Exhibit No.:
Issue: Depreciation Rates for New Wind Generation
Witness: Dane Watson
Type of Exhibit: Direct Testimony
Sponsoring Party: The Empire District Electric Company
Case No:
APSC Docket No. 17-061-U
KCC Docket No. 18-EPDE-_____-PRE
MPSC File No. EO-2018-0092
OCC No.PUD 2017 _____
Date Testimony Prepared: October 2017

Direct Testimony

of

Dane Watson

Empire District™
A Liberty Utilities Company

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I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dane Watson. My business address is 101 East Park Blvd, Suite 220, Plano, Texas 75074.

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

A. I am a Partner of Alliance Consulting Group. Alliance Consulting Group provides consulting and expert services to the utility industry.

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

A. I am filing testimony on behalf of The Empire District Electric Company ("Empire" or "Company").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I hold a Bachelor of Science degree in Electrical Engineering from the University of Arkansas at Fayetteville and a Master's Degree in Business Administration from Amberton University.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A. Since graduation from college in 1985, I have worked in the area of depreciation and valuation. I founded Alliance Consulting Group in 2004 and am responsible for conducting depreciation, valuation, and certain accounting-related studies for clients in various industries. My duties related to depreciation studies include the assembly and analysis of historical and simulated data, conducting field reviews, determining service life and net salvage estimates, calculating annual depreciation, presenting recommended depreciation rates to utility management for its consideration, and supporting such rates before regulatory bodies.

My prior employment from 1985 to 2004 was with Texas Utilities Electric Company and successor companies ("TXU"). During my tenure with TXU, I was responsible for, among other things, conducting valuation and depreciation studies for the domestic TXU companies. During that time, I served as Manager of Property Accounting Services and Records Management in addition to my depreciation responsibilities.

I have twice been Chair of the Edison Electric Institute ("EEI") Property Accounting and Valuation Committee and have been Chairman of EEI's Depreciation and Economic Issues Subcommittee. I am a Registered Professional Engineer in the State of Texas and a Certified Depreciation Professional. I am a Senior Member of the Institute of Electrical and Electronics Engineers ("IEEE") and served for several years as an officer of the Executive Board of the Dallas Section of IEEE as well as national and global IEEE offices. I served as President of the Society of Depreciation Professionals twice, most recently in 2015.

Q. DO YOU HOLD ANY SPECIAL CERTIFICATION AS A DEPRECIATION EXPERT?

A. Yes. The Society of Depreciation Professionals ("SDP") has established national standards for depreciation professionals. The SDP administers an examination and has certain required qualifications to become certified in this field. I met all requirements and hold a Certified Depreciation Professional certification.

Q. HAVE YOU PREVIOUSLY TESTIFIED AT ANY REGULATORY COMMISSION?

A. Yes. I have conducted depreciation studies and filed testimony or testified on depreciation and valuation issues before more than thirty utility commissions across the United States, including FERC. A list of proceedings in which I have provided testimony is provided in **Direct Attachment DAW-1**.

II. ASSIGNMENT AND SUMMARY OF TESTIMONY AND RECOMMENDATIONS

Q. WHAT IS YOUR ASSIGNMENT IN THIS PROCEEDING?

A. The purpose of my testimony is to provide support for the proposed depreciation rate for Empire for the wind generation assets it proposes to acquire as part of its Customer Savings Plan ("Wind Assets").

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING DEPRECIATION RATE RECOMMENDATIONS FOR THE WIND ASSETS.

A. When the Wind Assets are constructed and placed in service, Empire will need an approved depreciation rate for those assets in order to depreciate them on the books of the Company. Because the Wind Assets are not yet in service, there is no history on which to develop historic life estimates for the Wind Assets. In order to propose a life estimate for these assets, I researched Wind Assets' lives across the nation in to develop a life estimate for Empire. Based on that research, I recommend a 30 year life for Empire's Wind Assets resulting in a 3.33% depreciation rate. I also recommend that Empire conduct a depreciation study for the Wind Assets for filing with it next distribution rate case, assuming that the Wind Assets are in service at that time.

