Exhibit No.:	
Issues:	Eligibility parameters, wind generation
Witness:	James Owen
Sponsoring Party:	Renew Missouri Advocates
Type of Exhibit:	Surrebuttal Testimony
Case No.:	ET-2018-0063
Date Testimony Prepared:	June 6, 2018

MISSOURI PUBLIC SERVICE COMMISSION

FILE ET-2018-0063

SURREBUTTAL TESTIMONY

OF

JAMES OWEN

ON BEHALF OF

RENEW MISSOURI ADVOCATES

June 8, 2018

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Approval of 2017 Green Tariff.	)))	File No. ET-2018-0063

AFFIDAVIT OF JAMES OWEN

STATE OF MISSOURI	**)**	
	)	**ss**
COUNTY OF BOONE	**)**	

COMES NOW James Owen, and on his oath states that he is of sound mind and lawful age; that he prepared the attached surrebuttal testimony; and that the same is true and correct to the best of his knowledge and belief.

Further the Affiant sayeth not.

James Owen

Subscribed and sworn before me this 6th day of June 2018.

Notary Public

MATTHEW PATTERSON
Notary Public, Notary Seal
State of Missouri
Boone County
Commission # 11274306
My Commission Expires 01-19-2020

My commission expires: 1-19-20

TABLE OF CONTENTS

I. Introduction

Q: Please state your name, title, and business address.

A: James Owen, Executive Director, Renew Missouri Advocates d/b/a Renew Missouri ("Renew Missouri"), 409 Vandiver Dr. Building 5, Suite 205, Columbia, MO 65202.

Q: Please describe your education and background.

A: I obtained a law degree from the University of Kansas as well as a Bachelor of Arts in Business and Political Science from Drury University in Springfield.

Q: Please summarize your professional experience in the field of utility regulation.

A: Before becoming Executive Director of Renew Missouri, I served as Missouri's Public Counsel, a position charged with representing the public in all matters involving utility companies regulated by the State. While I was Public Counsel, I was involved in several rate cases, CCN applications, mergers, and complaints as well as other filings. As Public Counsel, I was also involved in answering legislators' inquiries on legislation regarding legislation impacting the regulation of public utilities. In my role as Executive Director at Renew Missouri, I continue to provide information and testimony on pieces of proposed legislation that may impact how Missouri approaches energy efficiency and renewable energy.

Q: Have you been a member of, or participant in, any workgroups, committees, or other groups that have addressed electric utility regulation and policy issues?

A: In May 2016 I attended the National Association of Regulatory Utility Commissioners ("NARUC") Utility Rate School. In the Fall of 2016, I attended Financial Research Institute's 2016 Public Utility Symposium on safety, affordability, and reliability. While I was Public Counsel, I was also a member of the National Association of State Utility

Consumer Advocates ("NASUCA") and, in November of 2017, the Consumer Council of Missouri named me the 2017 Consumer Advocate of the Year.

Q: Have you testified previously, participated in cases, or offered testimony before the Missouri Public Service Commission ("Commission")?

A: In my prior role as Acting Public Counsel I participated in a number of PSC cases as an attorney and director of the office. During that time period I also offered testimony in rulemaking hearings before the Commission. Since becoming Executive Director of Renew Missouri I contributed to Renew Missouri's filed Comments on Distributed Energy Resource Issues in EW-2017-0245.[1] On January 9, 2018, I participated in the panel discussions on the "Indiana Model" and the value of a DER Study.[2] Most recently, I submitted rebuttal testimony on Empire's Customer Savings Plan in EO-2018-0092.[3]

II. Purpose and summary of testimony

Q: What is the purpose of your testimony?

A: To respond to the testimony of Office of the Public Counsel ("OPC") witness Geoff Marke regarding his objections to the green tariff program. In particular, I address his assessment of the customers eligible to participate in the voluntary program and whether the program should be offered as a regulated service.

Q: What is Renew Missouri's interest in this application?

A: Renew Missouri advocates for energy efficiency and renewable energy policy. As a state-wide advocate, Renew Missouri has an interest in Ameren Missouri's approach to offering opportunities for customers to participate in renewable energy programs. In this case,

[1] EFIS File No. EW-2017-0245, Doc. No. 46.
[2] EFIS File No. EW-2017-0245, Doc. No. 79.
[3] EFIS File No. EO-2018-0092, Doc. No. 60.

Ameren Missouri developed and filed tariff sheets to support a subscription-based renewable energy program ("Green Tariff") as a way to address increasing customer appetite for renewable energy to meet sustainability goals.[4] Specifically, Ameren Missouri noted the desire for renewable choice programs among commercial and industrial customers as well as governmental bodies by pointing out the number of companies that have joined the "Corporate Renewable Buyers' Principles" as well as the number of local municipalities pledging to move towards 100% renewable energy.[5]

The program outlined in the Non-Unanimous Stipulation and Agreement[6] is aimed at offering corporate customers and governmental bodies the ability to subscribe to renewable energy blocks and will provide customers in Ameren Missouri's service territory a framework to meet their sustainability goals and allow the customers to choose a path that is best for their business or constituents.

Q: What is your recommendation to the Commission in this case?

A: The Commission should encourage Ameren Missouri to offer a program that will enable corporate customers and local government entities to meet their individual sustainability goals and facilitate the construction of additional low-cost renewable energy. The terms contained in the Non-unanimous Stipulation and Agreement filed on April 13th accomplish both goals and should be adopted.

III. <u>Response to OPC's testimony on eligibility parameters</u>

Q: Summarize OPC's concerns with the scope of eligible customers.

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[4] Wills Direct, Doc. No. 4, p. 3.
[5] Wills Direct, Doc. No. 4, p. 4.
[6] Doc. No. 34.

A: Dr. Marke opposes the program as unnecessary and notes his concerns why corporations and municipalities should not be able to participate in a Green Tariff program, namely that the customer might go bankrupt or might not understand what the program does.

Throughout his testimony, Dr. Marke paints a bleak picture of the future for Ameren Missouri's corporate and municipal customers as the basis for his opposition to the voluntary Green Tariff program. For example, he opposes offering commercial customers the green tariff programs because "mortality rate of companies" means that Ameren Missouri will be unable to collect early termination fees.[7] His outlook extends to municipal customers, noting that "61 municipalities have gone bankrupt since 2010" and assumes "over the next fifteen years there will be another economic recession which would call for tighter austerity measures at any or all levels of government." This insinuates municipalities Ameren Missouri serves are doomed for bankruptcy without basis.[8] Lastly, he concludes that because of the need to manage a budget, municipalities may be unwilling to lock-in a "premium price for renewable electric service".[9]

After speculating about the financial security of Ameren Missouri's customers and the prospect that a bankruptcy would impact the company's ability to collect early termination fees, Dr. Marke acknowledges that "the S&A's *risk sharing mechanism—termination fees* (vi, g) provision largely alleviates this concern."[10] Furthermore, as it relates to governmental entities[11] he assures the Commission he is "not recommending that municipal customers be excluded at least not without 'additional safeguards to properly

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[7] Marke Rebuttal p. 12.
[8] Marke Rebuttal, p. 13.
[9] Marke Rebuttal p. 14.
[10] Marke Rebuttal, p. 13.
[11] Dr. Marke refers only to municipalities.

inform … customers about the terms of what they are getting into'".[12] He does not elaborate what information should be added to the stipulation and agreement or the tariff sheets to inform customers. Nor does he mention that Ameren Missouri's Mr. Wills filed testimony offering an overview of how the program would work.

Q: From your view, what is OPC's assessment of the program eligibility?

A: Despite questioning whether commercial, industrial, or municipal customers should be able to participate in the Green Tariff program, OPC offers no reason why these customer classes should be excluded if the program moves forward. In fact, those customer classes are exactly the type of customers the program is designed to accommodate.

Q: How do you respond to OPC's position that this program is unnecessary?

A: OPC is wrong. From a policy perspective, corporate customers and local governmental bodies need this kind of program to meet their own sustainability commitments. I reiterate comments in Mr. Wills' testimony that customers want more access to renewable energy resources to meet their own sustainability metrics. This is evidenced by the 74 major companies that have signed on to support the Corporate Renewable Energy Buyers' Principles.[13] Furthermore, governmental bodies in Missouri are beginning to establish their own clean energy goals. The largest being the City of St. Louis, leading the way with a commitment to transition to 100 percent clean energy by 2035.[14] Moreover, Renew Missouri has spent the last several years building a network of corporate and governmental entities seeking additional access to renewable energy in Missouri. These businesses and offices have prolifically worked at the state and municipal level to increase renewable

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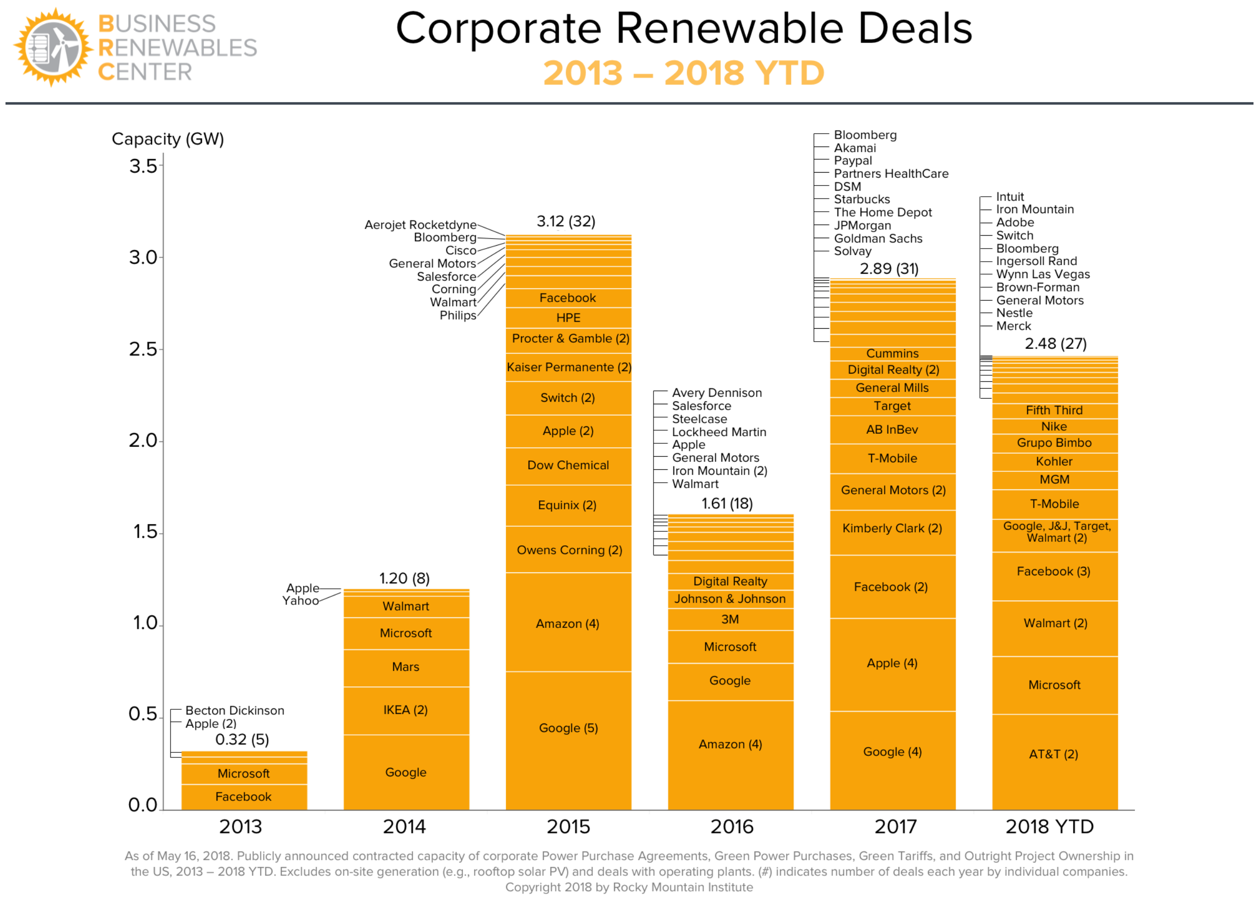
[12] Marke Rebuttal, p. 15.
[13] https://buyersprinciples.org/about-us/
[14] Board of Alderman of the City of St. Louis, Resolution No. 124, Session 2017-2018 available at https://www.stlouis-mo.gov/internal-apps/legislative/upload/resolution/res124-pres.pdf

energy access. OPC can bury its head in the sand and ignore the changing landscape but it does not change the fact that commercial and governmental customers in Missouri want the option to subscribe to renewable energy.

