



**AMERICAN ELECTRIC POWER:
STRATEGIC VISION
FOR A CLEAN ENERGY FUTURE 2018**

**AMERICAN
ELECTRIC
POWER®**

BOUNDLESS ENERGY™

TO ALL OF OUR STAKEHOLDERS:

The energy industry is in an era of transformation, moving rapidly toward a cleaner energy economy. American Electric Power is at the forefront of this transition to modernize the power grid, diversify our resources and deliver cost-effective, reliable electricity to customers and value to our shareholders. Our business strategy and resource planning have created a path forward that will result in the clean energy our customers want and, consequently, lower carbon dioxide emissions.

We have been engaging stakeholders on AEP's long-term sustainability for more than a decade. This dialogue includes the efficient use of energy, our evolving business model as the grid is modernized, the reduction of our carbon footprint as we diversify our resource portfolio and the way we manage risk. Different stakeholders have different concerns but universally we are asked about our preparedness to transition to a clean energy future. This is a fair question.

We have diversified our generating portfolio to provide our customers with the clean energy solutions they are asking us for. We believe in an "all of the above" strategy, which includes investments in energy efficiency, renewables, natural gas, nuclear, hydro-electric and pumped storage and coal. While coal is a smaller proportion of our resource mix than in the past, it remains important to the reliability and resiliency of the grid.

We are also investing in our transmission and distribution systems to provide significant benefits to our customers as we rebuild and enhance an aging infrastructure; add advanced, more efficient technologies; and create a more efficient, robust and resilient system. Our proposed investment in Wind Catcher, the largest wind farm in the United States if approved, is one example that demonstrates the significant change in future generation opportunities before us, allowing us to deliver cost savings and clean energy to our customers.

Our customers want us to help them achieve their clean energy goals while providing reliable



and affordable power. Our investors want us to protect their investments in our company and deliver attractive returns, and they expect us to manage climate change-related risks. Our strategy and resource planning process allows us to deliver on both counts.

These goals reflect our current plans for future resource additions and the resulting reductions in our carbon footprint. There is no question the electrification of our economy is accelerating. If policymakers can organize around a utility model that is highly digitized with new technology and analytics, we can invest in the infrastructure needed to provide universal access to clean energy to all customers.

I invite you to read this report and visit AEPsustainability.com to learn more about the actions we are taking as we redefine the future of energy — with our customers — and develop innovative solutions that power communities and improve lives.

A handwritten signature in black ink, reading "Nicholas K. Akins". The signature is fluid and cursive, with the first name being the most prominent.

Nicholas K. Akins

Chairman, President & Chief Executive Officer
American Electric Power
February 2018

American Electric Power announces new intermediate and long-term carbon dioxide (CO₂) emission reduction goals, based on the output of our resource plans, which take into account economics, customer demand, regulations, and grid reliability and resiliency. The intermediate goal is a 60 percent reduction from 2000 CO₂ emission levels by 2030, and the long-term goal is an 80 percent reduction from 2000 levels by 2050.

INTRODUCTION

The issue of sustainable electricity has been a subject of much dialogue between AEP and its many stakeholders for more than a decade. These discussions have involved investors, customers, regulators, environmental groups, credit rating agencies, lenders and public policymakers, among others. In these discussions, stakeholders want to know about AEP's strategy for transitioning to a cleaner energy future. They ask us about resource diversity; technologies that enable more efficient use of energy; regulations and public policies that could affect future operations or investments; and modern, smarter infrastructure that empowers customers while creating a more robust and resilient system.

In response, we share our resource planning outcomes, which provide a clear path forward to supporting a clean energy economy. Combined with the investments we are making in our transmission and distribution systems, the optimization of our existing generating fleet, the addition of new wind and solar, and advanced, more efficient technology provide the foundation for a sustainable, cleaner energy future.

Another benefit of this strategy is the resulting reduction of AEP's carbon footprint. Climate change and carbon dioxide emissions are also part of the conversation with stakeholders. We share with them the progress we have already made and show them that our path forward will naturally reduce our carbon

emissions significantly. That is why we are confident in setting new carbon reduction goals that are based on our current strategy.

AEP took early voluntary actions to reduce carbon emissions, supported federal legislation to establish a cap-and-trade program for carbon (the American Clean Energy and Security Act of 2009), increased renewable energy and energy efficiency while reducing demand, and made significant capital investments to improve the environmental performance and the efficiency of our coal-fueled generating fleet.

In 2003, as a founding member of the Chicago Climate Exchange, AEP set its first carbon dioxide (CO₂) emissions reduction goal — to cumulatively reduce or offset 48 million metric tons of CO₂ between 2003 and 2010. After exceeding this goal, AEP set a second goal to reduce CO₂ emissions by an additional 10 percent by 2020 from 2010 levels. We exceeded this goal, too, when we retired more than 7,200 megawatts (MW) of coal-fueled generating capacity in 2015 in response to low natural gas prices, an aging fleet, environmental regulations and other factors.

During the past two years, the discussion began shifting from climate change as a largely environmental risk to one that is increasingly a financial, strategic, operational, public policy, and regulatory risk. Our investors are concerned about climate change-related risks that could impact their holdings

and asset values in the short, medium and long-term. Our customers want clean energy that is reliable, safe and cost-competitive to power their homes, businesses, and increasingly their vehicles. Other stakeholders raise concerns about physical impacts from changes in the climate and the potential cost of future regulations and public policies. Universally, the question we hear most frequently is whether we are sufficiently prepared for the transition to a cleaner energy economy.

NEW GOALS BASED ON AEP'S BUSINESS STRATEGY AND RESOURCE PLANS

In mid-2017, in response to ongoing engagement on these issues with various stakeholders, AEP began to develop new intermediate and long-term carbon reduction goals. AEP's new intermediate goal is to **reduce carbon dioxide emissions from AEP generating facilities by 60 percent from 2000 levels by 2030**. In the longer term, AEP anticipates **reducing carbon dioxide emissions from AEP generating facilities by 80 percent from 2000 levels by 2050**.

These goals reflect our current business strategy and are based on the output of our integrated resource plans, which are designed to map out an appropriate mix of generation resources to meet energy and capacity needs at reasonable costs for our customers.

In addition to being consistent with AEP's current resource plans, these goals are consistent with the intent to limit the global average temperature rise to less than 2 degrees Celsius above pre-industrial times. Although the United States is not a party to the Paris Climate Accord, stakeholders continue to use the 2 degree target as a framework for evaluating carbon reduction plans.

A combination of factors gives us confidence in our ability to achieve these reductions, including an aging coal fleet, resource plans that are increasingly more diverse, our growing investments in clean energy and the potential of new and emerging

technologies to make the power system more efficient, decentralized, fully integrated and digitized.

We believe sustainable electricity is an essential tool for managing the company's carbon emissions and reducing the broader global carbon footprint. As we seek to do this, we are evaluating business risks and potential new opportunities, from the boardroom to the customers' side of the meter. This report reflects our strategy to transition to a cleaner energy economy and our commitment to transparency as we move forward.