III. DEPRECIATION ANALYSIS PHILOSOPHY

Q. PLEASE DESCRIBE THE DEPRECIATION ANALYSIS PHILOSOPHY REFLECTED IN THE CURRENT DEPRECIATION STUDY.

A. The objective of any sound depreciation philosophy should be the matching of expense with revenue over the life of the asset. In general, the life of the asset is determined by several factors including the rate of physical deterioration, obsolescence, weather, maintenance, or (in some cases) the economic usefulness of an entire operating unit. The function of depreciation is to recognize the cost of an asset spread over its useful life. Book depreciation techniques should not accelerate or defer the recovery of an asset in comparison to its appropriate useful life.

Q. WHAT OBJECTIVE SHOULD THE COMMISSION STRIVE TO ACHIEVE IN SETTING DEPRECIATION RATES?

A. The objective of computing depreciation is to ensure that all customers using the assets pay their pro rata share for the investment, including the cost of retirement. This objective is achieved by allocating the cost or depreciable base of a group of assets over the service life of those assets, on a straight-line basis, by charging a portion of the consumption of the assets to each accounting period.

IV. RECOMMENDATIONS

Q. PLEASE DESCRIBE THE TYPES OF WIND ASSETS THAT WOULD BE ACQUIRED BY EMPIRE.

A. The Company is planning to acquire up to 800 MW of wind turbines. The specific manufacturer and design is not yet known. However, wind turbines

generally consist of a rotor blade set, hub, pitch system, main shaft, main bearing, generator, gearbox, mechanical brake, high-speed shaft coupling, internal crane, power converter, medium-voltage transformer, possibly a service lift, internal tower wiring and cabling, controller, auxiliary system, wind vane, anemometer, yaw system, cooling system, hydraulic system, tower section, switchgear, foundation, ground controller and uninterruptible power supply. Additionally, there are collector systems ("collecting" the energy generated by the wind turbines), substation assets, communications and control equipment, meteorological equipment as well as various structures.

Q. WHICH ACCOUNTS WITHIN THE FERC CHART OF ACCOUNTS WOULD THOSE ASSETS BE INCLUDED?

A. Typically, depreciable wind assets are recorded in FERC Account 341 through Account 346. Since the specific assets and associated costs are not yet known, I recommend a composite 3.33% depreciation rate for all depreciable Wind Asset accounts.

Q. ARE THE LIFE CHARACTERISTICS OF WIND ASSETS THAT ARE OWNED BY OTHER UTILITIES IN THE UNITED STATES REASONABLE TO USE AS A PROXY FOR EMPIRE'S WIND ASSETS?

A. Yes. Although different generations and difference designs of wind turbines can affect the life characteristics of those assets, the average of the projected lives of a broad range of wind turbines across the country will reflect a reasonable starting point for projecting the life for Empire's Wind Assets. As more information is

known, the life of Empire's Wind Assets can be adjusted, if necessary, to reflect that updated information.

Q. HOW DID YOU RESEARCH THE LIVES OF WIND ASSETS ACROSS THE UNITED STATES?

A. I used a database of wind generation plants across the nation compiled by the United States government agency, Energy Information Administration, in the data base for EIA-860 for calendar year 2015[1]. 2016 data was not available since that data was not validated by EIA at the time of the research. That data base included over 1,000 wind projects in service across the United States.

Q. WERE YOU ABLE TO ANALYZE DATA FOR ALL UNITS IN THE EIA DATABASE?

A. No. Many of the projects listed there did not have information readily available in the public domain. In order to find information in the public domain, I only included data for regulated utilities across the United States. I researched public utility commission websites to try to find as many wind depreciation studies as possible that were available in the public domain. The data that I reviewed included nearly 70 different wind farms.

Q. WHAT WERE THE SUMMARY RESULTS?

A. The average projected life of those nearly 70 wind farms was 26.95 years and the median was 25.50 years. The list of wind farms and calculation of the average life are shown in **Direct Attachment DAW-2**. Based on those results, I recommend a conservative 30 year life for Empire's proposed Wind Assets.

