McDonnell and a levelized cost of the combined cycle plus wind option of $3.71/MWh lower than the values calculated by Burns & McDonnell. This reduces the differential cost between these two alternatives by $1.68. These differences do not change the conclusion that the AQCS option is the least cost alternative and this conclusion remains robust over multiple modeling evaluations.

VIII. CONCLUSION

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

Jeffrey T. Kopp, PE

Manager, Project Development

Expertise

- Due Diligence Evaluations
- Feasibility Studies
- Pro forma Analysis
- Site Retirement Estimates
- Site Layouts
- Siting Assessments
- Site Evaluations
- Preliminary Engineering Design

Education

- B.S. in Civil Engineering, University of Missouri-Rolla, 1999
- MBA, University of Kansas, 2004

Organizations

- American Society of Civil Engineers

Registration

- Professional Engineer, Missouri

Total Years of Experience

12

Years With Burns & McDonnell

10

Start Date

June 2001

Mr. Kopp manages the Project Development group in Burns & McDonnell's Business & Technology Services Division specializing in development of energy projects including energy facility siting, feasibility studies, pro forma analysis, project development services, due diligence reviews and preliminary engineering design.

Mr. Kopp has provided assistance on the following projects:

Repower Assessment, Confidential Client

North Dakota, 2011

Mr. Kopp is currently assisting a client with an evaluation comparing the economic viability of retrofitting an existing coal-fired power plant with air quality control system equipment in comparison to replacing the plant with new natural gas fired generation. The project includes preparing capital cost estimates, operating and maintenance cost estimates, and determining the net present value of each alternative evaluate the relative economic attractiveness of each alternative.

Decommissioning Study, Confidential Client

East Coast, 2011

Mr. Kopp served as the Burns & McDonnell project manager on a decommissioning study for the entire fleet of power generating facilities owned by an Electric Utility on the East Coast. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives. The evaluation included several coal-fired plants, as well as several natural gas-fired and fuel oil-fired units.

Decommissioning Study, Confidential Client

Upper Midwest, 2011

Mr. Kopp served as the Burns & McDonnell project manager on a decommissioning study for several power generating facilities in the Upper Midwest. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives. The evaluation included coal and biomass-fired facilities.

Strategic Site Selection Study, Confidential Client

Virginia, Maryland, Pennsylvania, Delaware, 2011

Mr. Kopp served as the Burns & McDonnell project manager on a strategic site selection study for a 750 MW combined cycle facility. The study resulted in the identification of multiple viable site alternatives to support the natural gas-fired generation option under consideration.

Due Diligence Evaluation, Confidential Client

Pennsylvania, 2011

Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation of a 2-on-1 combined cycle facility being offered for sale by Liberty Electric in Pennsylvania. The client was considering acquiring the assets from the current owner. The evaluation included a technical, environmental, and contractual review of the combined cycle generation facility.

Due Diligence Evaluation, Tyr Energy

Florida, 2011

Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation of a biomass power generating facility under development by American Renewables. The client was considering an equity investment in the facility. The evaluation included a 100 MW bubbling fluidized bed boiler and steam turbine.

Jeffrey T. Kopp, PE
(continued)

Due Diligence Evaluation, Confidential Client
Maryland, 2011
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation of a combined cycle facility under development in Maryland. The client was considering acquiring the site and all the development rights for installation of a 2-on-1 combined cycle facility. The evaluation included a review of existing agreements and permits in place to facilitate development of the generation resource.

Decommissioning Study, Tampa Electric Company
Florida, 2011
Mr. Kopp served as the Burns & McDonnell project manager on a decommissioning study for the power generating facilities owned by Tampa Electric Company. The evaluation was performed to determine the costs to demolish the units and restore the sites at the end of their useful lives. The evaluation included a coal-fired plant, an integrated gasification combined cycle plant, and several natural gas-fired units.

Site Retirement Evaluation, Confidential Client
Illinois, 2011
Mr. Kopp served as the project manager for a site retirement evaluation to help determine the cost to retire a 600 MW coal-fired project in Illinois at the end of its useful life. Estimates for demolition and site restoration were included in the evaluation.

Repower Assessment, Confidential Client
Minnesota, 2010
Mr. Kopp assisted a client with an evaluation comparing the economic viability of retrofitting an existing coal-fired power plant with air quality control system equipment in comparison to replacing the plant with new natural gas fired generation. The project includes preparing capital cost estimates, operating and maintenance cost estimates, and determining the net present value of each alternative evaluate the relative economic attractiveness of each alternative.

Biomass Plant Site Selection Study, Confidential Client
Texas, 2010
Mr. Kopp served as the project manager for a Site Selection Study for a Biomass project to be located in Texas. The project included ranking of candidate sites to determine a preferred site for development of a 20 MW biomass power generating facility.