Green Tariff programs advance low-cost renewable generation and provide greater customer choice in how the customer is able to interact with Ameren Missouri. While Ameren Missouri is the first Missouri utility to put forward a Green Tariff program, the need to satisfy customer demand for renewable energy is already being met by these kinds of tariffs in other parts of the country. In the past five years, 21 Green Tariff-type programs have been proposed or approved in fifteen states.[15] When these kinds of tariffs are approved, real benefits are realized. In coordination with the Rocky Mountain Institute, the Business Renewables Center ("BRC") tracks corporate renewable energy deals and makes its findings available to the public.[16] Below is a figure produced by the BRC showing corporate renewable deals, by year, since 2013. [17]

[15] *See* Emerging Green Tariffs in U.S. Regulated Electricity Markets updated Feb. 2018 available at http://www.wri.org/sites/default/files/emerging-green-tariffs-in-us-regulated-electricity-markets_0.pdf
[16] More information about the BRC is available at https://www.rmi.org/our-work/electricity/brc-business-renewables-center/
[17] Available at http://businessrenewables.org/corporate-transactions/



There is a strong need for a program that permits customers to choose renewable energy. Moreover, when Green Tariffs are available, customers use them.

Q: What else does OPC overlook about the proposed program?

A: OPC apparently believes that this program will only ever be a "premium price for renewable electric service".[18] However, participation in a Green Tariff program financially benefits the subscribing corporation or governmental entity. As designed by Ameren Missouri, Green Tariff subscribers will pay a fixed price per MWh for the wind energy produced, and then receive a credit for the revenues from the sale of that energy into the

[18] Marke Rebuttal p. 14.

wholesale market. The “net” of those figures is applied to the customer’s bill as either a charge or credit.

OPC believes that “additional safeguards to properly inform … customers about the terms of what they are getting into” are appropriate.[19] While we appreciate Ameren Missouri has put forward this proposal to allow its customers to participate in renewable energy programs that will increase wind generation, Renew Missouri fully intends to reach out to eligible customers about participating in the Green Tariff program. Certainly, our staff will point to the terms explaining the program parameters contained in the negotiated tariff sheets. We will also encourage them to review the technical description of the program contained in the testimony of Steve Wills as well as the terms of the Non-unanimous Stipulation and Agreement itself. If OPC believes additional explanation is needed and can provide concrete direction, Renew Missouri will offer that additional information as well. A growing number of corporations and governmental bodies are making commitments to transition towards 100% renewable energy goals. Renew Missouri believes this Green Tariff will be one tool used to meet their goals.

IV. <u>The Commission should encourage investments in wind generation</u>

Q: OPC takes issue with the fact that the Non-unanimous Stipulation and Agreement provides that Ameren Missouri may own and construct a portion of the wind generation. Why should the Commission encourage Ameren’s proposed investment?

A: As I have testified in prior cases, Renew Missouri supports the addition of wind generation for a variety of reasons including customer demand for renewable energy, improved economics of wind, and lower costs for customers. Among the general benefits of wind

[19] Marke Rebuttal, p. 15.

generation are lower fuel costs, lower operation and maintenance ("O&M") expenses, and lower emissions. The Green Tariff program offered in this case fits squarely in the category of meeting customer demand.

Besides lower costs for energy, there are further considerations advanced by developing wind generation in Missouri. Increased employment opportunities associated with wind energy development is a significant benefit and consistent with the findings in a recent American Wind Energy Association ("AWEA") report that the role of wind turbine technician is the fastest growing occupation in the country.[20]

Beyond adding jobs, developing wind generation will bring benefits to rural and low-income areas. More than 99% of wind power capacity is located in rural areas, with 71% located in low-income counties.[21] This installed capacity is often associated with lease payments including more than $245 million annually in landowner lease payments to local farmers and ranchers in areas of development.[22] Additional local economic benefits include property tax payments, payments in lieu of taxes, and increased local spending and economic development.[23]

To the extent that Ameren Missouri is able to cost-effectively construct and manage the generation associated with the Green Tariff subscriptions, Renew Missouri encourages the company to do so. Renew Missouri issued a report on Ameren Missouri's lack of wind capacity and the benefits to its customers last August. That report, "Opportunities Blowing By", is attached to my testimony.

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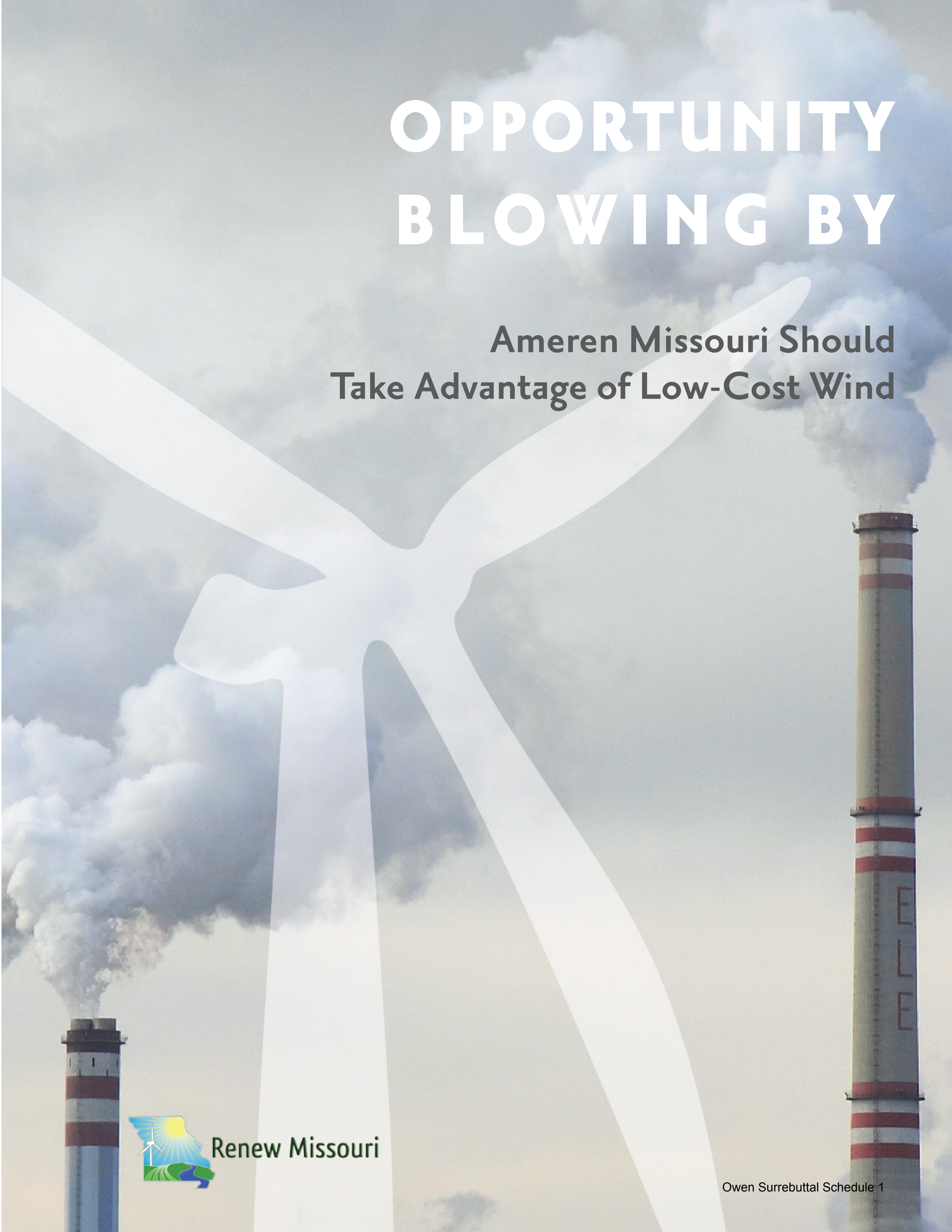
[20] Report available at http://awea.files.cms-plus.com/AWEA%20Economic%20Development%20Impacts%20of%20Wind%20Energy%20FINAL.pdf; *See also* https://www.bls.gov/ooh/fastest-growing.htm
[21] *See* U.S. Wind Industry 2016 Annual Market Update available at http://awea.files.cms-plus.com/FileDownloads/pdfs/Economic%20Benefits.pdf
[22] *Id*.
[23] http://awea.files.cms-plus.com/FileDownloads/pdfs/Economic%20Benefits.pdf

Q: Does this conclude your testimony?

A: Yes.



OPPORTUNITY BLOWING BY

Ameren Missouri Should Take Advantage of Low-Cost Wind

Renew Missouri

Owen Surrebuttal Schedule 1

SEPTEMBER 2017

ABOUT RENEW MISSOURI

Renew Missouri, is a 501(c)(3) committed to promoting renewable energy and energy efficiency in Missouri. Since 2006, Renew has represented these policy interests before the Missouri General Assembly, the Public Service Commission, and in the hallways of local government all throughout the state. In this work, Renew Missouri works closely with businesses, residential consumer groups, and utility companies to develop practical solutions to these very real issues. Renew Missouri has successfully championed and advocated for laws including the creation of renewable energy standards as well as protections for the customers of solar, wind, and energy efficiency programs.