AEP's CO₂ Emissions Reduction Goals

AEP's Carbon Reduction Goals	Target Year
Reduce 60% from 2000 levels	2030
Reduce 80% from 2000 levels	2050

Baseline + Future CO ₂ Emissions	Million Metric Tons
2000 (Baseline Year)	167
2030 (Projected)	67
2050 (Projected)	33

GLOBAL ISSUE, LOCAL GOALS

Recommended goals for lower carbon emissions have come from the Intergovernmental Panel on Climate Change (IPCC), individual national commitments made in response to the Paris Climate Accord, and national and state laws, policies and regulations. International organizations recognize that this is a global issue and that the burden of addressing it is a shared responsibility. Stakeholders vary widely in their views of how public policy should support such a significant global undertaking. AEP's ability to respond in specific ways to the challenge of reducing carbon emissions is shaped to a large extent by the regulatory authorities that approve the investments of our regulated utility companies.

We strongly believe that any carbon dioxide reduction policy or regulation must be rational in terms of timing, scope and reduction targets. Additionally,

any climate action framework should take into account the regional differences in the U.S. economy to ensure that there is not undue economic harm. Our position on climate change has always been that it should be addressed at the federal level in the United States and that it must be economy-wide. We also have always expressed the need for an international approach, and we have been engaged internationally on environment and electricity issues through the Global Sustainable Electricity Partnership.

Because the power grid will always need 24/7 generation resources, we will continue to support technology advancements for lower-carbon fossil fuel technologies. We believe that regardless of the outcome of the Clean Power Plan, there is likely to be some form of carbon regulations in the future. Over the course of the past decade, AEP has taken steps to prepare for this eventual outcome in a number of ways, including factoring carbon into our resource and investment planning processes and our business strategy. Today, we are taking a longer-term view of carbon by setting new goals for carbon dioxide emission reductions for the future based upon resource plans that account for economics, customer preferences, reliability and regulations.

The U.S. Environmental Protection Agency's (EPA) action to repeal the Clean Power Plan creates uncertainty for near-term regulatory action on climate change. Regardless, AEP's stakeholders are asking us about our plans for sustainable electricity, including a reduction in CO₂ emissions. We believe this is a fair question.

STRATEGY FOR ACHIEVEMENT

Our first obligation is to serve our customers with safe, reliable, affordable electricity and to maintain the reliability and resiliency of the grid. Our long-term commitment to reduce CO₂ emissions reflects the current direction of our resource plans to meet those needs.

It's important to note that AEP's goals could change over time as electrification accelerates and technologies mature. For example, it is possible that

Our strategy for achievement is an "all of the above" plan that includes:

- Near-term investments in renewable energy within and outside of our traditional service territory
- Technology deployment (e.g., energy storage)
- Modernization of the grid to optimize all resources and technologies with significant investments in our transmission and distribution systems
- Increased use of natural gas
- Purchased power agreements (PPAs)
- Advancement of our resource plans with regulators
- Energy efficiency and savings through technology, load management and conservation programs on both sides of the meter
- Demand response programs
- Increased integration of distributed resources, including large-scale renewables
- Optimization of our existing generating fleet

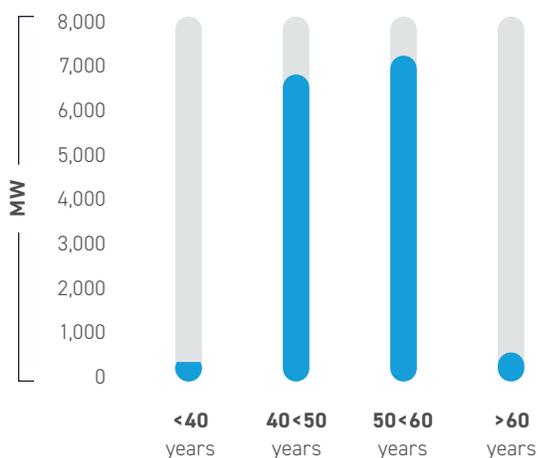
we could exceed our goals if technology, such as large-scale battery storage or carbon capture and storage, matures faster. Our goals could also be impacted if electrification of the transportation sector (or other high carbon intensity industries) accelerates and demand for electricity increases beyond what could be met with additional carbon-free resources. However, this increased use of electricity would still provide a net economy-wide reduction in carbon emissions, as some fossil fuel use from other sectors would be eliminated.

After 2030, emissions reductions will continue to occur as most of our coal-fueled generating units

reach the expected end of their useful lives, which is typically around 60 years of age. As these units are retired, they will be replaced with cleaner forms of generation, including renewables and highly efficient natural gas. While natural gas does produce CO₂ emissions, its carbon footprint is significantly lower than that of coal. AEP does not anticipate building new coal units. However, if technological (e.g., carbon capture) and economic barriers are overcome, that could possibly change.

AEP is increasingly focused on managing its existing coal-fueled generating units, to allow for a lower capital investment over time. This allows us to optimize unit operation, investment and depreciation rates to manage both customer and investor value.

AEP's Coal Unit Age in 2030



By 2030, more than one-half of AEP's coal units will be within a decade or less of their typical useful life of 60 years.

EFFICIENT USE OF ENERGY

AEP is working hard to use energy more efficiently, on both sides of the meter, through a variety of initiatives. These programs include using Volt VAR Optimization (VVO), deploying high-efficiency transmission, managing distributed energy resources connected to the distribution system as a virtual power plant, and encouraging customers to invest in energy-efficient solutions, such as load management programs and technologies. By reducing the amount of energy consumed and managing the grid more

efficiently, AEP can optimize existing generation, avoiding associated environmental impacts and delaying the need for new generation.

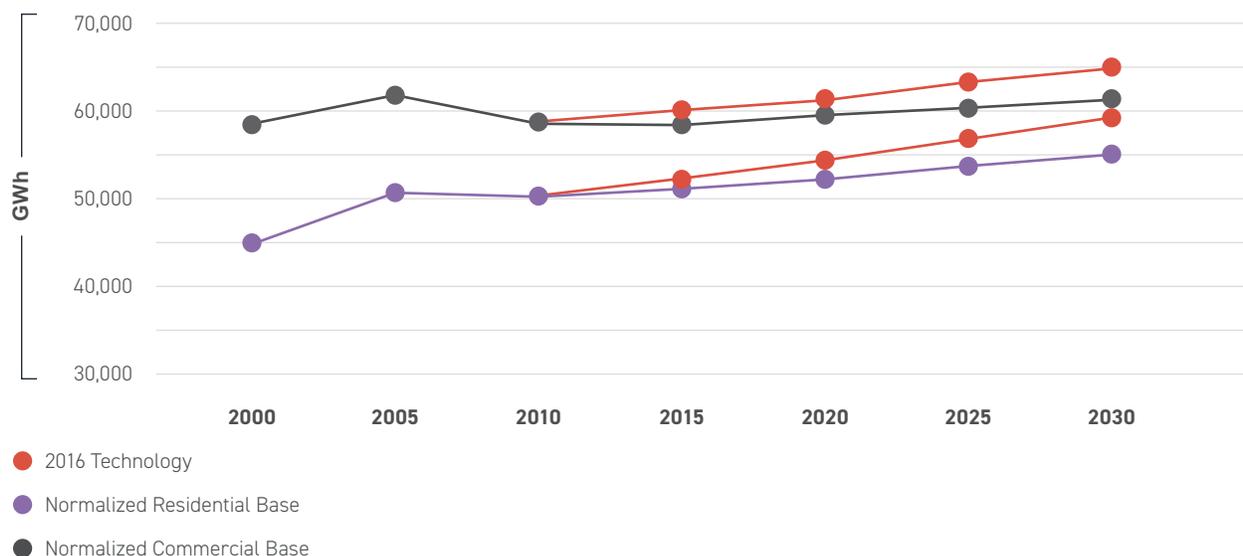
Energy efficiency and demand response programs are important resources that are integral to a balanced portfolio; they give AEP and our customers the tools to reduce energy consumption, either during times of peak demand or throughout the day or year. As customers become more aware of their energy usage and change their consumption patterns, whether through special time-of-use rates or other programs, there are energy savings and carbon reductions, too.