[1] https://www.eia.gov/electricity/data/eia860/

Since the type of wind generation or the manufacturer is not known at this point, a slightly more conservative (longer) life that is still will within the range seen in the industry is reasonable. This 30 year life is also consistent with the life used by Empire in the Generation Fleet Savings Analysis.

Q. ONCE EMPIRE HAS SELECTED THE WIND ASSETS TO PROCURE, SHOULD EMPIRE REVISIT THE 30 YEAR LIFE ASSUMPTION FOR WIND ASSETS?

A. Yes. Once the manufacturer and specific design are known, more Company-specific information will be available. With that additional information, the life estimate can be revalidated or adjusted as appropriate.

Q. WHAT NET SALVAGE PARAMETER ARE YOU RECOMMENDING FOR EMPIRE'S WIND ASSETS?

A. Ordinarily, the depreciation study for generation assets, be it fossil, solar or wind, includes a component for terminal dismantlement of the facility. Many dismantling estimates are provided by engineering firms who specialize in that activity. Since the site and type of construction is not known at this time, no dismantling study is possible. For those reasons, I recommend a zero percent net salvage rate at this time. In the next depreciation study, the Company can further address that issue.

Q. WHAT ACCRUAL RATE DO YOU RECOMMEND FOR EMPIRE'S WIND ASSETS?

A. In this case, I recommend a whole life depreciation rate, since no plant has yet gone into service. The whole life accrual rate will be computed as shown below.

$$\text{Annual Accr Rate} = \frac{(1 - \text{Net Salv \%})}{\text{Average Service Life}}$$

Where net salvage is estimated net salvage percent in the future.

Given the 30 year life and zero percent net salvage, the proposed annual accrual rate is 3.33% = (1-0)/30.