CONTACT US

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TABLE OF CONTENTS

LIST OF FIGURES

EXECUTIVE SUMMARY

Ameren Missouri ("Ameren"), the largest investor-owned utility in the State of Missouri, is filing its long-term Integrated Resource Plan ("IRP") with regulators in the fall of 2017. This filing is a unique opportunity for Ameren to reverse its historical reliance on dirty energy—namely coal—and focus more on renewable energy options such as wind and solar. The changing economics of the energy marketplace make wind more affordable and less risky while dirtier forms of energy have become more expensive. Many other utilities similar to Ameren have already made the switch and seen the practical, pragmatic benefits of renewable energy. Located in one of America's windiest states and regions, Ameren can do the same and diversify a generation portfolio comprised almost exclusively of coal and nuclear sources. Recent announcements from Ameren indicate that the company is beginning to embrace a clean energy transition, with plans in place to construct 700MW of wind energy by 2020 and 100MW of solar over the next decade. This long-needed transition will give Missouri homeowners and businesses a boost and open the door for economic opportunities previously unseen. This report recommends that Ameren commit to a multi-gigawatt wind addition, which will lower long-term electricity rates, protect against potential fossil fuel price increases, and decrease fossil fuel pollution. It will also have the added benefit of increasing Ameren's rate base and bottom line. Other utilities in the U.S. interior have recognized this win-win-win for their ratepayers, the environment, and their shareholders. It's time for Ameren to do the same.[1]

KEY FINDINGS

- Ameren serves more customers than many of its closest peers but has the least amount of wind capacity, producing less than 1 percent of its energy from wind.

- Ameren currently has zero wind projects in development despite its location in one of the country's windiest states and regions. Missouri wind development lags far behind states with similar wind potential such as Illinois, Indiana and Michigan. Ameren's recently announced plans represent a meaningful investment in wind, but still leave Ameren far behind many of their utility peers in the Midwest and Great Plains.

- Ameren's residential and business customers are paying more for electricity than customers in many neighboring states with more wind capacity. Other utilities in the U.S. interior have kept stable, low-priced rates while also rapidly transitioning their fleets to cleaner technology.

- Of the nation's 20 largest power producers, Ameren ranks as the second most coal dependent, with more than 70 percent of its electricity produced from coal. Coal generation and nuclear output from Ameren's single unit Callaway Energy Center total about 95 percent of Ameren's energy mix. Ameren recently announced plans to retire over half of its coal-fired generating capacity.

- Cost data suggests energy produced by Ameren's coal plants is now more expensive than energy that could be provided by new wind farms. These plants also are decades old—some dating to the 1950s—and soon will need to be replaced.

- Some of the largest, most successful companies in the country, including major Missouri employers such as WalMart, General Motors and Anheuser-Busch, have set 100 percent renewable goals. Although it has several renewable options now in development, Ameren currently offers no meaningful way for its corporate customers to access renewable energy. Moreover, Ameren's power mix offers no enticement for new or expanding companies to locate in the St. Louis area or other parts of Missouri served by Ameren.

- Financial analysts have noted Ameren's lack of wind investment. On the company's most recent quarterly earnings call, its executive team was asked by three separate analysts about whether and to what extent wind investments were being considered.

Owen Surrebuttal Schedule 1

INTRODUCTION

On Ameren Missouri's website, the investor-owned utility company states its vision plainly: "Leading the way to a secure energy future."[2] But Ameren's over-reliance on coal and lack of wind investments threatens that secure energy future, leaving customers open to fuel price spikes and preventing shareholders from realizing the benefits of the dominant technologies of tomorrow. Over the last generation, Ameren has done little to transition its generation portfolio to meet the changing energy landscape and remains heavily dependent on a handful of aging coal power plants. With slowly but continually rising coal generation costs, Ameren's customers risk being saddled with increasingly less competitive rates.

Ameren appears ready to begin a major transition toward clean energy. On September 25, 2017, Ameren announced on its website that it plans to add at least 700MW of wind generation by 2020, totaling an investment of approximately $1billion with further wind additions to be considered. Ameren also plans to add 100MW of solar over the next decade. These investments represent by far the largest ever investment in renewable energy by Missouri's largest utility. While this will still leave Ameren behind many of its utility peers, the announcement is a significant step forward.

Transitioning from fossil fuels and toward wind energy has three major benefits: 1) Businesses and large consumers with growing demands for renewable energy can be attracted to the region, creating jobs and economic benefits; 2) replacing coal generation with cheap and predictable wind generation can result in lower electricity costs for all customers; and 3) reductions in carbon and other forms of pollution can mitigate environmental liability and regulatory uncertainty.

Wind, in particular, presents an opportunity for lowering rates because of the drastic reductions in cost in recent years and because of the Midwest's unique geographic environment that is very favorable for wind. Even in liked-minded, conservative states surrounding Missouri, investor-owned utilities are rapidly adding clean resources to their fleets and retiring their aging (and increasingly expensive) coal plants.

In Missouri, an IRP must be submitted every three years to the Public Service Commission ("PSC"), the governmental entity charged with regulating investor-owned utilities. The IRP lays out the utility's 20-year plan for investing in new generation and infrastructure. The required objective of the resource planning process is to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in compliance with all legal mandates, and in a manner that serves the public interest.[3] Investor-owned utilities work with regulators and other stakeholders on a consistent basis to gather input and feedback. While not legally binding, Ameren does have a responsibility to provide its customers with safe and reliable service, as well as a fiduciary duty to provide value to its shareholders. Ameren Missouri can live up to both of these obligations by using the IRP process to chart a cleaner path forward.

In this report, we: 1) summarize Ameren's current power mix and the risks it poses for the future; 2) lay out the potential for a clean energy transition that can benefit both customers and the utility; 3) review the examples of other similarly-situated utilities throughout the country; and 4) recommend the steps Ameren should take to transition to cleaner, cheaper, more reliable energy sources.

AMEREN'S POWER MIX AND ELECTRICITY RATES

Ameren Lags on Wind

Ameren has an obligation under Missouri's Renewable Energy Standard ("RES") to achieve 10 percent renewable energy by 2018 and 15 percent by 2021. The company is currently supplying about 5 percent renewable energy, most of which is from legacy hydropower generators. Up until its recent announcement, Ameren had provided no plan for meeting its RES obligations over the long-term.[4] The small amount of wind energy the company currently supplies is through a contract that expires in 2024.

This is striking because the Midwest is home to some of the greatest wind resources on the planet. Figure 1 shows a wind resource map for the United States. Areas with annual average wind speeds around 6.5 meters per second and greater are generally considered to have a resource suitable for wind farms.[5] Much of northern and western Missouri meets this threshold. Tapping these resources could bring significant economic benefits to the state, including spurring local investment,

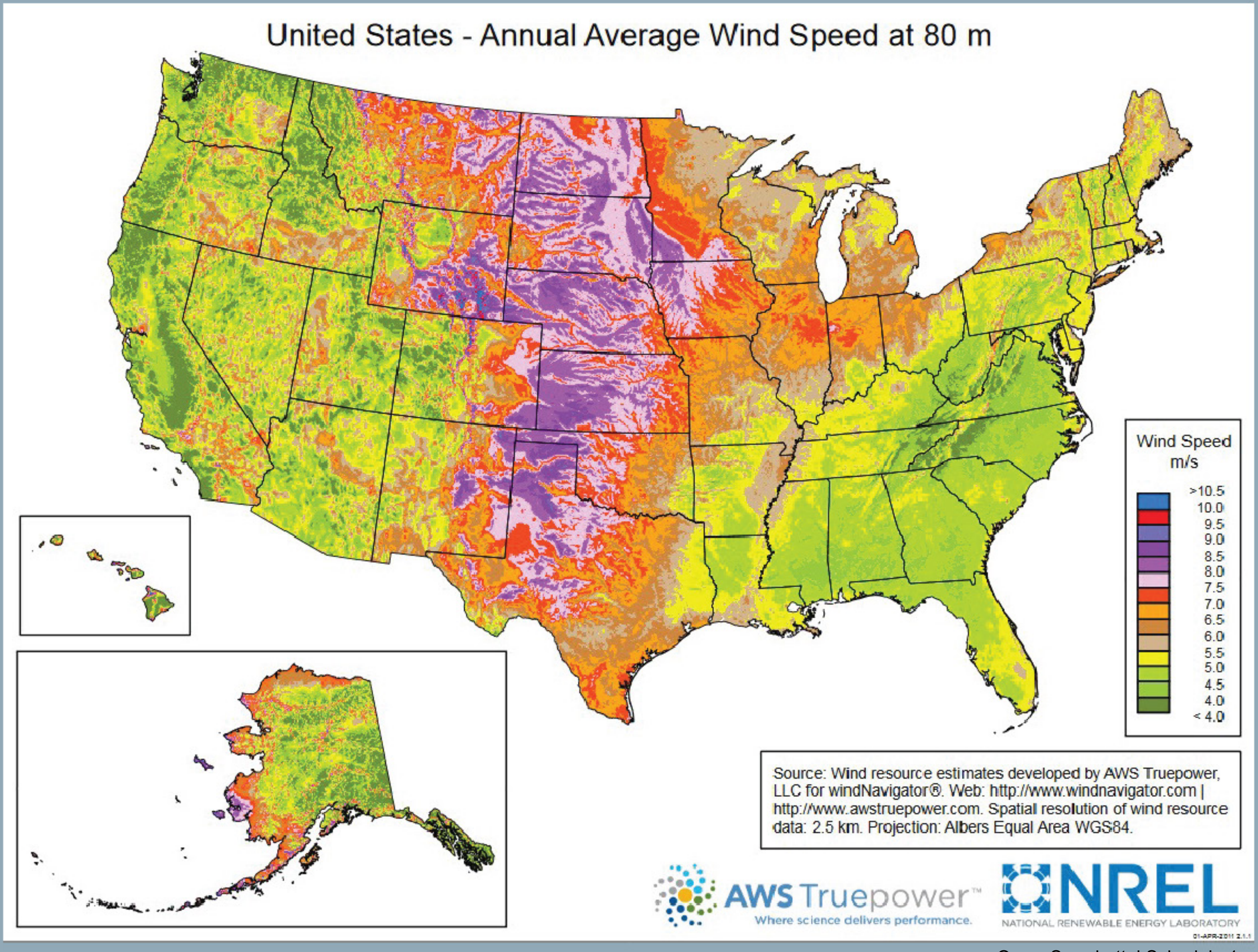

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Figure 1 | *U.S. Average Annual Wind Speed at 80 Meters*