We view energy efficiency as a readily deployable, relatively low-cost and clean energy resource that provides many benefits. It reduces energy consumption by incorporating energy efficiency improvements in customers' homes and businesses. Focus on energy efficiency requires up-front investment by upgrading or switching to new technology. Our strategy includes continued work with our stakeholders to properly align energy efficiency with AEP's needs for equitable financial compensation.

AEP 2017 System Energy Efficiency Results and Estimated Avoided CO₂ Emissions

Operating Company	Annual Energy Savings (MWh)	Annual Demand Savings (MW)	Avoided CO ₂ Emissions (Metric Tons)
AEP Ohio	500,000	73.5	485,000
AEP Texas	76,000	52.0	50,000
Appalachian Power	85,000	19.0	71,000
Indiana Michigan Power	170,000	30.0	132,000
Kentucky Power	25,000	4.0	28,000
Public Service Company of Oklahoma	110,000	77.0	71,000
Southwestern Electric Power Company	66,000	30.0	49,000
Total	1,032,000	285.5	886,000

Energy Efficiency Technology Impacts to AEP's Sales Forecast



This chart reflects forecasted impacts of energy efficiency on residential and commercial sales within AEP's service territory. The red line represents what our residential and commercial sales would have been if not for the increasing energy efficiency that is assumed will occur.

TRANSITIONING TO A CLEAN ENERGY FUTURE

The energy industry is in the midst of an historic transformation, driven by changing customer needs, policy demands, demographics, competitive offerings, technologies and commodity prices. Amid this changing landscape, AEP is also transforming to be more agile and customer-focused as a valued provider of energy solutions.

For example, our capital investments once focused primarily on large, central generating stations — building new capacity and upgrading existing coal-fueled units to comply with environmental regulations. Today, we are investing in what customers want and value most. We are increasing our use of renewable resources, energy efficiency and demand response, supporting distributed energy resources and investing in technology and strategic partnerships. At the same time, we are reducing our environmental footprint and reducing risk in our business, to the benefit of customers, shareholders and the environment.

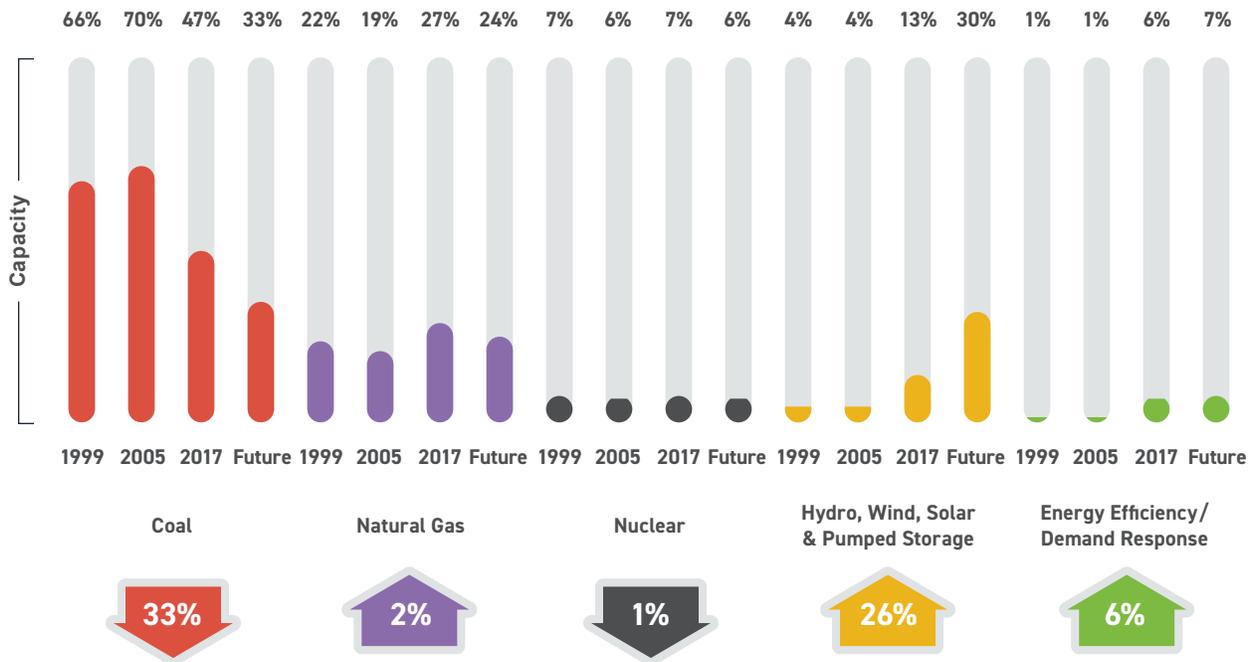
AEP's exposure to carbon regulation is already

greatly reduced compared with five years ago. From 2011 to mid-2016, AEP retired more than 7,200 MW of coal-fueled generating capacity, driven by a number of factors. From 2000 to 2016, AEP's CO₂ emissions declined 44 percent. This is due to a combination of plant retirements, low natural gas prices that resulted in coal-fueled generating units operating less frequently, the addition of renewable generation and reduced wholesale generation sales. In early 2017, AEP completed the sale of four fossil-fueled plants totaling approximately 5,300 MW. The sale further decreased AEP's carbon exposure going forward.

In 2017, coal represented 47 percent of AEP's generating capacity, compared with 70 percent in 2005. The percentage of AEP's generating resources fueled by coal will continue to decline.

AEP's long-term strategy is to become a fully regulated, premier energy company focused on investment in infrastructure and energy solutions that deliver an exceptional customer experience. Reshaping our generation portfolio to include more renewable energy and focusing on the efficient use of energy, demand response, distributed resources and