V. CONCLUSION

Q. WERE EXHIBITS DAW--1 THROUGH DAW-2 PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION AND CONTROL?

A. Yes.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Michigan	Michigan Public Service Commission	U-18457	Upper Peninsula Power Company	2017	Electric Depreciation Study
Florida	Florida Public Service Commission	20170179-GU	Florida City Gas	2017	Gas Depreciation Study
Michigan	FERC	ER18-56-000	Consumers Energy	2017	Electric Depreciation Study
Missouri	Missouri Public Service Commission	GR-2018-0013	Liberty Utilites	2017	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18452	SEMCO	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	47527	SPS	2017	Electric Production Depreciation Study
MultiState	FERC	ER17-1664	American Transmission Company	2017	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-008	Municipal Power and Light City of Anchorage	2017	Generating Unit Depreciation Study
Mississippi	Mississippi Public Service Commission	2017-UN-041	Atmos Energy	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	46957	Oncor Electric Delivery	2017	Electric Depreciation Study
Oklahoma	Oklahoma Corporation Commission	PUD 201700078	CenterPoint Oklahoma	2017	Gas Depreciation Study
New York	FERC	ER17-1010-000	New York Power Authority	2017	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10580	Atmos Pipeline Texas	2017	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10567	CenterPoint Texas	2016	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
MultiState	FERC	ER17-191-000	American Transmission Company	2016	Electric Depreciation Study
New Jersey	New Jersey Public Utilities Board	GR16090826	Elizabethtown Natural Gas	2016	Gas Depreciation Study
North Carolina	North Carolina Utilities Commission	Docket G-9 Sub 77H	Piedmont Natural Gas	2016	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18195	Consumers Energy/DTE Electric	2016	Ludington Pumped Storage Depreciation Study
Alabama	FERC	ER16-2313-000	SEGCO	2016	Electric Depreciation Study
Alabama	FERC	ER16-2312-000	Alabama Power Company	2016	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-18127	Consumers Engergy	2016	Natural Gas Depreciation Study
Mississippi	Mississippi Public Service Commission	2016 UN 267	Willmut Natural Gas	2016	Natural Gas Depreciation Study
Iowa	Iowa Utilities Board	RPU-2016-0003	Liberty-Iowa	2016	Natural Gas Depreciation Study
Illinois	Illinois Commerce Commission	GRM #16-208	Liberty-Illinois	2016	Natural Gas Depreciation Study
Kentucky	FERC	RP16-097-000	KOT	2016	Natural Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-16-067	Alaska Electric Light and Power	2016	Generating Unit Depreciation Study
Florida	Florida Public Service Commission	160170-EI	Gulf Power	2016	Electric Depreciation Study
California	California Public Utilities Commission	A 16-07-002	California American Water	2016	Water and Waste Water Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Arizona	Arizona Corporation Commission	G-01551A-16-0107	Southwest Gas	2016	Gas Depreciation Study
Texas	Public Utility Commission of Texas	45414	Sharyland	2016	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	16A-0231E	Public Service of Colorado	2016	Electric Depreciation Study
Multi-State NE US	FERC	16-453-000	Northeast Transmission Development, LLC	2015	Electric Depreciaiton Study
Arkansas	Arkansas Public Service Commission	15-098-U	CenterPoint Arkansas	2015	Gas Depreciation Study and Cost of Removal Study
New Mexico	New Mexico Public Regulation Commission	15-00296-UT	SPS NM	2015	Electric Depreciation Study
Atmos Energy Corporation	Tennessee Regulatory Authority	14-00146	Atmos Tennessee	2015	Natural Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00261-UT	Public Service Company of New Mexico	2015	Electric Depreciation Study
Hawaii	NA	NA	Hawaii American Water	2015	Water/Wastewater Depreciation Study
Kansas	Kansas Corporation Commission	16-ATMG-079-RTS	Atmos Kansas	2015	Gas Depreciation Study
Texas	Public Utility Commission of Texas	44704	Entergy Texas	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-15-089	Fairbanks Water and Wastewater	2015	Water and Waste Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-031-U	Source Gas Arkansas	2015	Underground Storage Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