Due Diligence Evaluation, Tyr Energy
Multiple Locations, 2010
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for several natural gas-fired facilities being offered for sale by Tenaska. The client was considering an equity investment in the facilities. The evaluation included four combined cycle facilities and one simple cycle facility

Power Plant Valuation Assessment, Basin Electric Power Cooperative
North Dakota, 2010
Mr. Kopp is currently serving as the Burns & McDonnell project manager to provide a valuation assessment of the Antelope Valley Station Unit 2, which is being considered for purchase by Basin Electric Power Cooperative. The project includes valuing the 25 year old 450 MW coal fired unit in current dollars and at specified dates in the future.

Jeffrey T. Kopp, PE
(continued)

Wind Farm Evaluation, Minnesota Power
North Dakota, 2010
Mr. Kopp is currently serving as the Burns & McDonnell project manager to provide an evaluation of a proposed wind farm development in central North Dakota. The project includes wind resource assessments, conceptual engineering design, capital cost estimates, and estimated busbar costs for development of wind farm project in phases on the land currently under contract.

Site Retirement Cost Evaluations, Horizon Wind Energy
Midwest, 2008-2010
Mr. Kopp served as the Burns & McDonnell project manager on multiple site retirement cost evaluations for several proposed wind energy facilities under development by Horizon Wind Energy. The evaluations were performed to support permitting activities on the facilities.

Due Diligence Evaluation, Tyr Energy
Hawaii, 2010
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a biomass gasification generating facility under development in Hawaii. The client was considering the facility for investment. The evaluation included a Primenergy gasifier with a net plant output of approximately 12 MW.

Project Development Assistance, Tradewind Energy
Kansas, 2009-2010
Mr. Kopp is currently serving as the Burns & McDonnell project manager to provide development assistance on a wind farm facility in Southern Kansas. The development assistance includes support on land acquisition efforts for the project, transmission line routing and preliminary design, power collection system preliminary design, and general project development assistance.

Project Development Assistance, Tradewind Energy
Missouri, 2007-2010
Mr. Kopp is currently serving as the Burns & McDonnell project manager to provide development assistance on two wind turbine facilies in Northern Missouri. The development assistance includes support on land acquisition efforts for the project, transmission line routing and preliminary design, power collection system preliminary design, and general project development assistance.

Site Retirement Cost Evaluation, Progress Energy Florida
Florida, 2008-2009
Mr. Kopp served as the Burns & McDonnell project manager on a site retirement cost evaluation for all the fossil fuel-fired power generating facilities owned by Progress Energy in the state of Florida. The evaluation was performed to determine the costs to demolish the units and restore the sites and included a natural gas-fired steam plants, fuel oil-fired steam plants, natural gas-fired combustion turbines, coal-fired facilities, and combined cycle generating facilites. Subsequent to the study, Mr. Kopp provided direct testimony in Progress Energy Florida's rate case in regards to the study findings.

Site Retirement Cost Evaluation, Northern Indiana Public Service Co.
Indiana, 2008
Mr. Kopp served as the Burns & McDonnell project manager on a site retirement cost

Jeffrey T. Kopp, PE
(continued)

evaluation for several generating facilities owned by NIPSCO. The evaluation was performed to determine the costs to demolish the units and restore the sites and included several coal-fired facilities and a combined cycle generating facility.

Due Diligence Evaluation, Grays Harbor Public Utility District
Washington, 2008

Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a biomass-fired cogeneration facility being offered for sale in Washington. The facility evaluated was a paper mill that had been shutdown for several years. The facility included a wood waste fired boiler that provided steam to a steam turbine for electric power generation as well as providing plant process steam.

Due Diligence Evaluation, Tyr Energy
New Mexico, 2008

Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a natural gas-fired power generating facility being offered for sale in New Mexico. The evaluation included two Mitsubishi 501F combustion turbines operating in combined cycle mode.

Site Retirement Cost Evaluation, Horizon Wind Energy
Illinois, 2008

Mr. Kopp served as the Burns & McDonnell project manager on a site retirement cost evaluation for a wind farm being proposed by Horizon Wind Energy in Illinois. The evaluation was performed to determine the costs to demolish the units and restore the sites to meet the county zoning requirements.

Due Diligence Evaluation, Tyr Energy
Western US, 2008

Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for several natural gas-fired power generating facilities being offered for sale throughout the western United States. The evaluation included several GE LM6000 combustion turbines operating in simple cycle mode, several GE LM6000 combustion turbines operating in combined cycle mode, one GE 7EA combustion turbine operating in combined cycle mode, and one GE 7FA combustion turbine operating in simple cycle mode.

Due Diligence Evaluation, Tyr Energy
Virginia, 2007

Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Virginia. The evaluation included 7 GE LM6000 fuel oil fired combustion turbines operating in simple cycle mode.