Transforming Our Generation Fleet – AEP’s Generating Resource Portfolio

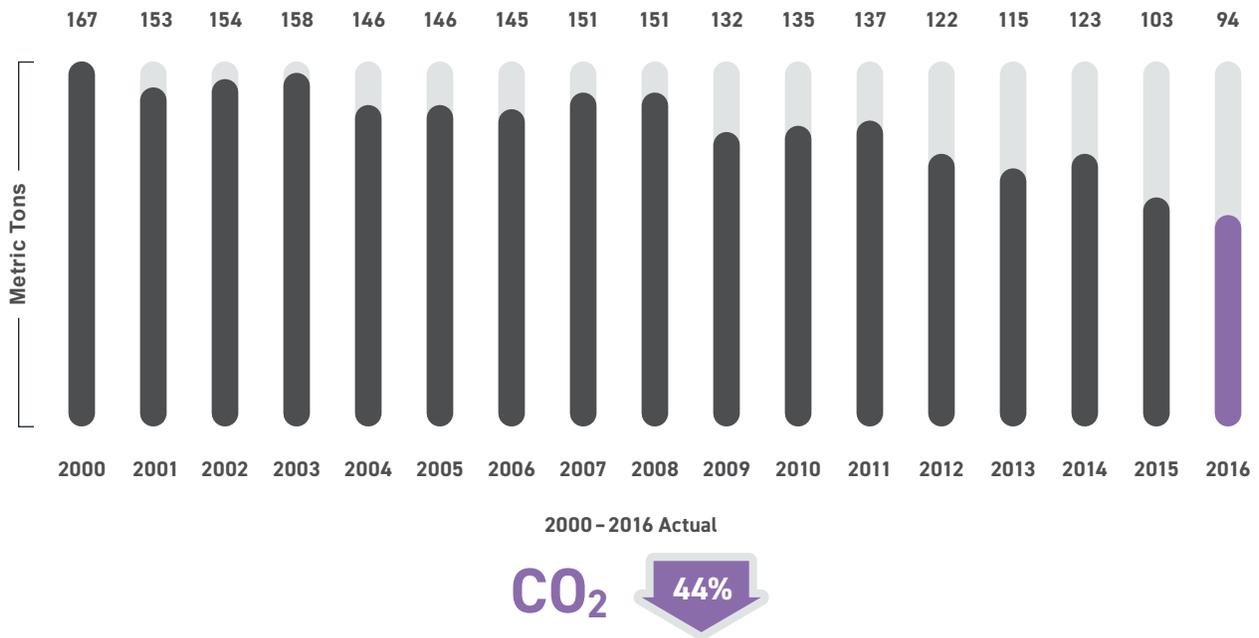


Excludes impact of Wind Catcher.

Future includes IRP forecasted additions and retirements through 2030.

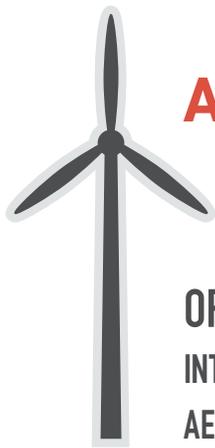
Energy Efficiency/Demand Response represents avoided capacity rather than physical assets.

Total AEP System – Annual CO₂ Emissions (in million metric tons)





In 2016, Indiana Michigan Power Company (I&M) completed construction of four universal-scale solar power plants, which are located in Indiana and Michigan and add nearly 15 megawatts of solar energy capacity.



**APPROXIMATELY
11,900_{MW}
OF RENEWABLE GENERATION
INTERCONNECTED ACROSS THE U.S. VIA
AEP'S TRANSMISSION SYSTEM TODAY**

technology solutions to more efficiently manage the grid over time is part of this strategy.

AEP's renewable portfolio includes 4,198 MW of wind and solar today, and by 2030, our current resource plans include the addition of up to another 3,065 MW of solar, 5,295 MW of wind and 1,407 MW of natural gas.¹ Our portfolio also includes 884 MW of hydro-electric power and pumped storage. AEP's future proposals to add specific generation resources will depend on a number of factors, including economics and customer demand, and must be approved by AEP's state and federal regulatory commissions. Additionally, AEP's investments in transmission support approximately 11,900 MW of renewable resources across the U.S.

AEP is currently seeking regulatory approvals for an investment in a 2,000 MW wind farm with our proposed Wind Catcher Energy Connection project in Oklahoma. This \$4.5 billion infrastructure investment, if approved, would deliver nearly 9 million megawatt-hours of new, high-quality, low-cost wind energy per year and produce significant savings to more than 1 million customers in four states.

The project is a win-win-win for customers, the environment and the regional economy. Customers benefit from cost savings that include no fuel cost for wind, which lowers their overall fuel and purchased power costs; a tax credit for construction of new wind farm projects; and the cost-efficient delivery of the wind generation to customers through a new, dedicated power line. Environmental benefits of the project include zero-carbon emissions and other avoided environmental impacts, including avoiding the need for water to generate power in a region that regularly experiences prolonged periods of drought. Wind energy is also a great economic driver for this region since it can coexist with agricultural production and provide farmers and ranchers with additional income for their land, which is helping to save some family farms.

¹ Wind and solar represent nameplate MW capacity. Source is current internal Integrated Resource Plans. Excludes impact of Wind Catcher; Wind Catcher approval would accelerate how quickly AEP is able to add wind generation to its portfolio. Reflects PSO's IRP filed 11/1/17. Actual additions depend on market conditions, regulatory approval, customer demand and other external factors.

As we grow our regulated clean energy footprint, we are also investing in renewable energy in competitive markets. From 2018 to 2020, we will invest approximately \$1.2 billion in contracted renewables that support large customers' needs and integrate renewables with technologies such as energy storage and combined heat and power. Within the past two years, AEP has formed two subsidiaries — AEP Renewables and AEP OnSite Partners — to work with customers on their renewable energy goals and projects. At the end of 2017, these two companies had invested nearly \$320 million in 180 MW of solar project capacity located throughout the United States.

THE ROLE OF TECHNOLOGY AND FUEL DIVERSITY

Technology development is hard to predict, but we believe it will ultimately play a large role in defining our energy future, especially in addressing climate change and carbon emissions. AEP has a long history of technological innovation, including developing highly efficient power plants, initiating the world's first successful carbon capture and storage (CCS) validation project, and developing the next-generation

high-capacity, high-efficiency transmission line design (BOLD™).