New Mexico	New Mexico Public Regulation Commission	15-00139-UT	SPS NM	2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	44746	Wind Energy Transmission Texas	2015	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	15-AL-0299G	Atmos Colorado	2015	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	15-011-U	Source Gas Arkansas	2015	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10432	CenterPoint- Texas Coast Division	2015	Gas Depreciation Study
Kansas	Kansas Corporation Commission	15-KCPE-116-RTS	Kansas City Power and Light	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-120	Alaska Electric Light and Power	2014-2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43950	Cross Texas Transmission	2014	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	14-00332-UT	Public Service of New Mexico	2014	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43695	Xcel Energy	2014	Electric Depreciation Study
Multi State – SE US	FERC	RP15-101	Florida Gas Transmission	2014	Gas Transmission Depreciation Study
California	California Public Utilities Commission	A.14-07-006	Golden State Water	2014	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-17653	Consumers Energy Company	2014	Electric and Common Depreciation Study
Colorado	Public Utilities Commission of Colorado	14AL-0660E	Public Service of Colorado	2014	Electric Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Wisconsin	Wisconsin	05-DU-102	WE Energies	2014	Electric, Gas, Steam and Common Depreciation Studies
Texas	Public Utility Commission of Texas	42469	Lone Star Transmission	2014	Electric Depreciation Study
Nebraska	Nebraska Public Service Commission	NG-0079	Source Gas Nebraska	2014	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-055	TDX North Slope Generating	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-054	Sand Point Generating LLC	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-045	Matanuska Electric Coop	2014	Electric Generation Depreciation Study
Texas, New Mexico	Public Utility Commission of Texas	42004	Xcel Energy	2013-2014	Electric Production, Transmission, Distribution and General Plant Depreciation Study
New Jersey	Board of Public Utilities	GR13111137	South Jersey Gas	2013	Gas Depreciation Study
Various	FERC	RP14-247-000	Sea Robin	2013	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-078-U	Arkansas Oklahoma Gas	2013	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-079-U	Source Gas Arkansas	2013	Gas Depreciation Study
California	California Public Utilities Commission	Proceeding No.: A.13-11-003	Southern California Edison	2013	Electric Depreciation Study
North Carolina/South Carolina	FERC	ER13-1313	Progress Energy Carolina	2013	Electric Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Wisconsin	Public Service Commission of Wisconsin	4220-DU-108	Northern States Power-Wisconsin	2013	Electric, Gas and Common Transmission, Distribution and General
Texas	Public Utility Commission of Texas	41474	Sharyland	2013	Electric Depreciation Study
Kentucky	Kentucky Public Service Commission	2013-00148	Atmos Energy Corporation	2013	Gas Depreciation Study
Minnesota	Minnesota Public Utilities Commission	13-252	Allete Minnesota Power	2013	Electric Depreciation Study
New Hampshire	New Hampshire Public Service Commission	DE 13-063	Liberty Utilities	2013	Electric Distribution and General
Texas	Railroad Commission of Texas	10235	West Texas Gas	2013	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-12-154	Alaska Telephone Company	2012	Telecommunications Utility
New Mexico	New Mexico Public Regulation Commission	12-00350-UT	SPS	2012	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1269ST	Public Service of Colorado	2012	Gas and Steam Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1268G	Public Service of Colorado	2012	Gas and Steam Depreciation Study
Alaska	Regulatory Commission of Alaska	U-12-149	Municipal Power and Light City of Anchorage	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40824	Xcel Energy	2012	Electric Depreciation Study
South Carolina	Public Service Commission of South Carolina	Docket 2012-384-E	Progress Energy Carolina	2012	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-12-141	Interior Telephone Company	2012	Telecommunications Utility