Due Diligence Evaluation, Tyr Energy
Colorado, 2007

Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for 5 GE LM6000 combustion turbines operating in combined cycle cogeneration mode with 2 steam turbines. The facility includes a greenhouse that serves as the plant's thermal host for cogeneration operations.

Project Development Assistance, Mesa Wind Power
Texas, 2007

Jeffrey T. Kopp, PE
(continued)

Mr. Kopp is currently providing development assistance on a 4,000 MW wind turbine facility located in the panhandle of Texas. The development assistance includes pro forma economic modeling of the project.

Due Diligence Evaluation, Kelson Energy
Ohio, 2007
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Ohio. The evaluation included a partially constructed 2x1 Siemens Westinghouse 7FA combined cycle generating facility.

Due Diligence Evaluation, Grand River Dam Authority
Oklahoma, 2007
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Oklahoma. The evaluation included a 4x2 GE 7FA combined cycle generating facility.

Due Diligence Evaluation, Brazos Electric Power Cooperative
Texas, 2007
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for the purchase of an equity share of a generating facility being constructed in Texas. The evaluation included an 890 MW supercritical pulverized coal fired generating facility.

Due Diligence Evaluation, Tyr Energy
Florida, 2007
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Florida. The evaluation included 3 GE 7FA combustion turbines operating in simple cycle mode.

Cost Estimate Preparation, Direct Energy
Texas, 2007
Mr. Kopp served as the Burns & McDonnell project manager for the preparation of planning level cost estimates for a new combined cycle facility to be constructed in Texas.

Due Diligence Evaluation, Tyr Energy
Various U.S. Locations, 2007
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for several generating facilities being offered for sale throughout the U.S. The evaluation included a coal, natural gas, and wind power facilities.

Owner's Engineer Services, Grays Harbor PUD
Washington, 2007
Mr. Kopp served as the Burns & McDonnell project manager on an owner's engineer project to evaluate the plans for installation of a refurbished steam turbine at a paper mill. The evaluation included the review of the design for the installation of a 7 MW steam turbine.

Site Retirement Cost Evaluation, Tyr Energy
Various U.S. Locations, 2007
Mr. Kopp served as the Burns & McDonnell project manager on a site retirement cost

Jeffrey T. Kopp, PE
(continued)

evaluation for several generating facilities owned by Tyr Energy. The evaluation was performed to satisfy FASB 143 accounting standards and included a simple cycle and combined cycle generating facilities.

Due Diligence Evaluation, Tyr Energy
Virginia, 2006/2007
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Virginia. The evaluation included a 240 MW subcritical pulverized coal fired facility.

Due Diligence Evaluation, Brazos Electric Power Cooperative
Texas, 2006
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Texas. The evaluation included a 1x1 GE 7FA combined cycle generating facility and 2 GE 7FA combustion turbines operating in simple cycle mode.

Generation Alternatives Study, Ottertail Power Company
North Dakota, 2006
Mr. Kopp is currently serving as the Burns & McDonnell project manager on a Generation Alternatives Study for the addition of a new 600 MW coal fired unit at an existing coal fired facility. The study includes a pro forma analysis of the technologies considered.

Technology Assessment, Minnesota Power
South Dakota, 2006
Mr. Kopp is currently assisting with a technology assessment for the addition of a new 500 MW coal fired unit at an existing coal fired facility. The study includes a pro forma analysis of the technologies considered.

Technology Assessment and Feasibility Study, Ottertail Power Company
Minnesota, 2006
Mr. Kopp served as the Burns & McDonnell project manager on a feasibility study and technology assessment for the addition of a new 500 MW coal fired unit at an existing coal fired facility. The study includes conceptual site layouts, cost estimates, performance estimates, and water balances.

Project Development Assistance, Tradewind Energy
Kansas, 2005/2006
Mr. Kopp served as the Burns & McDonnell project manager to provide development assistance on a 250MW wind turbine facility in Central Kansas. The development assistance includes conceptual design and technical support for the development phase of the project.

Siting Study and Technology Assessment, Arizona Public Service
Arizona/New Mexico, 2005/2006
Mr. Kopp assisted with a siting study and technology assessment for an 1,800 MW coal fired facility in Arizona and Northwestern New Mexico. Development resulted in the identification of multiple viable site alternatives to support coal-fired generation options.

Jeffrey T. Kopp, PE
(continued)

Due Diligence Evaluation, Tyr Energy
California, 2005/2006
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for four generating facilities being offered for sale in California. The evaluation included simple cycle facilities consisting of Pratt & Whitney FT8 Twinpacs.

Waste-to-Energy Feasibility Study, CPS Energy
Texas, 2005
Mr. Kopp assisted with a feasibility study for a new waste-to-energy facility in the State of Texas. The study included a pro forma analysis of the facility considered.