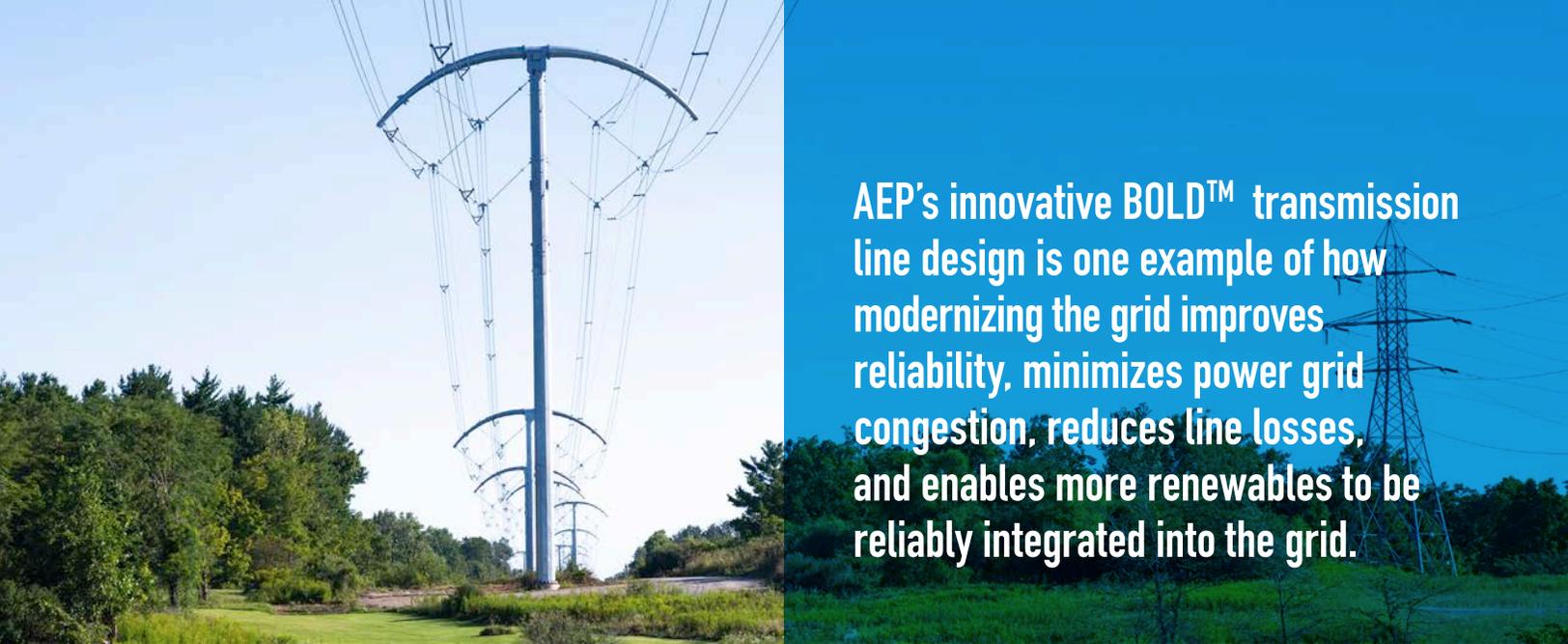
Other technologies, such as advanced, high-capacity, high-efficiency transmission line conductors help to minimize line losses, which is the loss of energy as it moves across the system due to resistance in transmission lines. These new line conductors enable utilities to reduce fuel consumption, which can help reduce emissions, as well as conserve available resources. In addition, in Texas, AEP has invested in new Flexible AC Transmission Technology (FACTS), which enhances the capacity of the transmission system, allowing higher levels of renewable energy to move from the wind-rich resource areas of west Texas to the major load centers in east Texas.

AEP proactively fosters innovation and technology by forming strategic partnerships and investing in companies that provide cutting edge energy storage and grid management, analytics and generation solutions. These investments support an energy future that relies less on conventional fossil fuels and more on data, technology and distributed energy sources. Additionally, technologies such as energy storage could enable intermittent renewable



WIND CATCHER FACILITY

- Largest wind farm in America and second largest in the world, once operational
- Creates approximately 4,000 direct and 4,400 indirect jobs during construction and 80 permanent jobs
- 30 percent of GE wind turbine components will be manufactured in Arkansas, Louisiana, Texas, and Oklahoma
- Wind Catcher training and scholarship program will double capacity of the High Plains Technology Center, providing a pathway for developing the skilled workforce needed for a clean energy future
- Can coexist with agricultural production and provide farmers and ranchers with additional income for their land



AEP's innovative BOLD™ transmission line design is one example of how modernizing the grid improves reliability, minimizes power grid congestion, reduces line losses, and enables more renewables to be reliably integrated into the grid.

technologies to be deployed more broadly.

To maintain a balanced resource portfolio, we continually evaluate novel technologies, such as chemical looping and CO₂ removal through selective membranes. We collaborate with universities and other research bodies to identify new options to address carbon in fossil fuels. Eventually, CCS may be a critical component of a low-carbon energy future, particularly if coupled with newer, highly-efficient natural gas combined-cycle generation. Today, however, CCS is neither an economically nor operationally viable solution for the power sector.

While technology is the great optimizer of the grid, it can also be a risk. AEP's Enterprise Technology Council constantly monitors the external landscape of emerging or developing technologies for possible future deployment. Through this group's oversight, we guard against deploying technologies that have not been commercially demonstrated and have the potential to jeopardize reliability and resilience.

The transition to a clean energy future needs to be actively managed to balance cost, reliability and environmental performance. With today's technology and infrastructure realities, we cannot overly rely upon any single generation resource if we are going to maintain the reliability and resilience of the grid. When severe weather occurs — such as the extreme cold weather that gripped much of the nation in early 2018 — we rely on a variety of resources to meet the

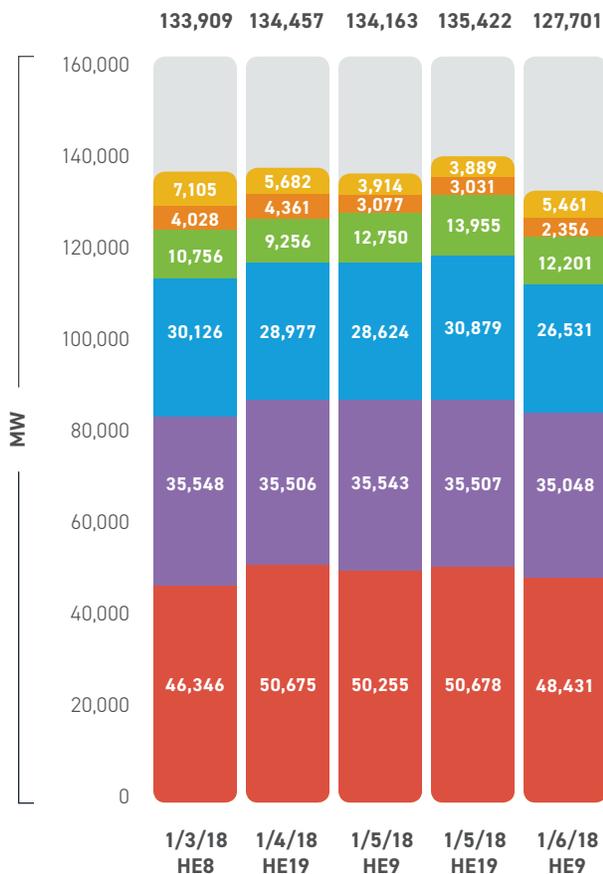
increased electricity demand. The system is best able to meet demand when there are diverse, resilient resources to draw from.

In the PJM region during the first cold snap of January 2018, coal and nuclear-fueled generation made up as much as 65 percent of the resources available and able to meet higher levels of electricity demand. Natural gas, which is increasingly a 24/7 resource for power generation, provided less than 25 percent of the electricity load during the cold spell; natural gas generation was unavailable when it was needed most from some generators for periods of time due to gas supply issues. As natural gas use for power generation is likely to increase in the future, gas availability and security will become a more pressing issue for system reliability.