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Michigan	Michigan Public Service Commission	U-17104	Michigan Gas Utilities Corporation	2012	Gas Depreciation Study
North Carolina	North Carolina Utilities Commission	E-2 Sub 1025	Progress Energy Carolina	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40606	Wind Energy Transmission Texas	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40604	Cross Texas Transmission	2012	Electric Depreciation Study
Minnesota	Minnesota Public Utilities Commission	12-858	Minnesota Northern States Power	2012	Electric, Gas and Common Transmission, Distribution and General
Texas	Railroad Commission of Texas	10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10174	Atmos West Texas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10182	CenterPoint Beaumont/ East Texas	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-KCPE-764-RTS	Kansas City Power and Light	2012	Electric Depreciation Study
Nevada	Public Utility Commission of Nevada	12-04005	Southwest Gas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10147, 10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-ATMG-564-RTS	Atmos Kansas	2012	Gas Depreciation Study
Texas	Texas Public Utility Commission	40020	Lone Star Transmission	2012	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16938	Consumers Energy Company	2011	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Colorado	Public Utilities Commission of Colorado	11AL-947E	Public Service of Colorado	2011	Electric Depreciation Study
Texas	Texas Public Utility Commission	39896	Entergy Texas	2011	Electric Depreciation Study
MultiState	FERC	ER12-212	American Transmission Company	2011	Electric Depreciation Study
California	California Public Utilities Commission	A1011015	Southern California Edison	2011	Electric Depreciation Study
Mississippi	Mississippi Public Service Commission	2011-UN-184	Atmos Energy	2011	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-16536	Consumers Energy Company	2011	Wind Depreciation Rate Study
Texas	Public Utility Commission of Texas	38929	Oncor	2011	Electric Depreciation Study
Texas	Railroad Commission of Texas	10038	CenterPoint South TX	2010	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-070	Inside Passage Electric Cooperative	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	36633	City Public Service of San Antonio	2010	Electric Depreciation Study
Texas	Texas Railroad Commission	10000	Atmos Pipeline Texas	2010	Gas Depreciation Study
Multi State – SE US	FERC	RP10-21-000	Florida Gas Transmission	2010	Gas Depreciation Study
Maine/ New Hampshire	FERC	10-896	Granite State Gas Transmission	2010	Gas Depreciation Study
Texas	Public Utility Commission of Texas	38480	Texas New Mexico Power	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38339	CenterPoint Electric	2010	Electric Depreciation Study
Texas	Texas Railroad Commission	10041	Atmos Amarillo	2010	Gas Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Georgia	Georgia Public Service Commission	31647	Atlanta Gas Light	2010	Gas Depreciation Study
Texas	Public Utility Commission of Texas	38147	Southwestern Public Service	2010	Electric Technical Update
Alaska	Regulatory Commission of Alaska	U-09-015	Alaska Electric Light and Power	2009-2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-043	Utility Services of Alaska	2009-2010	Water Depreciation Study
Michigan	Michigan Public Service Commission	U-16055	Consumers Energy/DTE Energy	2009-2010	Ludington Pumped Storage Depreciation Study
Michigan	Michigan Public Service Commission	U-16054	Consumers Energy	2009-2010	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-15963	Michigan Gas Utilities Corporation	2009	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-15989	Upper Peninsula Power Company	2009	Electric Depreciation Study
Texas	Railroad Commission of Texas	9869	Atmos Energy	2009	Shared Services Depreciation Study
Mississippi	Mississippi Public Service Commission	09-UN-334	CenterPoint Energy Mississippi	2009	Gas Depreciation Study
Texas	Railroad Commission of Texas	9902	CenterPoint Energy Houston	2009	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	09AL-299E	Public Service of Colorado	2009	Electric Depreciation Study
Tennessee	Tennessee Regulatory Authority	11-00144	Piedmont Natural Gas	2009	Gas Depreciation Study
Louisiana	Louisiana Public Service Commission	U-30689	Cleco	2008	Electric Depreciation Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Texas	Public Utility Commission of Texas	35763	SPS	2008	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Wisconsin	Wisconsin	05-DU-101	WE Energies	2008	Electric, Gas, Steam and Common Depreciation Studies
North Dakota	North Dakota Public Service Commission	PU-07-776	Northern States Power	2008	Net Salvage
New Mexico	New Mexico Public Regulation Commission	07-00319-UT	SPS	2008	Testimony – Depreciation
Multiple States	Railroad Commission of Texas	9762	Atmos Energy	2007-2008	Shared Services Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015/D-08-422	Minnesota Power	2007-2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	35717	Oncor	2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	34040	Oncor	2007	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-15629	Consumers Energy	2006-2009	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	06-234-EG	Public Service of Colorado	2006	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	06-161-U	CenterPoint Energy – Arkla Gas	2006	Gas Distribution Depreciation Study and Removal Cost Study