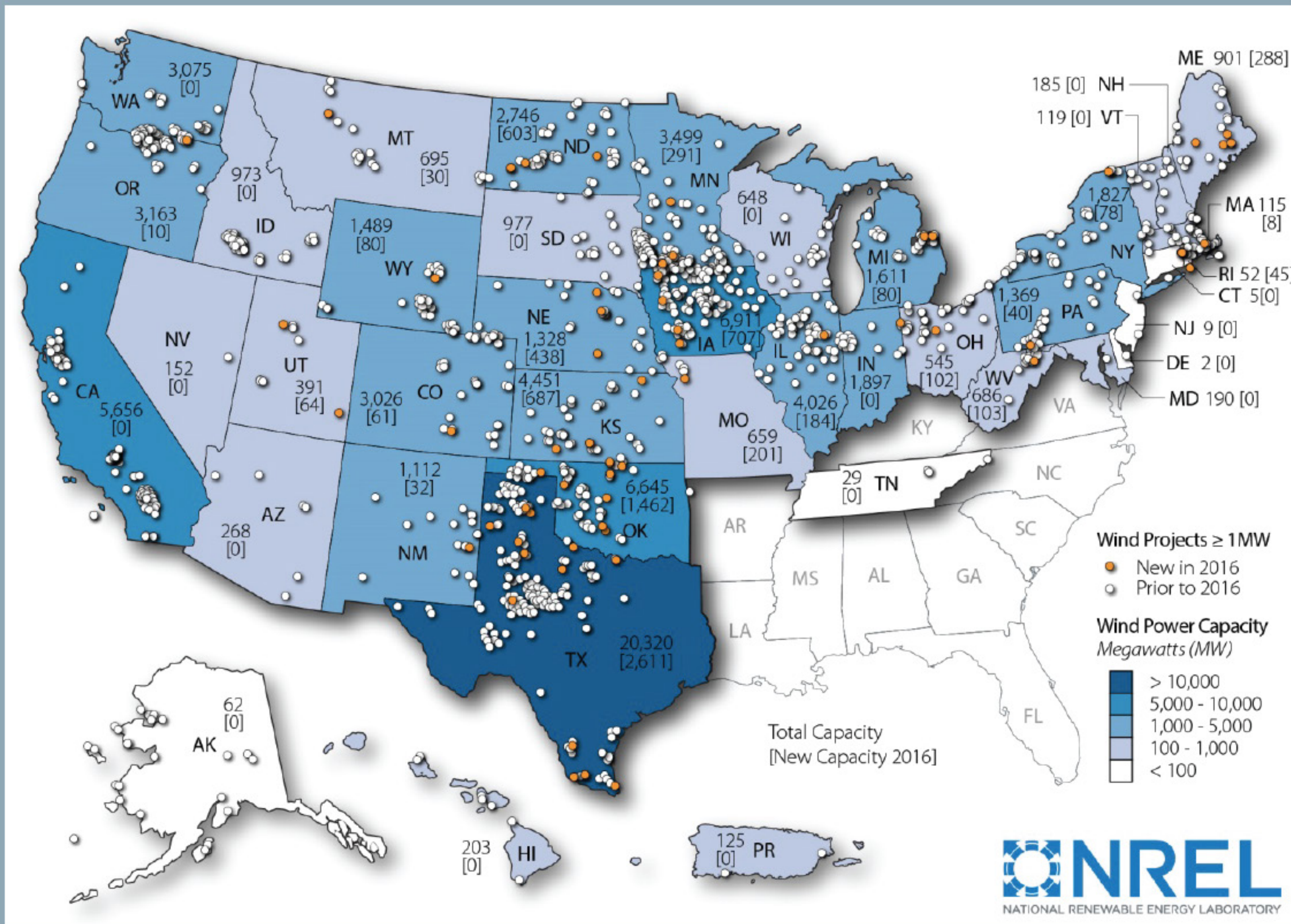

Figure 2 | *U.S. Wind Farms and Cumulative Capacity by State*

UTILITY	STATE(S)	Total Generating Capacity (MW)	Wind capacity currently owned/ purchased (MW)	Wind projects in development (MW)
Alliant Energy	IA/WI	7,389	600	1,000
Empire District	MO	1,480	255	0
KCPL	KS/MO	8,065	929	300
MidAmerican Energy	IA	9,389	4,009	2,000
Minnesota Power	MN	2,098	620	250
Omaha Public Power District	NE	3,355	812	160
Public Service Oklahoma (AEP)	OK	5,255	1,290	600
Southwestern Electric Power Co. (AEP)	AR/LA/TX	6,336	469	1,400
Westar	KS	6,006	1,768	0
Xcel Energy (NSP)	MN/ND/SD/WI	9,363	2,604	1,550
Xcel Energy (PSCo)	CO	6,648	2,566	600
Xcel Energy (SPS)	NM/TX	4,760	1,506	1,230
Ameren Missouri	MO	11,492	102	0

Owen Surrebuttal Schedule 1

Figure 3 | *Wind Energy Use by Peer-Group Utilities in Midwest and Plains* creating jobs, and expanding rural tax bases. Yet wind generation in Missouri lags far behind states like Illinois, Indiana, and Michigan that have similar resource potential (see Figure 2).[6]

Missouri also borders even windier states such as Iowa and Kansas. With appropriate transmission planning, Ameren could add wind generation from these or other nearby states to serve Missouri customers. The utility holding company AEP, for example, recently announced plans to build the largest wind farm in the United States, which will be located in Oklahoma's western panhandle and serve customers across four states, including non-windy Arkansas and Louisiana in addition to Oklahoma and Texas.[7]

In announcing the $4.5 billion investment, AEP's CEO Nicholas Akins explained, "This project is consistent with our strategy of investing in energy resources of the future, and it will save our customers money while providing economic benefits to communities."[8] AEP estimates the project will save its customers more than $7 billion over 25 years.

Other utilities in the middle and western parts of the country—including MidAmerican in Iowa,[9] Westar in Kansas,[10] and Xcel Energy in Colorado, Minnesota and the Dakotas[11] —are also transitioning to wind and far outpace Ameren. As Figure 3 shows, Ameren has the least amount of wind capacity of its closest peers and has zero wind projects in development.[12,13] Its recently announced 700MW wind addition would still leave it behind most, including Missouri's second largest utility, Kansas City Power & Light.

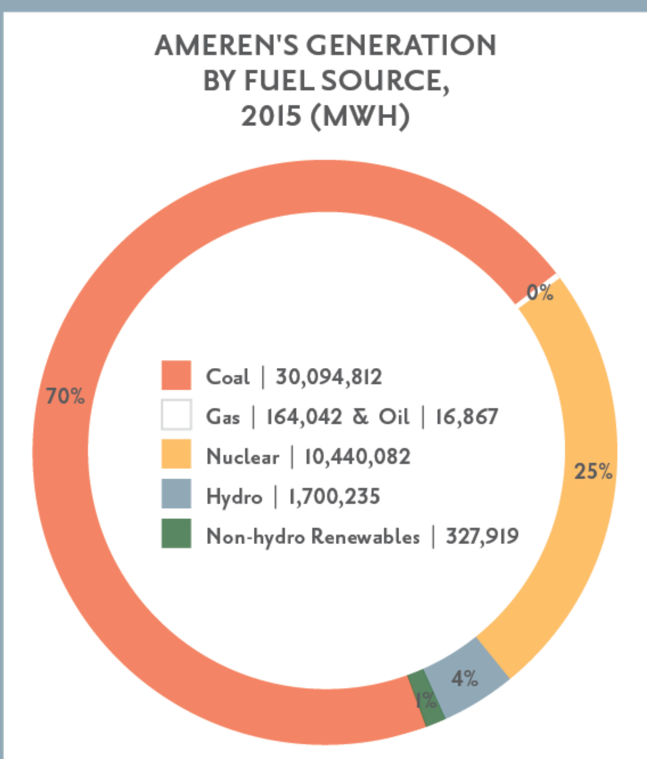

Figure 4 | *Ameren's Generation by Fuel Source, 2015 (MWh)*

Ameren is Heavily Reliant on Coal

Ameren's current generation fleet remains among the least diversified in the nation. Failing both to diversify its assets and to adapt with changing times risks direct financial impact on the company as well as its customers.

Coal generation and nuclear output (from Ameren's single unit Callaway Energy Center) total about 95 percent of Ameren's mix (see Figure 4).[14] Ameren ranks as the twelfth largest coal generator of all U.S. utilities. Of the nation's 20 largest power producers, Ameren ranks as the second most coal dependent (see Figure 5).[15,16] This represents a stunning lack of portfolio diversity for a utility of Ameren's size and importance.

While generation mixes vary greatly across the United States (see Figure 6),[17] each region demonstrates far greater fuel diversity. Rapid change in the nation's fuel mix has been driven by a massive influx of wind, solar and gas generation that has become more economic than continuing to run legacy coal, nuclear, and gas steam generators.

				Company Rankings Among 100 Largest Power Producers					
	Generation (MWh)			By Generation		By Total Emissions			
OWNER	Total	Coal	% from Coal	Total	Coal	SO2	NOx	CO2	Hg
Duke	217,660,843	76,702,725	35.2%	1	2	6	2	2	12
NextEra Energy	194,000,657	4,659,630	2.4%	2	53	51	21	10	49
Southern	185,909,900	62,640,702	33.7%	3	4	5	4	3	3
Exelon	180,032,937	208,813	0.1%	4	71	59	66	54	70
Tennessee Valley Authority	138,535,807	50,397,085	36.4%	5	7	3	7	7	7
AEP	137,800,140	95,413,466	69.2%	6	1	2	1	1	2
Entergy	130,443,218	8,936,490	6.9%	7	35	19	8	16	17
NRG	120,230,848	64,734,314	53.8%	8	3	1	6	4	4
Berkshire Hathaway Energy	116,157,574	59,015,752	50.8%	9	5	12	3	6	8
Calpine	109,780,918	-	0.0%	10	0	68	41	12	0
Dynegy	109,701,569	54,597,219	49.8%	11	6	8	11	5	23
Dominion	98,306,504	22,416,997	22.8%	12	17	29	22	14	22
FirstEnergy	86,464,896	49,258,091	57.0%	13	8	10	5	8	6
Xcel	73,504,981	41,710,610	56.7%	14	9	14	9	9	14
Talen Energy	69,649,204	24,898,664	35.7%	15	15	16	10	13	28
US Corps of Engineers	69,144,860	-	0.0%	16	0	0	0	0	0
Energy Future Holdings	62,503,772	41,689,054	66.7%	17	10	4	12	11	1
PSEG	56,152,089	5,571,415	9.9%	18	49	39	39	32	55
DTE Energy	42,785,264	30,933,978	72.3%	19	11	9	13	15	5
Ameren	42,416,038	30,094,812	71.0%	20	12	11	20	19	11