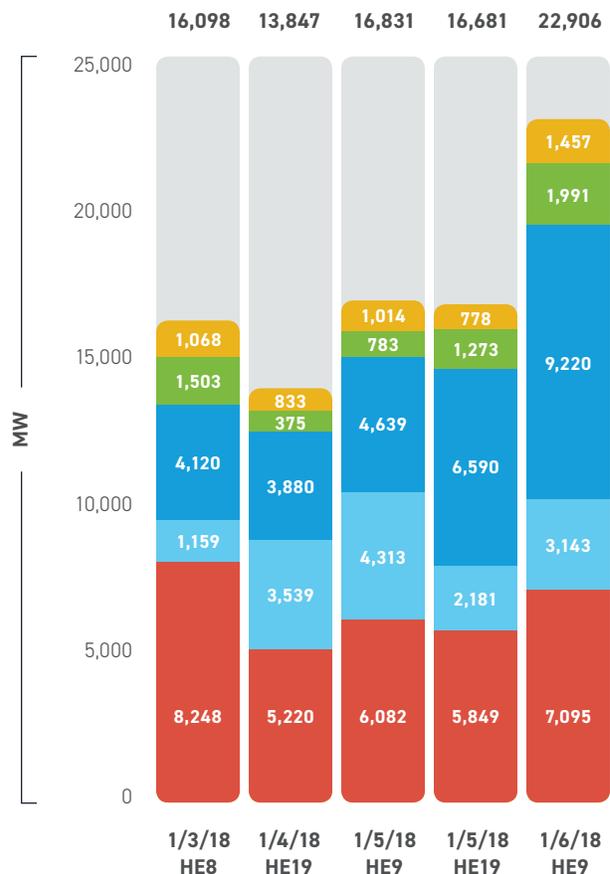
Flexibility in generation supply is also important to manage the intermittency of renewable resources to maintain reliability of the grid. These issues demonstrate the need for proactive policy development to support research and technology development of lower carbon fossil fuel technologies, which would ensure the reliability and resiliency of the grid and improve carbon emissions. The long term view of AEP's carbon goals reflect these development needs because the grid will not reliably function in the near-term without coal being a significant generating resource.

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Actual Generation by Fuel Mix (MW)



Forced Outages by Primary Fuel (MW)



This chart shows the fuel source of the generation that was used to serve customer load for the peak hour of each day (January 3–6, 2018).

- All Other
- Wind
- Oil
- Gas
- Nuclear
- Coal

By fuel type, this graph represents outages that were unanticipated.

- All Other
- Oil
- Gas Plant Issue
- Gas Supply Issue
- Coal

Preliminary eDART-based data.

Generation totals are net of imports.

Source: "Cold Weather Operations Summary: December 27, 2017–January 7, 2018." PJM, January 7, 2018 <http://www.pjm.com/-/media/committees-groups/committees/mic/20180110/20180110-item-11-cold-weather-operations-summary.ashx>
HE represents hour ending.

MEETING CUSTOMERS' NEEDS

An increasing number of AEP's customers are requesting cleaner energy resources. Whether driven by personal beliefs or business goals, many of our customers want us to deliver reliable, affordable energy from cleaner sources. However, for our vertically integrated utilities, displacing existing fossil-based sources that are otherwise economical with zero-carbon alternatives, such as renewables, sometimes comes at a higher cost to our customers. The upward pressures on costs can place stress on the financial well-being of households and businesses alike. Any transition to a lower-carbon economy must be appropriately managed to ensure the pace of change does not outpace our customers' ability or willingness to pay.

Some of our customers see energy as a plug-and-play digital platform that must be flexible, reliable, affordable and clean. While this transformation presents extraordinary opportunities for innovation and growth, it also carries risk and responsibility. The traditional utility business model doesn't accommodate much of this new paradigm.

Historically, our industry's value chain of one-way flow of energy and information worked well during an era of building large assets such as central generating stations. But today the value

chain includes a new relationship with consumers that are both active and participatory. It also includes customers' expectations of cleaner energy, and provides for distributed resources that allow power and information to flow in multiple directions. These are the forces changing our business and necessitating an evolution of policy models to keep pace. As our industry undergoes an unprecedented transformation, we are working with our regulators and policymakers at the federal, state and local levels to ensure the appropriate regulatory and legislative reforms are in place.

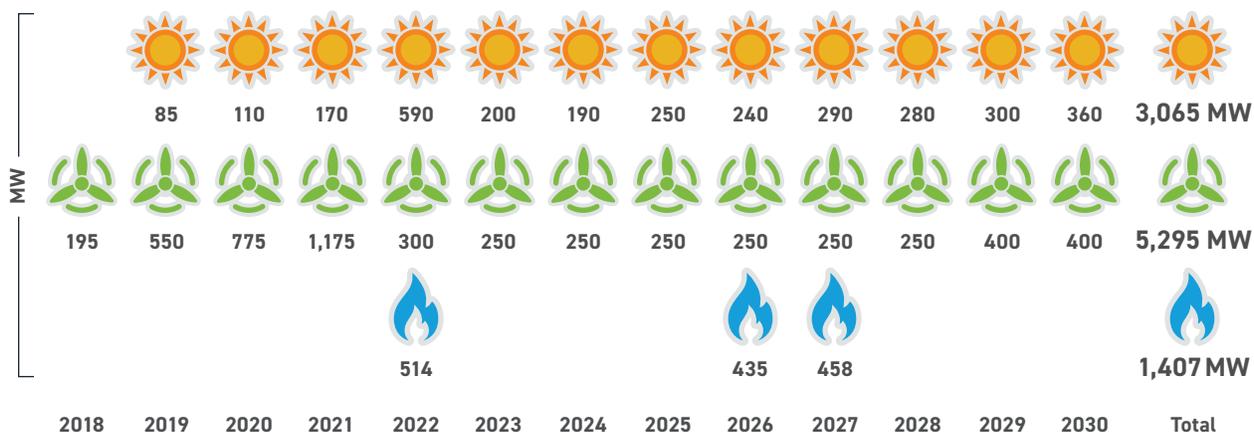
We are working with policymakers, regulators, customers, investors and other stakeholders to adapt our business model to take full advantage of this paradigm shift. In fact, if we can invest in infrastructure to provide universal access to clean energy to all customers, we could achieve further reductions in carbon emissions more quickly.

INTEGRATED RESOURCE PLANNING

Our vertically integrated utilities are obligated to have an adequate supply of generating capacity and energy to meet their customers' needs. To meet their obligation in a cost-effective manner, they engage in long-term resource planning. AEP's planning process

AEP System Planned Generation Resource Additions

Regulated & AEP Ohio Purchase Power Agreement



Wind and solar represent nameplate MW capacity.

Source: Current Internal Integrated Resource Plans. Excludes impact of Wind Catcher. Reflects PSO's Integrated Resource Plan filed 11/1/17. Actual additions depend on market conditions, regulatory approval, customer demand and other external factors.



The John W. Turk, Jr. Power Plant is one of the cleanest, most efficient coal-fueled plants in the United States. Its advanced “ultra-supercritical” steam cycle technology uses less coal and produces fewer emissions, including carbon dioxide.

helps our states plan their energy and capacity needs over time and considers available resource and market options to achieve the right mix of resources at reasonable costs for our customers.

An Integrated Resource Plan (IRP) provides a snapshot of a potential future generating mix, based on today’s assumptions. For example, an IRP may include more renewable energy for the future because today’s assumptions are that it will be more cost-effective for customers in the long run. An IRP is not a commitment to a specific course of action, because the future is uncertain and decisions relating to AEP’s generation resources are subject to regulatory approval. Rather, it is a roadmap that shows the amount, timing, cost and type of potential future resource additions that meet the customers’ future resource needs at a reasonable cost.

Our publicly filed IRPs use a planning horizon of 10 to 20 years. They demonstrate how we will meet customer demands for reliable and affordable energy and provide an estimate of future emissions from our fossil-fueled units. Our current plans project that we can achieve a 60 percent reduction in CO₂ emissions from 2000 emission levels by 2030 by focusing on near-term investments in renewable energy and incorporating an assessment of potential future carbon costs and expected lives of our generating resources in all of our planning and investment decisions. The potential for carbon regulation has

been part of our IRP process for many years and provides an important market signal when we are determining resource needs and costs.