Due Diligence Evaluation, Tyr Energy
Oklahoma, 2005
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Oklahoma. The evaluation included a simple cycle facility consisting of four General Electric 7EA turbines.

Due Diligence Evaluation, Cinergy
Indiana, 2005
Mr. Kopp served as the Burns & McDonnell project manager on a due diligence evaluation for a generating facility being offered for sale in Indiana. The evaluation included a simple cycle facility consisting of four Siemens Westinghouse 501D5A turbines.

Due Diligence Evaluation, kRoad Power
Various Locations, 2003/2004
Mr. Kopp served as the Burns & McDonnell project manager on due diligence evaluations for several generating facilities being offered for sale throughout the United States. The evaluations included four combined cycle plants utilizing Siemens Westinghouse 501G turbines.

Due Diligence Evaluation, kRoad Power
Various Locations, 2003
Mr. Kopp served as the Burns & McDonnell project manager on due diligence evaluations for several generating facilities being offered for sale by Duke Energy. The evaluations included two combined cycle plants and one simple cycle plant utilizing General Electric 7FA turbines and General Electric 7EA turbines respectively.

Site Retirement Evaluation, Old Dominion Electric Cooperative
Maryland/Virginia, 2002/2004
Mr. Kopp served as the Burns & McDonnell project manager on several site retirement evaluations to help determine the cost to retire the facilities at the end of their useful life. The evaluations included simple cycle plants utilizing General Electric 7FA turbines and Caterpillar Diesel Gensets. Estimates for demolition and site restoration were included.

Site Retirement Evaluation, Confidential Client
Illinois, 2004
Mr. Kopp assisted with a site retirement evaluation to help determine the cost to retire a 600 MW coal-fired project in Illinois at the end of its useful life. Estimates for

Jeffrey T. Kopp, PE
(continued)

demolition and site restoration were included in the evaluation.

Site Retirement Evaluation, Western Farmers Electric Cooperative
Oklahoma, 2004
Mr. Kopp served as the Burns & McDonnell project manager on a site retirement evaluation to determine the approximate cost to retire the facilities, prepare demolition contract documents, and evaluate bids. The evaluation included a duel fuel genset site.

Site Retirement Evaluation, Panda Energy
North Carolina, 2003
Mr. Kopp served as the Burns & McDonnell project manager on a site retirement evaluation to help determine the cost to retire the Panda-Rosemary Project at the end of its useful life. The evaluation included a combined cycle cogeneration facility in Roanoke Rapids, North Carolina. Estimates for demolition and site restoration were included in the evaluation.

Independent Engineer's Report, Panda Energy
North Carolina, 2003/2004
Mr. Kopp produced an Independent Engineer's Report for the Panda-Rosemary Project. The report included a due diligence evaluation of plant performance and financial assessment of a combined cycle cogeneration facility in Roanoke Rapids, North Carolina.

Site Retirement Evaluation, Sempra Energy
Arizona, 2003
Mr. Kopp provided a site retirement evaluation to help determine the cost to retire the Mesquite Energy Generating Facility at the end of its useful life. The evaluation included a combined cycle plant near Phoenix, Arizona. Estimates for demolition and site restoration were included in the evaluation.

Feasibility Study, Northeast Utility Service Corp.
New Hampshire, 2004
Mr. Kopp assisted with a feasibility study to replace an existing coal-fired unit with a new coal fired unit. The study included the installation of a single 600 MW unit in New Hampshire. A pro forma analysis of the new unit was prepared and benchmarked against a pro forma analysis for the existing unit.

Technology Assessment and Feasibility Study, Ottertail Power Corp
South Dakota, 2005/2006
Mr. Kopp assisted with a technology assessment and feasibility study for a new coal-fired generation facility in South Dakota. The study included a pro forma analysis of the alternative technologies considered.

Technology Assessment and Feasibility Study, Progress Energy
Florida, 2004
Mr. Kopp assisted with a technology assessment and feasibility study for new solid fuel fired generation in the State of Florida. The study included a pro forma analysis of the alternative technologies considered.

Jeffrey T. Kopp, PE
(continued)

Project Development Assistance, Peoples Energy Resources Corporation
Oregon, 2001-2004

Mr. Kopp provided project development assistance for a 1,200 MW combined cycle power plant in Oregon. Mr. Kopp assisted in the preparation of an Energy Facility Site Certificate including preliminary engineering design, preparation and review of written exhibits, and public presentation support.

Project Development Assistance, Peoples Energy Resources Corporation
New Mexico, 2001-2004

Mr. Kopp provided project development assistance for a simple cycle power plant in New Mexico. Mr. Kopp provided preliminary engineering design and project development assistance. This included preparing preliminary site design drawings that were approved by the county zoning commission during the site design review process as well as public presentation support.