Figure 5 | *Ranking the Top 20 U.S. Power Producers*

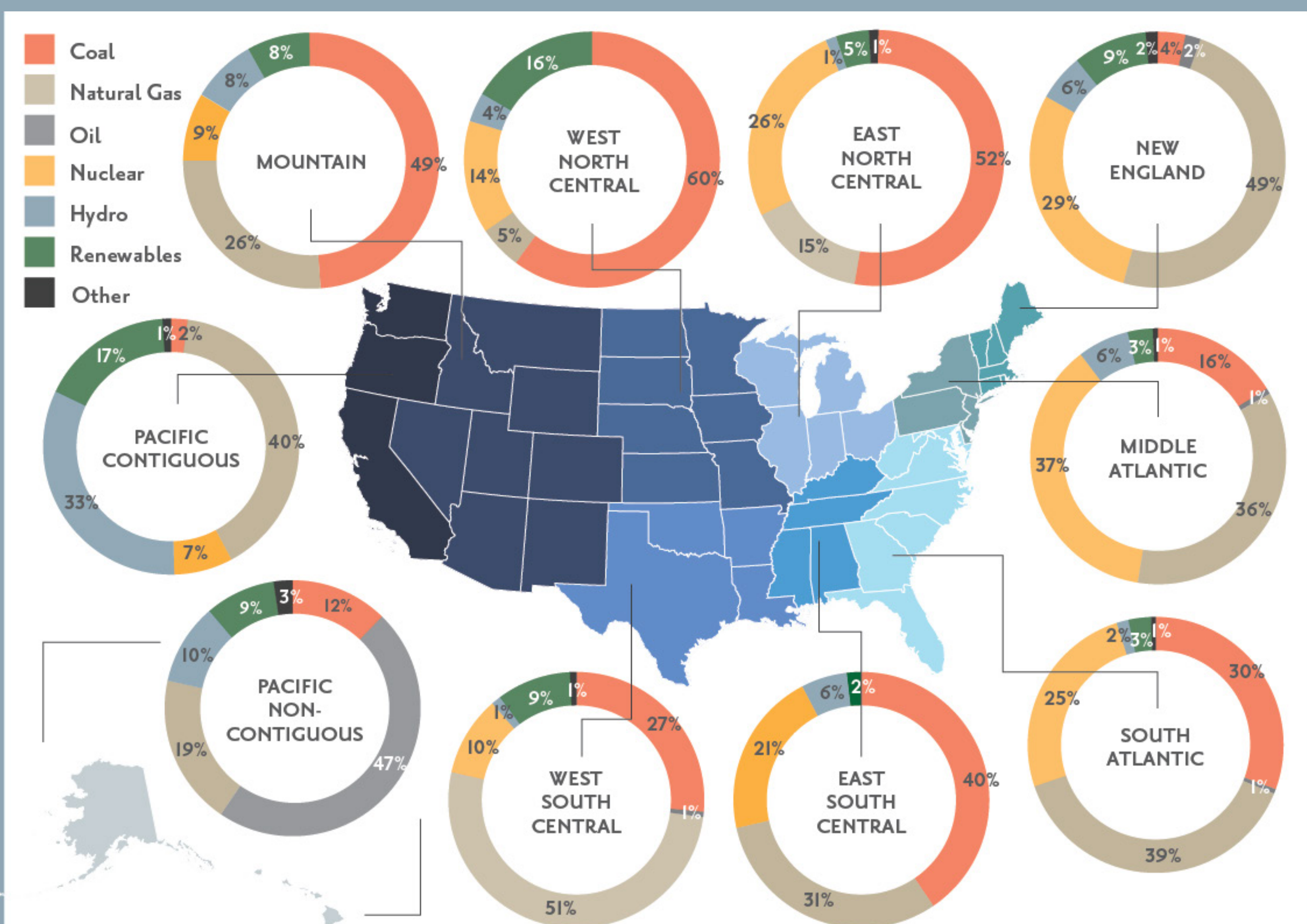

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Figure 6 | *U.S. Electricity Generation by Fuel Source, 2015*

Ameren's Rates are Higher than its Regional Peers

Ameren frequently implies that transitioning to a cleaner fleet will entail significant costs for its customers, and that transitioning "responsibly" will take incremental action over decades.[18] This suggests that adding renewable energy is a luxury, but wind is now the cheapest form of new generation. Most utilities in the U.S. interior have already added significant levels of wind generation while managing to keep their rates competitive.

To illustrate this point, Figure 7 and Figure 8 display the average prices that households and businesses (respectively) are paying for electricity service from Ameren and its closest peers.[19] Ameren's residential rates are low on a national basis, but they are not providing a uniquely low-priced service when compared to other utilities in the U.S. interior (instead of those on the East or West coasts, where energy is typically more expensive). Nor are Ameren's peers somehow saddling their customers with high rates by aggressively pursuing wind additions. In the same vein, Ameren's commercial and industrial ("C&I") rates are far from the lowest in the region. Iowa's MidAmerican Energy, for example, has achieved some of the most competitive C&I rates in the nation while transitioning upwards of 40 percent of its generation to wind in recent years.

Note that these average price figures reflect the full amount that households and businesses are spending for their electricity, which is impacted by everything a utility does to supply electric service to its customers, such as maintaining transmission and distribution infrastructure, generator maintenance and upgrades, fuel costs, etc. Regardless, Ameren's customers are paying average or higher prices for electricity and since 2010 have seen steeper cost increases than customers of Ameren's peers. Many of Ameren's peers have been keeping stable, low-priced rates while also rapidly transitioning their fleets to cleaner technology.

UTILITY	STATE	Residential Customers (2016)	2016	2015	2014	2013	2012	2011	2010	Percent Increase in 2016 from 2010
Alliant Energy	IA/WI	808,003	14.00	13.60	13.03	13.02	12.81	12.81	12.88	8.7%
Empire District	MO	143,554	12.96	12.56	12.12	11.76	11.59	11.18	9.94	30.4%
KCPL	KS/MO	750,556	12.67	11.97	11.60	11.31	10.93	10.56	9.91	27.9%
MidAmerican Energy	IA	574,953	10.23	9.75	9.21	8.92	8.83	8.40	8.37	22.3%
Minnesota Power	MN	121,836	10.20	8.86	9.21	9.25	9.18	9.38	9.66	5.6%
Omaha Public Power District	NE	323,784	11.47	11.07	10.68	10.68	10.12	9.37	9.22	24.4%
Public Service Oklahoma (AEP)	OK	470,006	8.62	9.07	8.88	8.43	8.01	8.49	7.95	8.5%
Southwestern Electric Power Co. (AEP)	AR/LA/TX	451,912	9.58	9.37	9.31	9.27	8.09	8.06	7.80	22.8%
Westar	KS	613,265	13.04	12.08	12.06	11.17	10.69	9.92	9.50	37.2%
Xcel Energy (NSP)	MN/ND/SD/WI	1,506,966	12.96	12.52	12.51	12.37	11.29	11.00	10.58	22.6%
Xcel Energy (PSCo)	CO	1,228,305	11.47	11.60	12.01	11.70	11.05	11.19	11.15	2.9%
Xcel Energy (SPS)	NM/TX	305,456	9.89	10.03	10.06	9.29	8.72	8.75	8.15	21.3%
Ameren Missouri	MO	1,047,640	10.73	11.34	10.38	10.53	9.69	9.17	8.15	31.6%

Figure 7 | *Average Price of Electricity for Residential Customers (nominal cents/kWh)*

UTILITY	STATE	C & I Customers (2016)	2016	2015	2014	2013	2012	2011	2010	Percent Increase in 2016 from 2010
Alliant Energy	IA/WI	146,251	8.65	8.29	8.02	7.96	7.60	7.70	7.97	8.5%
Empire District	MO	26,976	9.81	9.94	9.92	9.60	9.28	9.17	8.22	19.4%
KCPL	KS/MO	101,609	9.79	9.04	8.87	8.63	8.09	7.97	7.45	31.5%
MidAmerican Energy	IA	95,442	5.90	5.76	5.55	5.37	5.19	4.97	4.98	18.4%
Minnesota Power	MN	23,786	6.71	5.92	5.89	5.85	5.66	5.69	5.75	16.7%
Omaha Public Power District	NE	45,701	7.64	7.46	7.29	7.28	6.85	6.43	6.26	22.1%
Public Service Oklahoma (AEP)	OK	77,136	5.30	6.04	6.15	5.79	5.28	5.97	5.58	-5.0%
Southwestern Electric Power Co. (AEP)	AR/LA/TX	80,740	7.11	6.93	6.94	7.00	5.94	6.06	5.86	21.3%
Westar	KS	90,349	8.92	8.61	8.76	8.13	7.71	7.28	6.90	29.2%
Xcel Energy (NSP)	MN/ND/SD/WI	203,810	9.09	8.78	8.90	8.89	8.00	7.79	7.53	20.8%
Xcel Energy (PSCo)	CO	213,675	8.32	8.57	9.07	8.72	8.10	8.53	8.33	-0.1%
Xcel Energy (SPS)	NM/TX	84,027	5.25	5.47	6.01	5.53	5.01	5.30	5.19	1.2%
Ameren Missouri	MO	160,769	7.93	7.60	7.25	7.35	6.59	6.52	5.96	33.1%

Figure 8 | *Average Price of Electricity for Commercial and Industrial Customers (nominal cents/kWh)*

THE BUSINESS AND ECONOMIC CASE FOR WIND

Wind Costs are Falling Dramatically

Wind generators are increasingly mature technology. Bigger, better turbines are enhancing project performance. Taller towers and increased blade lengths are among the important improvements that allow today's turbines to produce more energy from a wider range of wind speeds. These developments translate to higher capacity factors and ultimately result in lower project economics.

Wind turbine prices for recent orders are well below those seen even a few years ago. On an energy basis, wind projects across the U.S. interior are reportedly signing levelized Power Purchase Agreements ("PPAs") at below $20 per MWh levels (as shown in Figures 9 and 10).[20]

Pricing at that level is so low that new wind farms could potentially supply energy more affordably than what it costs to provide power from some of Ameren's coal units. While this pricing includes effects of the federal wind production tax credit, which is gradually rolling off, utilities regionally—except for Ameren—are rushing to lock in this exceptionally low-cost energy for their customers.

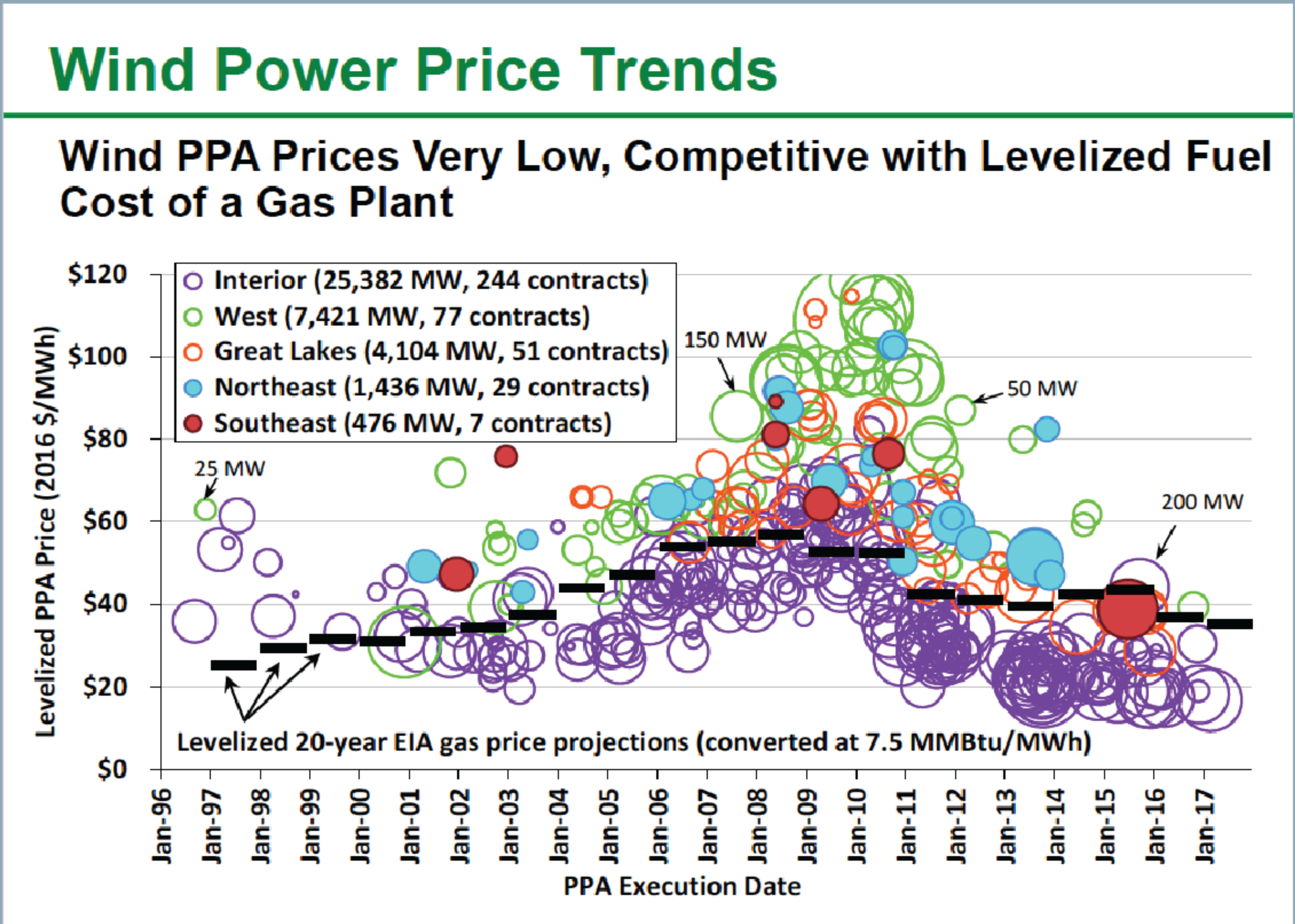

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Figure 9 | *Recent Wind PPA Prices*