To develop our IRPs, we systematically evaluate and balance multiple issues, including the increasingly complex existing and pending environmental regulations, technology advancements, changing pricing fundamentals, load growth forecasts, energy efficiency advancements, growth in customer-adopted distributed resources and other complexities. Many IRP processes also include robust stakeholder outreach.

Once an IRP is developed, it is filed with the state regulatory commission for approval. Commission approval usually means that the plan is reasonable and in the public interest for its intended purpose. AEP’s resource planning, as reflected in our IRPs, sets a clear path forward to reducing our carbon footprint.

CLIMATE-RELATED GOVERNANCE

One of the key responsibilities of AEP’s Board of Directors is overseeing the company’s strategy to create long-term value for AEP’s shareholders. Environmental policies have a significant impact on the Company’s strategy. As a result, the Board regularly engages with senior management in the oversight of environmental issues, including climate change, energy efficiency, renewable energy and technology changes in the industry. As AEP continues to transition its business, the Board works with the

senior management team to adjust plans as needed to respond to rapid changes in the industry, including technology and public policy. Discussions about carbon and carbon risk occur during Board meetings, strategic planning, and scenario planning and analysis sessions.

As part of its oversight role, the Board monitors climate risks and reviews opportunities that may be realized with climate change. These issues, including carbon-related risks, are the subject of active discussions at Board meetings and Board committee meetings. The Board also receives an environmental report from management at every Board meeting. In addition, we have extended Board meetings twice a year, to provide extra time for a more robust review of the Company's strategy. The Board is responsible for reviewing and approving the Company's allocation of capital, and the Board's Finance Committee monitors the capital budget throughout the year. The Board's Audit Committee reviews the company's risk report at each meeting, which includes a review of environmental and climate-related issues.

The Board has delegated responsibility for overseeing the Company's annual Corporate Accountability Report (CAR) to its Committee on Directors and Corporate Governance. This committee reviews and approves the annual CAR, and the committee receives updates twice a year from management on its sustainability initiatives. During those meetings, management reports on its engagement with stakeholders on a range of issues, including climate change. Management identifies and incorporates significant environmental, social and governance (ESG) issues, including climate change impacts, into the business strategy, all of which is discussed in the CAR.

MANAGING RISK AND CLIMATE CHANGE

The supply chain and power grid that generates, transmits and distributes electricity is multifaceted and complex, posing different risks to different parts of AEP's business units, depending upon existing infrastructure and planning processes.

Increasingly, companies are expected to actively identify and mitigate these risks, including climate change-related risks. AEP's Board of Directors and senior management recognize these trends and are committed to having a best practices risk management program. Ultimately, AEP's Board of Directors and the Board's Committees, including the Audit Committee, have responsibility to oversee and monitor AEP's risks.

AEP's Enterprise Risk Management process takes a holistic look at all risks, perceived or real, across all aspects of AEP's operations, including those risks posed by climate change, through a risk identification, analysis and mitigation process. AEP's risk management process encompasses many factors, and uses scenario planning, including a range of carbon prices to assure robust decision-making.

AEP's structured risk framework has four major categories and carbon-related risks could affect all of them:

- **Strategic** – These are risks that affect our long-term or overall business goals and ability to achieve them;
- **Financial** – Potential risks that affect our financing needs, financial standing, and/or reporting requirements;
- **Operational** – Those risks that affect our ability to operate the power grid; and,
- **Regulatory** – Risks that can affect our legal and compliance requirements.

In addition, when assessing risks, AEP internally categorizes risk impacts into six sub-categories – Reliability, Compliance & Legal, Reputational, Financial, Safety and Strategic – and scores them based on the severity of potential consequences. Climate change-related risk can potentially impact most of these six sub-categories. Once risks are identified, mitigation strategies are developed.

TYPES OF CLIMATE-RELATED RISK

The potential financial impact of legacy fossil units being retired sooner than the end of their anticipated useful life is a concern we share with stakeholders.

The cost-recovery structure that regulators establish for generating stations is based on the useful life of the plant and on its book value being depreciated over time. During the life of the units, regulators allow us to collect the investment from customers.

As AEP invests capital to modernize the power grid, we are optimizing the investments we make in our coal-fueled generating assets by continuously evaluating the useful lives of these units and making investment decisions accordingly.

Regulatory & Financial Risks

The nature of AEP's regulated business model is important to understanding financial and strategic impact of climate-related risks. Regulatory and financial risks posed by climate change are generally associated with current or future policies or mandates that would control or limit carbon emissions. These could include, but are not limited to, a carbon tax, regional cap-and-trade programs (such as the Regional Greenhouse Gas Initiative CO₂ budget trading program), energy efficiency standards, and/or renewable energy portfolio standards.

These types of carbon-related initiatives could increase the cost to produce energy. In addition, displacing fossil fuels to reduce carbon exacerbates job losses in regional economies that rely heavily on extraction industries (e.g., coal mining, oil and gas production). It also affects our employees who

work at coal-fueled generating units. As generation is retired, job opportunities in local communities decrease, as does the amount of taxes paid to support public services. To mitigate the impacts of these difficult trade-offs, we have provided support for local efforts to retrain workers and attract new businesses that need a skilled workforce.

Financial & Strategic Risks

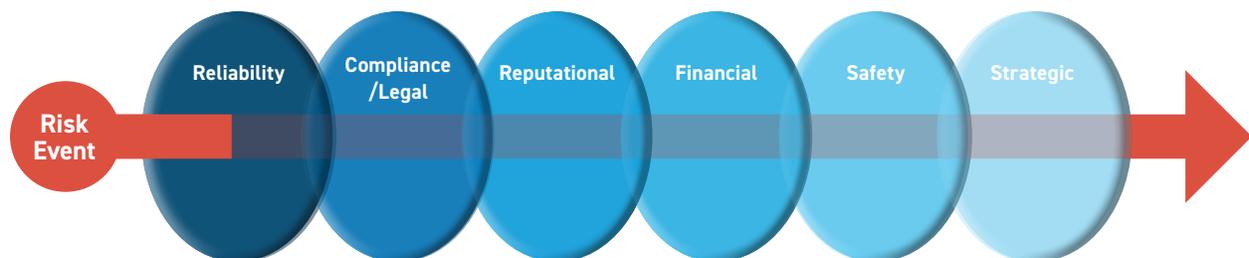
Climate-related risks and the transition to a lower-carbon economy affect most economic sectors and industries. As we work to address these risks, we are seeking solutions that achieve the environmental objectives without undermining economic growth and enabling our vision to power a new and brighter future for customers and communities.

With lower demand growth, energy prices generally increase for our customers. Higher rates directly impact customer households' purchasing power, especially in economically disadvantaged areas of AEP's service territory. Educating customers about the efficient use of energy lowers customers' bills, and more efficient use can contribute to fewer emissions.

Higher energy costs also have a negative impact on the competitiveness of industry. When this happens, companies are less likely to expand or move to our service territory. That means fewer new jobs and state and local taxes to support local communities; for AEP, it means fewer revenue

Risk Analysis: Viewing Risks Through Lenses

Consistent, transparent, repeatable process for risk management
Six impact categories to evaluate consequences of a risk event



Range of potential consequences (levels 1-7) in each category:





A pile of crumpled steel and metal is all that remains of the station house at the Live Oak Substation located in Portland, Texas. Portland is a community less than 30 miles from where Hurricane Harvey made landfall. — Photo by Smokey Hays

growth opportunities. A net positive is that as we generate less electricity, our environmental impacts are reduced. One way that AEP internalizes and balances these risks is to include a carbon price when evaluating all resource decisions to ensure carbon is appropriately valued and that our regulatory and public policy strategy supports it.