Dane Watson Testimony Appearances

Asset Location	Commission	Docket (If Applicable	Company	Year	Description
Texas, New Mexico	Public Utility Commission of Texas	32766	Xcel Energy	2005-2006	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Texas	Railroad Commission of Texas	9670/9676	Atmos Energy Corp	2005-2006	Gas Distribution Depreciation Study

THE EMPIRE DISTRICT ELECTRIC COMPANY
SUMMARY OF WIND PARAMETERS
USING EIA-860 DATA 2015

Company	**Name of Windfarm**	**Life**
Portland General Electric	Biglow Canyon Wind Farm	50.00
Wisconsin Public Service Corp	Lincoln	20.00
Otter Tail Power Corp	Luverne Wind Farm	25.00
Otter Tail Power Corp	Ashtabula Wind Energy Center	25.00
Otter Tail Power Corp	Langdon Wind Energy Center	25.00
Oklahoma Gas and Electric	Centennial Wind Farm	25.00
Oklahoma Gas and Electric	OU Spirit Wind Farm	25.00
Oklahoma Gas and Electric	Crossroads Wind Farm	26.00
Northwestern Energy	Greycliff Wind	25.00
Montana Dakota	Diamond Willow	20.00
Montana Dakota	Cedar Hills	20.00
Northern States Power MN	Pleasant Valley	25.00
Northern States Power MN	Border	25.00
DTE		35.00
Allete Power	Taconite Ridge I Wind 26.0 (0.31%)	35.00
Allete Power	Bison 1 Wind – Phase 1 28.0 (0.95%)	35.00
Allete Power	Bison 1 Wind – Phase 2 29.0 (0.93%)	35.00
Allete Power	Bison 2 Wind 30.0 (0.35%)	35.00
Allete Power	Bison 3 Wind 30.0 (0.42%)	35.00
Allete Power	Bison 4 Wind 32.0	34.00
Puget Sound	Snake River	25.00
Puget Sound	Hopkins Ridge	25.00
Puget Sound	Wild Horse	25.00
Pacific Corp	Dunlap	30.00
Pacific Corp	Foote Creek	30.00
Pacific Corp	Glenrock	30.00
Pacific Corp	Goodnoe Hills	30.00
Pacific Corp	High Plains/McFadden	30.00
Pacific Corp	Leaning Juniper	30.00
Pacific Corp	Marengo	30.00
Pacific Corp	Seven Mile Hill	30.00
MidAmerican Energy Co	Adair Wind Farm	20.00
MidAmerican Energy Co	Adams Wind	20.00
MidAmerican Energy Co	Adams Wind	20.00
MidAmerican Energy Co	Adams Wind	20.00
MidAmerican Energy Co	Carroll Wind Farm	20.00
MidAmerican Energy Co	Century	20.00
MidAmerican Energy Co	Century	20.00
MidAmerican Energy Co	Century	20.00
MidAmerican Energy Co	Charles City Wind Farm	20.00
MidAmerican Energy Co	Eclipse Wind Farm	20.00
MidAmerican Energy Co	Highland Wind Project (IA)	30.00

EMPIRE DISTRICT ELECTRIC COMPANY
SUMMARY OF WIND PARAMETERS
USING EIA-860 DATA 2015

Company	**Name of Windfarm**	**Life**
MidAmerican Energy Co	Highland Wind Project (IA)	30.00
MidAmerican Energy Co	Highland Wind Project (IA)	30.00
MidAmerican Energy Co	Highland Wind Project (IA)	30.00
MidAmerican Energy Co	Highland Wind Project (IA)	30.00
MidAmerican Energy Co	Highland Wind Project (IA)	30.00
MidAmerican Energy Co	Highland Wind Project (IA)	30.00
MidAmerican Energy Co	Intrepid	20.00
MidAmerican Energy Co	Intrepid	20.00
MidAmerican Energy Co	Laurel Wind Farm	30.00
MidAmerican Energy Co	Morning Light Wind Farm	30.00
MidAmerican Energy Co	Pomeroy Wind Farm	20.00
MidAmerican Energy Co	Pomeroy Wind Farm	20.00
MidAmerican Energy Co	Pomeroy Wind Farm	30.00
MidAmerican Energy Co	Pomeroy Wind Farm	30.00
MidAmerican Energy Co	Rolling Hills Wind Farm	30.00
MidAmerican Energy Co	Victory Wind Farm	20.00
MidAmerican Energy Co	Vienna Wind Farm	20.00
MidAmerican Energy Co	Vienna Wind Farm	30.00
MidAmerican Energy Co	Walnut Wind Farm	20.00
WE Energies	Byron	30.00
WE Energies	Blue Sky	40.00
WE Energies	Glacier Hills	40.00
WE Energies	Montfort	28.00
KCPL	Spearville	20.00
Consumers	Wind	24.75
SWEPCO	Wind Catcher	25.00
	Average	26.95
	Median	25.50

AFFIDAVIT OF DANE WATSON

STATE OF TEXAS)
) **ss**
COUNTY OF COLLIN)

On the 23rd day of October, 2017, before me appeared Dane Watson, to me personally known, who, being by me first duly sworn, states that he a partner at Alliance Consulting Group and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Dane Watson

Dane Watson

Subscribed and sworn to before me this 23rd day of October, 2017.

Notary Public

My commission expires: 07-01-2019

Mark Lites
Notary Public,
State of Texas
Expires: 07/01/2019