Longer term, due to continuing technological innovation, wind is expected to remain competitive even after subsidies roll off. Energy analysts now say that wind is or soon will be the lowest-cost source of energy on a levelized and unsubsidized basis (though solar costs are also dropping precipitously):

- Bloomberg New Energy Finance forecasts solar and wind to be the lowest-cost sources in the United States by 2023 and to dominate the future of electricity.[21]

- The financial advisory and asset management firm Lazard reports that renewables even without subsidies are now the cheapest source for new electricity generation in some locations in the U.S.[22]

- NextEra Energy Resources, the largest owner of wind capacity in the United States, anticipates wind power to be the lowest cost energy resource in the post-2020 period, ranging from $20-$30 per MWh.[23]

- A new report by the U.S. Department of Energy's National Renewable Energy Laboratory estimates that technological advances can drive unsubsidized levelized wind energy costs to an average of $23 per MWh by 2030.[24]

Ameren's 2016 IRP update had projected adding 600 MW of natural gas-fired combined cycle capacity in 2034. Since wind is now routinely being projected as the lowest cost source of new energy, Ameren should be looking first to add renewables to meet its future needs.

Wind Power Price Trends

Recent Wind Prices Are Hard to Beat: Competitive with Expected Future Cost of Burning Fuel in Natural Gas Plants

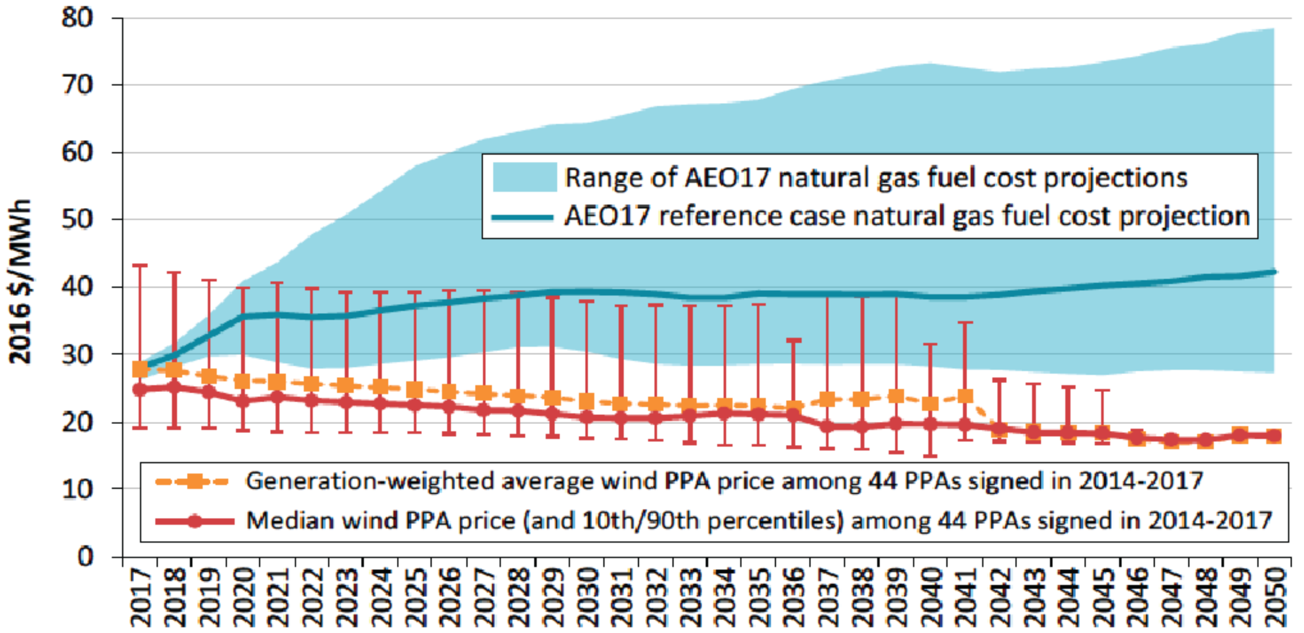

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Figure 10 | *Wind Prices and Gas Price Projections*

Coal is More Expensive than Wind

The economics of coal-fired generators have been growing less favorable over the past several years. This is due largely to changing market fundamentals that are unlikely to reverse.

Ameren's coal fleet is not immune to these pressures. As Figure 11 shows, fuel costs alone appear to be in a range that likely makes coal more expensive than wind energy. It is critical to note that the amounts in Figure 11 are only average fuel expenses, whereas a generator's true marginal generation cost would also need to add in each unit's other variable expenses.[25] For coal units, this tends to add about another $5 per MWh on top of its fuel costs.[26] There is some plant-by-plant variation depending largely on the types of emissions/environmental controls as well as ash handling and disposal requirements.[27] In fact, many of the recently installed or planned pollution controls at Ameren's coal plants will further raise those units' variable operations and maintenance costs (including a projected increase of $2.20/MWh at the Labadie plant).[28] If wind farms or other forms of renewable energy can provide electricity at lower cost than its current generating fleet, Ameren has a responsibility to its customers to make the switch.

Ameren has paid more for delivered coal over the last several years, which is reflected in the price increases shown in Figure 11. Ameren also anticipates that coal prices will only get more expensive over time, according to its 2016 IRP update.[29]

The potential for fossil fuel price increases makes wind energy even more valuable. Since it has zero fuel cost, wind is an effective hedge that can help protect ratepayers from commodity price increases and volatility. This is particularly relevant given the heavy fossil fuel reliance of Ameren's current fleet.

Regardless, in addition to getting more expensive to operate, Ameren's generation facilities are also getting quite old. Figure 12 shows Ameren's coal and nuclear units by the year each generating unit was brought into service.[30] Rush Island 2, Ameren's newest coal unit, is now over 40 years old. Just like a well-used car, aging equipment requires additional maintenance and occasional upgrades to continue reliable operations. At some point, it is always more economical to transition and invest in something new.

COAL UNIT	2016	2015	2014	2013	2012	2011	2010
Labadie 1	$21.89	$21.09	$21.21	$20.44	$19.05	$15.29	$13.35
Labadie 2	$22.08	$21.16	$21.01	$19.97	$19.04	$15.83	$14.04
Labadie 3	$22.08	$21.29	$21.55	$20.63	$19.46	$15.58	$13.48
Labadie 4	$21.72	$21.19	$21.12	$19.96	$18.76	$15.22	$13.40
Meramec 3	$23.55	$25.58	$25.89	$25.44	$23.38	$22.49	$18.95
Meramec 4	$22.62	$22.36	$25.24	$24.59	$22.49	$21.61	$17.79
Sioux 1	$23.71	$24.14	$22.40	$21.81	$22.12	$22.01	$22.83
Sioux 2	$22.21	$21.39	$23.28	$22.66	$22.55	$21.72	$23.11
Rush Island 1	$22.11	$21.65	$23.03	$22.35	$21.32	$19.95	$18.06
Rush Island 2	$21.39	$20.68	$21.52	$19.74	$17.88	$17.61	$16.35

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Figure 11 | *Generation Fuel Cost for Ameren's Coal Fleet (nominal $/MWh)*

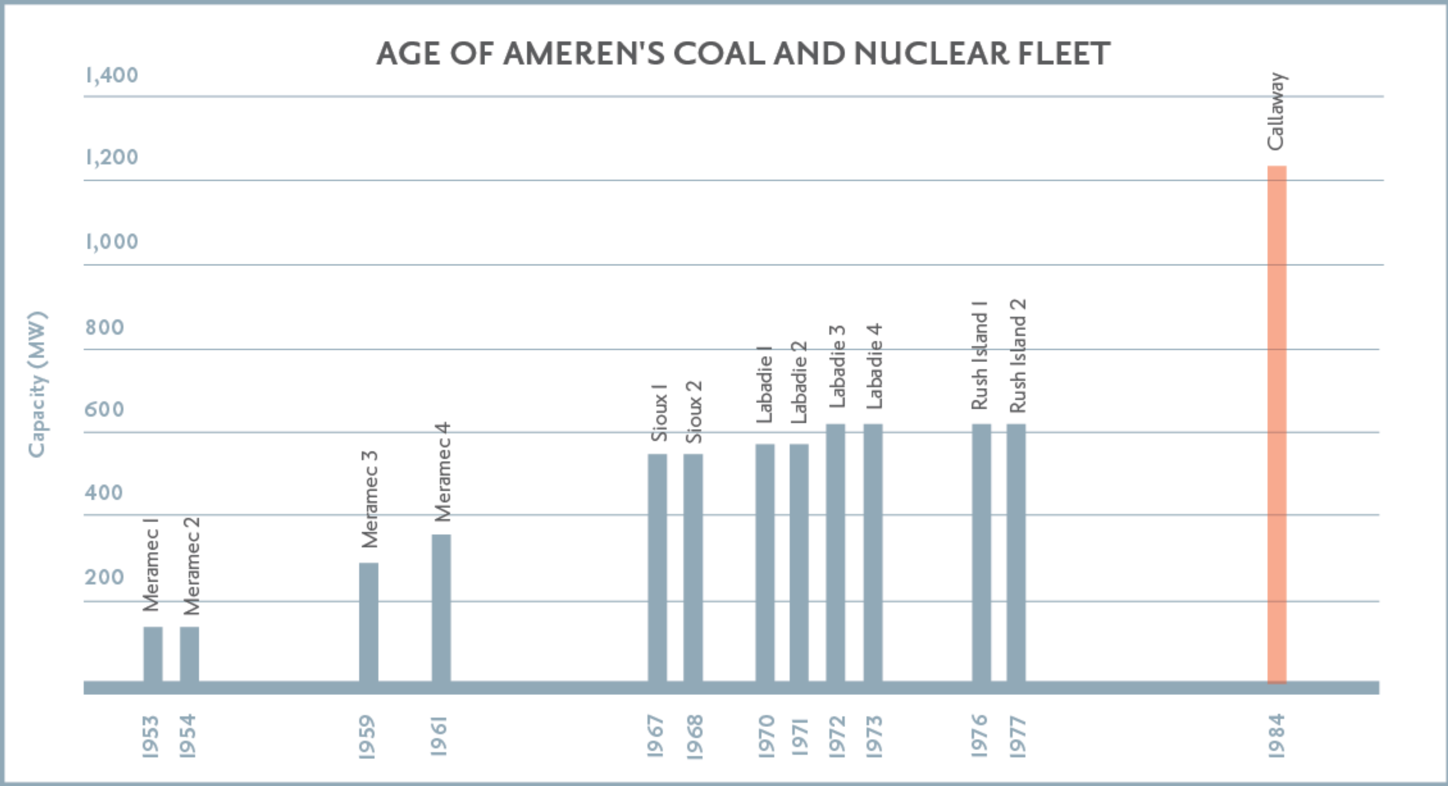

Figure 12 | *Age of Ameren's Coal and Nuclear Fleet*

Ameren's Heavy Dependence on Coal is Risky

Ameren's dependence on a single resource and a small number of generation units carries inherent risks. In the power sector, recent questions around fuel assurance and overreliance have mostly been associated with natural gas. However, rail lines share some of the concerns of pipelines, and fuel logistics can cause issues that are not unique to gas generators.[31]

Most of the coal used by Ameren comes from Wyoming's Powder River Basin (which produces about 45 percent of coal used nationwide, nearly all via the 103-mile Joint Line rail corridor). This transportation process has failed before. Indeed, coal rail service disruptions due to derailment, freezing, flooding, or other natural occurrence are quite common, and the risk is likely to increase with extreme weather patterns caused by climate change.[32]

Moreover, relying on a small number of very large power plants carries risk because every kind of electricity generator can and does break down occasionally. The average rate of technical failures for the U.S. coal fleet is much higher than for wind or solar photovoltaic generators.[33]

Reliance on "baseload" generators is also becoming an increasingly antiquated notion. The baseload term historically referred to plants that ran around-the-clock because they had the lowest variable operating costs. This concept is no longer helpful for resource planners because other generation technologies, including wind, can now frequently provide energy at more favorable economics.[34]

Increasing supply diversity can protect ratepayers by improving system flexibility, adaptability, and resiliency capabilities. For example, the grid-operator for the mid-Atlantic region recently concluded that its evolving resource mix (and diminishing dependence on coal) will create a portfolio that is more balanced and high-performing.[35] No technology is free from the risk of failure, but a more diverse and decentralized resource mix can minimize the threat and ultimately enhance grid reliability.

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Ameren's Customers are Demanding Greater Access to Renewable Energy

There is a tremendous demand for clean energy amongst Ameren's business and residential customers. This demand is currently going unmet because of a lack of state policies or utility programs allowing them to purchase renewable energy. By taking steps to meet this demand among its customers, Ameren could satisfy the twin aims of lowering its customers' bills and diversifying its generation portfolio.

Nowhere is the demand for more clean energy options clearer than among Ameren's large commercial and industrial customers. Businesses and large power consumers have a clear economic interest in reducing their bills over the long term

COMPANY	GOAL	DESCRIPTION
WalMart	100% renewable	Walmart is one of the largest employers in Missouri, with approximately 156 retail locations and four distribution centers across the state that employ more than 40,000 people. Walmart is committed to sourcing 100% of its electricity from renewable energy. The company aims to produce or procure 7,000 GWh of renewable energy globally by the end of 2020.[36]
General Motors	100% renewable by 2050	GM operates a major factory in Missouri, Wentzville Assembly, which provides approximately 4,500 jobs just outside of St. Louis. GM plans to meet the electricity needs of its 350 operations in 59 countries with 100% renewable energy by 2050.[37]
AB InBev	100% renewable by 2025	Anheuser-Busch was founded and is headquartered in St. Louis, Missouri. Today, the company is a wholly owned subsidiary of AB InBev, which also has its North American headquarters in St. Louis. AB InBev recently committed to transitioning its global operations to 100% renewable electricity and set a target to secure 100% of the company's purchased electricity from renewable sources by 2025.[38]
Nestlé Purina	100% renewable; reduce GHGs by 35% by 2020	Nestlé Purina Petcare is a subsidiary of Nestlé based in St. Louis, Missouri. Nestlé is committed to transitioning to 100% renewable electricity, to help deliver on its science-based target to reduce greenhouse gas emissions per tonne of product by 35% in its manufacturing operations by 2020 based on 2010 levels.[39]
Bank of America	100% renewable by 2020	Bank of America is a major Missouri employer. Bank of America has set a goal to become carbon neutral and purchase 100% renewable electricity by 2020.[40]
Procter & Gamble	30% by 2020; long-term goal of 100% renewable	One of the largest Procter & Gamble plants in the United States is in Cape Girardeau, Missouri, producing Bounty Paper Towels, Charmin Toilet Paper, Pampers Diapers, and Luvs Diapers. P&G has a short-term goal to source 30% of its energy from renewable sources by 2020 with a long-term goal to power its plants with 100% renewable energy.[41]
Unilever	100% renewable by 2030	Unilever operates a plant in Jefferson City, Missouri that recently celebrated its 50-year anniversary in 2016. The plant produces various Dove, Suave, Axe and Sunsik products. Unilever aims to be 'carbon positive' in its operations by 2030. To achieve this, the company is committed to sourcing 100% of total energy across its operations from renewables by 2030, and to sourcing all grid purchased electricity from renewables by 2020.[42]

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Figure 13 | *Ameren's Corporate Customers with Renewable Energy Commitments* and becoming insulated from fuel price volatility, and they have taken notice of falling wind and solar prices. As seen in Figure 13, many of Ameren's largest corporate customers have made public commitments to procure 100 percent of their energy needs from renewables in the near future. Other companies with a major presence in Missouri that support renewable energy include: Target, UPS, Home Depot, Ford Motor Company, Boeing, Lowe's, Monsanto, and Walgreens.

In addition to meeting the needs of companies already located in Ameren's territory, access to renewable energy has the potential to attract new businesses, thus bringing in new jobs and economic benefits to the region. Particularly for companies in the burgeoning tech sector, renewable energy is a central concern. Amazon recently invited cities to bid on an RFP to determine where the company will locate its second corporate headquarters (the so-called Amazon HQ2 RFP).[43] Amazon was the country's largest corporate purchaser of renewable energy in 2016, and the company clarified its intent to develop HQ2 with a particular eye on renewables and sustainability.[44] Similarly, Apple recently committed to invest $1.4 billion toward a data center project in Iowa; Apple C.E.O. Tim Cook said renewable energy was "paramount" to the decision: "For us, [renewable energy is] kind of a gate. If we couldn't do that, we wouldn't be here," Cook said.[45] If the St. Louis region were able to compete for these types of projects, it could bring significant amounts of new electricity load to Ameren's system, along with economic development and jobs.

Policies exist that would allow Ameren to offer renewable energy and corresponding benefits to its customers. Many Midwestern utilities have chosen to allow third-party PPAs, offer their customers

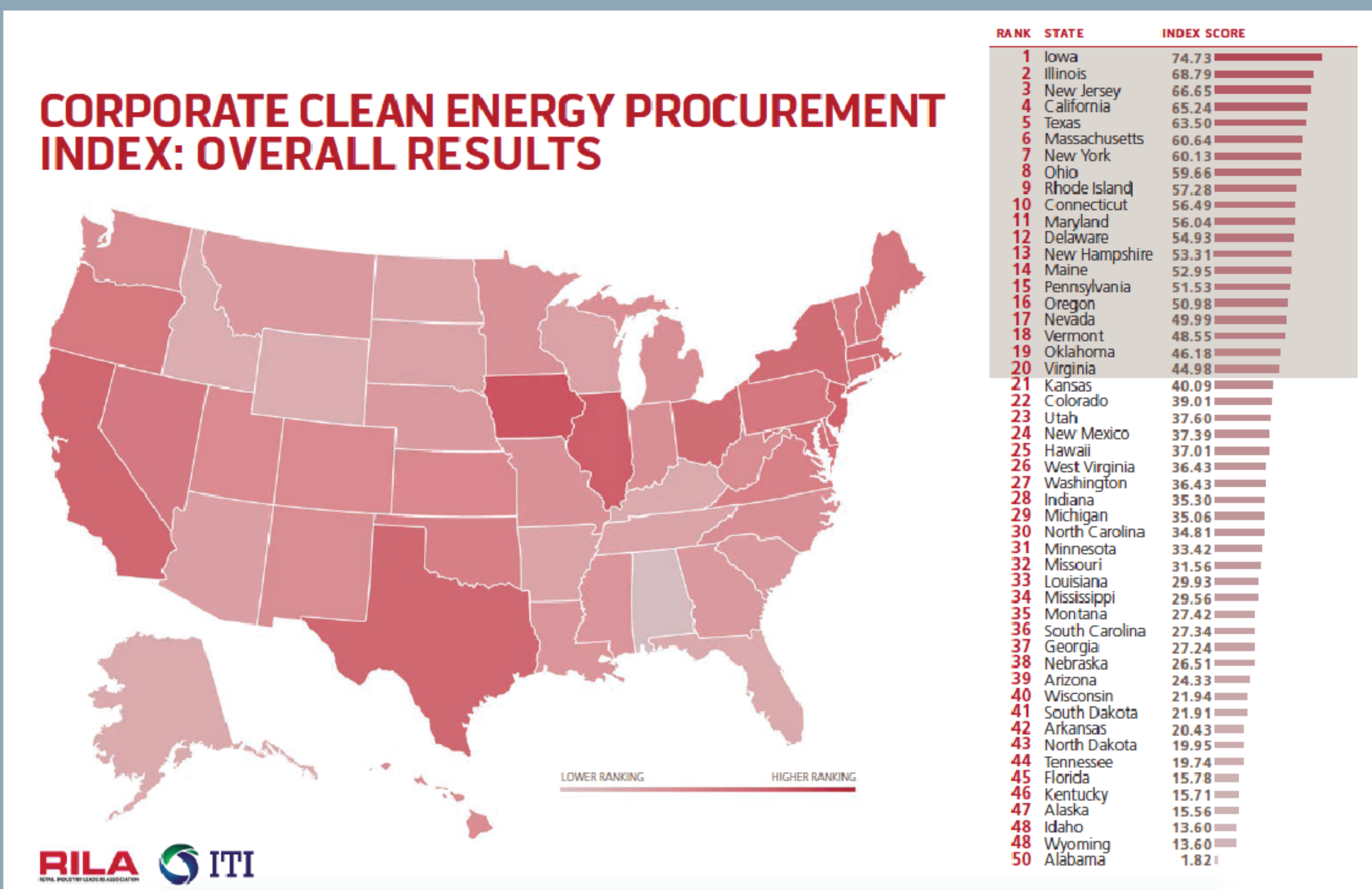

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Figure 14 | *Corporate Clean Energy Procurement Index: State Leadership & Rankings* "green tariffs," and other options. A 2017 report prepared by the Retail Industry Leaders Association ("RILA") and the Information Technology Industry Council ("ITI") ranked all 50 states in terms of how well they provide corporate access to renewable energy.[46] The report focused on three main criteria for evaluating states: 1) utility purchasing options (e.g. green tariffs); 2) third-party purchasing options (e.g. sleeved PPAs), and 3) onsite/direct deployment options.[47] While other states in the U.S. interior scored quite high in the index (Iowa: first, Illinois: second, Texas: fifth, Ohio: eighth, Oklahoma: 19th), Missouri came in at a dismal 32nd (see Figure 14).

As Missouri's largest utility and power provider, Ameren is in large part responsible for this low ranking. Unlike the Des Moines-based MidAmerican Energy, Ameren offers no meaningful way for its corporate customers to procure renewable energy in order to meet their goals and take advantage of the predictably low price point of renewables. Similarly, Ameren's power mix offers no enticement for the companies of tomorrow to locate in its territory. Without developing specific policies and programs to address the growing corporate renewable demand among its customers, Ameren will not be well positioned to attract new load to its system or to retain the large consumers it already has.

Ameren recently took its first major action to address this problem, announcing that it will file for approval of a green tariff program on Nov. 1. In its "Notice of Filing" with the Missouri PSC, Ameren stated that the new program "will allow for Ameren Missouri to enter into Power Purchase Agreements ("PPAs") on behalf of large customers who want to satisfy a large portion of their energy needs with renewable energy."[48] Ameren Missouri President Michael Moehn also commented, "Ameren Missouri fully supports the efforts of all of our customers, including local governments and businesses, seeking to receive more of their energy from renewable sources. We share the desire for renewable energy. That's why we're embracing new technologies and expanding service offerings that include a wide range of innovative and renewable energy solutions."[49]

Ameren's recent announcement is an encouraging sign for customers, but Ameren will need to move fast to avoid missing major opportunities. Ameren's green tariff announcement came just before Anheuser-Busch announced that it will meet nearly 50 percent of its energy needs through a wind deal in Oklahoma.[50] Ameren could have pursued a similar deal by agreeing to provide one of its largest, oldest, and most iconic customers with access to cheap, local renewable energy; such a deal could have been a boon for Ameren's public relations and its shareholders. Ameren should rush to claim similar opportunities as they present themselves in the future.

Shareholders are Demanding Utilities Transition to Clean Energy

Ameren's shareholders are urging the utility to embrace a cleaner future. Mercy Investment Services led a shareholder resolution in 2017 requesting Ameren produce a strategy for complying with climate change reductions consistent with a 2-degree Celsius goal.[51] This resolution, driven by Ameren's heavy reliance on coal, narrowly failed with 48 percent support. Shareholders also gave 46 percent support to another 2017 resolution focused on identifying and reducing coal-ash-related environmental and health hazards.[52]

These concerns are not likely to go away, as Wall Street is increasingly concerned with climate risk transparency. While activist shareholders have pushed publicly traded companies on climate change for years, these efforts have become mainstream after gaining the support of some of the world's largest institutional investment firms like Blackrock and Vanguard Group.[53]

Importantly, transitioning to clean energy need not constrain profits. Regulated utilities make money for their shareholders by earning an allowed rate of return on investments they make to serve their customers. Many utilities are now building wind farms because they realize it is a significant

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opportunity to add to their rate base. Not only is wind good for ratepayers and the environment, it also can increase a utility's bottom-line.[54]

In the past, Ameren saw direct financial incentive in keeping its old generation facilities up and running. The ongoing maintenance and upgrades in new pollution control technologies represent revenue opportunities for the company. Changing economic realities, however, are slowly rendering these legacy plants unnecessary. Utilities like Ameren will face revenue pressures if they cannot find new investments. Renewable assets offer such an opportunity.

Financial analysts are now beginning to question Ameren's plans. On the company's most recent quarterly earnings call, its executive team was asked by three separate analysts about whether and to what extent wind investments were being considered. For example, Michael Lapides from Goldman Sachs inquired:[55]

> *A quick question on Missouri. Warner [Warner Baxter, company Chairman, President and CEO], you commented a little bit about changing generation fleet and I'm just curious. You're one of the few utilities in the region that has not really, when you look at generation supply, benefited both by sizeable, in Missouri, transmission, growth that leads to a sizeable amount of wind generation entering your service territory and maybe replacing some fossil generation. Can you talk a little bit about whether you see that as a significant opportunity either via owning wind plants and rate base or in the need for incremental transmission in Missouri to be able to connect to the west where there's lots of great wind to resource?*

It is unusual for wind to receive this level of attention on a utility's earnings call. Ameren's leadership had not been asked a single question on wind or other potential renewables investments on their previous calls (dating at least since Q1 2014). But analysts covering the electric utility sector understand very well the evolving economics of competing generation technologies, where other utilities are finding significant new revenue opportunities, and relative corporate performance. The timing of the call also closely followed AEP's blockbuster announcement that it will be adding 2 GW of wind for its utilities in Arkansas, Louisiana, Oklahoma and Texas.[56]

The company's executive team responded on the call by saying Ameren is "going to transition our generation portfolio to a more diverse cleaner portfolio, but we'll do it in a responsible fashion." With cleaner technologies having become more economic, the most responsible action is to adopt wind as fast as possible, just as Ameren's peers are doing.

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MIDWEST AND PLAINS UTILITY EXECUTIVES UNDERSTAND THE VALUE OF WIND

Other utility companies in the Midwest and Great Plains have recently expressed eagerness to capitalize on opportunities to transition their fleets.[57] See below for recent statements from utility executives regarding the benefits of a clean energy transition:

Ben Fowke, CEO of Xcel Energy:

- "If I were talking to you 10 years ago, I don't think I'd be telling you that I think solar is competing with fossil. I wouldn't tell you that wind is beating fossil. I am telling you that now."
- "What's even more amazing is the prices. We're looking at [prices] in the low teens to low 20s [in dollars/MWh] — not starting prices, but levelized across the 25-year life of the project… That beats gas, even at today's prices."
- "I like to say we backed up the truck because the fuel of tomorrow was on sale today."[58]

Nicholas K. Akins, Chairman, President and CEO of AEP:

- "AEP is moving to a cleaner energy future, driven by new technologies and the expectations of our customers and shareholders. We are diversifying our generation mix to include more renewables, and we're also investing in a smarter, more efficient and resilient electricity grid to support these new resources and technologies. This project [investing $4.5 billion to build the nation's largest wind farm in Oklahoma's western panhandle] is consistent with our strategy of investing in the energy resources of the future, and it will save our customers money while providing economic benefits to communities."[59]
- "While it appears $4.5 billion is a big number, if you built a central-station generation facility like a coal unit or something like that, it would be as big or bigger, but much more risky."[60]

Bill Fehrman, CEO and President of MidAmerican Energy:

- "Our customers want more renewable energy, and we couldn't agree more. Once the project is complete, we will generate wind energy equal to 85 percent of our annual customer sales in Iowa, bringing us within striking distance of our 100 percent renewable vision."[61]
  (Note: MidAmerican Energy's average retail prices in Iowa are seventh lowest in the United States, approximately 38 percent below the national average.)

Doug Kopp, President of Alliant Energy's Interstate Power and Light subsidiary:

- "The customers and communities we serve will benefit from this cost effective clean energy… Our wind projects will help keep energy costs stable over the long-term for customers."[62]

Ben Lipari, Director of Resource Development, Alliant Energy:

- "As other fuel costs will rise and fall … wind and solar, renewables in general, will allow for very competitive costs for our customers in the future."[63]

Noel Rahn, Founder and CEO of Geronimo Energy:

- "I call wind 'oil above the ground.'"[64]

David Hudson, President, Xcel Energy - New Mexico, Texas:

- "The decision to add additional wind generation is purely in the economic interest of our customers. These new wind facilities will cost $1.6 billion to build, but will allow us to produce wind energy at a cost lower than energy produced at our coal and natural gas-fueled plants. These lower energy costs, in addition to savings from tax credits, add up to more than $2.8 billion in nominal customer savings over 30 years."[65]

MOVING FORWARD

Ameren has the opportunity to take advantage of favorable market conditions that favor wind energy over coal. Other utilities from this part of the country have already recognized this opportunity and achieved financial benefit for their customers and shareholders alike. Ameren's recent IRP announcement represents a useful beginning that the company can expand upon to continue its transition to clean energy. Below are our recommendations for how Ameren Missouri should proceed:

- Ameren should immediately pursue a multi-gigawatt wind investment in addition to its 700MW investment announced recently. Anything less represents incremental action that fails to properly diversify the company's generation mix or take advantage of favorable wind economics in a way that maximizes benefits for customers and Ameren shareholders.

- Ameren should strive to complete these key wind investments over the next three years. The timeliness of Ameren's wind investments is of vital importance. The current federal wind production tax credit steps down in 2017, 2018, and 2019, after which it will expire entirely. Ameren should act fast to secure the most advantageous pricing for its customers as the PTC phases out, and economic modeling of the PTC's phase out should be included in Ameren's IRP.

- Ameren should work with regulators and stakeholders to close its oldest coal plants earlier than previously planned. Ameren already has announced future plans to close its Meramec and Sioux coal units, but these closures can, and must, be done much sooner. One only needs to look at the western part of the state where Great Plains Energy—the holding company for Kansas City Power & Light (KCPL) and KCPL Greater Missouri Operations—has laid out an aggressive coal and natural gas plant closure schedule over the next few years. Great Plains Energy proves a large-scale, coal-reliant utility can take expedient measures to limit coal-produced energy.

- Ameren's 2017 IRP should appropriately consider the value of wind investments in terms of the savings they can provide against the full incremental costs of maintaining the company's coal units, including the planned future environmental upgrades anticipated over the life of these coal units.

- Shareholders should demand that Ameren leadership articulate a plan that can capitalize on a major wind investment. Owning and rate-basing at least some portion of a multi-gigawatt wind buildout, as well as any necessary transmission upgrades, represents a unique organic growth opportunity for Ameren's owners.

Building upon its recently announced renewable energy additions, Ameren can seize the occasion to layout a robust plan for the future. Transitioning to renewables minimizes the costs associated with burning coal, reduces the regulatory liability that comes from compliance matters with the state and federal government, and meets market demands. Customers increasingly expect access to renewable energy, and will be making decisions whether to stay or to locate in Ameren territory based in no small part on the renewable policies available. Shareholders and investors are also paying attention to Ameren's investments in clean energy and overreliance on coal. Missouri's economy is counting on Ameren taking advantage of the economic benefits that accompany a transition away from fossil fuel generation and toward the increasingly cheap clean energy technologies of the future.

ENDNOTES

1. Note that this paper is not intended to address Ameren Illinois; Ameren does not own or operate the generation resources used to supply its Illinois subsidiary. Generation for Illinois customers (both Ameren Illinois and ComEd) is sourced via the Illinois Power Agency, which is also responsible for meeting that state's newly upgraded Renewable Portfolio Standard.
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12. The peer group used in Figures 3, 7, and 8 is a selection of the larger, vertically integrated utilities in Missouri and nearby states.
13. For Figure 3, note that 1 MW is approximately equal to the power used by 700 Missouri households. Total generating capacity figures are based on generator nameplate capacity data, include only owned generation assets [excludes power purchase agreements], and may also somewhat over or understate a utility's total generating capacity due to the allocation of some jointly-owned power plants. While Westar now has no wind in development, they just completed additions of 400 MW from the Kingman and Ninnescah Wind Energy Centers. Source: 2015 EIA Form 860 data and public announcements.
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