The Regulatory Compact

The nature of AEP's regulated business model is important to understanding financial and strategic impacts of climate-related risks. The Regulatory Compact allows AEP to make prudent investments to benefit all of our customers. In turn, regulators set the cost of service that reflects the total cost for a utility to deliver service to customers and earn a reasonable return on those investments. When assets are retired early, the Regulatory Compact allows us to recover undepreciated plant value, which minimizes the financial risk of regulatory recovery.

Where appropriate, we are working with our state utility commissions to align the recovery of existing and new plant investments with the anticipated remaining useful life of the units. This strategy reduces the risk of stranded costs if the units are retired sooner than anticipated and better matches the costs charged to customers with the assets providing their electricity service.

Operational Risks

Operational risks posed by climate change include risks that may be indirectly created through a changing climate that affects weather, sea levels, or other natural systems. Historically, the greatest physical climate-related risk to AEP's system comes from the frequency and intensity of weather-related events that affect AEP's infrastructure, operations or supply chain. There are also political, reputational and social risks, especially if prolonged outages occur.

Through our 112-year history, AEP has continuously managed and planned for weather-related disruptions and damage to the power grid. To help us manage the reliability and resiliency of the power system, we review weather data and projections and routinely review AEP's practices and industry standards. As infrastructure is added, upgraded or replaced, we give careful consideration to risk, reliability and resiliency. The planning for and managing of resilience occurs through two broad categories of measures: proactive (hardening) and reactive (recovery).

In 2017, massive hurricanes put our recovery strategies to the test. Hurricane Harvey, which made landfall in the AEP Texas coastal cities of Rockport, Aransas Pass and Port Aransas, knocked out power to approximately 220,000 customers at the peak of the event. Keeping the lights on during Category 3, 4 or 5 hurricanes with triple-digit wind

speeds may be unrealistic, but the investments we are making to harden the grid help us to restore service faster when such a catastrophic event occurs. These investments improve reliability for customers while delivering value to shareholders. In addition, these investments to modernize our infrastructure improve system resiliency.

To make our assets more resilient, we first have to understand the risks that threaten them. In 2017, AEP conducted extensive site-specific risk evaluations to identify major risks to all of our assets. To ensure business continuity and the safety of our workforce and the public, we are developing and implementing risk mitigation plans to address these sites.

Multiple Risks with Strategic Implications

Resiliency of the grid is an issue with broad strategic, financial, operational, regulatory and reputational risks. If resilience of the grid is compromised, AEP risks losing the public trust, being subjected to new regulations or restrictions, and possibly even being fined. This could potentially threaten the company's ability to implement its business strategy. To prevent and prepare for a potential event that threatens the grid, we have undertaken several measures to make the power system more resilient, regardless of whether the threat is climate-related.

Threats to the grid's resilience include cyber or physical security breaches, as well as other high-impact, low-frequency (HILF) events, such as earthquakes, superstorms and other severe weather events, solar flares leading to geomagnetic disturbances and electromagnetic pulses (EMPs). When an event does occur, how effectively and thoroughly we respond and how quickly we recover can have lasting business implications. AEP's extensive business continuity plans ensure our ability to respond and recover in the event of an emergency.

For example, AEP is making significant investments over the next decade to inspect and maintain wooden power poles and underground electrical structures, along with thousands of miles of overhead electrical lines. More than 3 million poles

will be included in this program. Using new storm-hardening design criteria, poles will be constructed to better withstand ice buildup from winter storms and wind-related storm damage — two major weather-related threats to our physical infrastructure.

An important line of defense for AEP and the electric power industry in securing a resilient grid is to have access to critical spare parts inventory. In 2016, six energy companies officially launched Grid Assurance™, an independent company providing spare parts for critical transmission equipment. AEP is one of the founding members of Grid Assurance. The program supplements existing national inventory initiatives that provide access to critical infrastructure in extreme situations.

Nationally, and within our service territories, grid hardening, reliability and modernization initiatives have garnered support from state utility commissions. Resiliency and reliability management is also informed by standard-setting bodies such as the North American Electric Reliability Corporation (NERC), as well as learnings from real weather events such as ice storms, tornadoes and hurricanes that affect the bulk power system.

SCENARIO PLANNING

AEP's risk management and scenario planning processes account for varying assumptions around climate change policy and regulation to plan for a variety of futures, including one with significant restrictions on the use of fossil fuels. Typically, AEP includes a carbon price to simulate the impact of such restrictions. The carbon price we use has evolved over time and will continue to do so. The most recent carbon pricing assumptions were based on potential prices under the court-delayed Clean Power Plan framework. In that case, the price started at approximately \$3/metric ton in 2024 and reached approximately \$23/metric ton by 2030. These prices will be updated in the near future along with a revision of the associated fundamentals (e.g., coal, natural gas and power pricing) modeling in light of the anticipated repeal of the Clean Power Plan and

changing policy dynamics.

Other factors affecting carbon emissions are also varied, including technology cost and availability, and customer demand.

AEP's scenario planning road map focuses on four areas:

- **Strategic** – How could the external environment evolve and impact AEP?
- **Options** – What are the strategic options in each scenario?
- **Signposts** – What are leading indicators that require decisions?
- **Action Plan** – First, a risk assessment of current strategy, followed by identification of near-term actions that need to be taken.

These scenarios inform AEP's strategic thinking and priorities, which provide a near-term direction for the company while illuminating what a cleaner energy economy might look like for AEP in the longer term. We believe our scenario planning process is robust in its inclusion of carbon-related risks. In 2018, AEP will conduct a new round of scenario planning.

Current AEP investments in renewable energy, technology development and deployment, customer experience and energy efficiency support AEP's vision for the future, which is one where electricity is both cleaner and more accessible. This is a defined shift from the past decade when AEP invested more than \$8 billion to ensure that our fossil generation fleet was in compliance with new environmental regulations. During the next three years, 72 percent of expected capital investments, totaling approximately \$13 billion, will be in zero-carbon "wires" investments to improve system efficiency, reliability and grid resiliency.

UNCERTAINTIES AND OPPORTUNITIES

One of the major uncertainties surrounding AEP's

carbon emissions is customer demand for electricity. While changes in energy efficiency and structural changes in the economy have slowed or reduced demand in recent years, the potential of advanced electrification to the benefit of the environment and economy is promising. We believe electrification can be an effective tool for reducing carbon emissions economy-wide. Converting the transportation sector from internal combustion engines to electric vehicles (EVs) would result in significant efficiency and environmental improvements, including immediate reductions in associated emissions (e.g., sulfur dioxide and nitrogen oxides).

A collaborative report, *Environmental Assessment of a Full Electric Transportation Portfolio*, by the Electric Power Research Institute (EPRI) and the Natural Resources Defense Council, confirms that "fueling transportation through electricity instead of petroleum can significantly reduce emissions of greenhouse gases (GHG) and other air pollutants that threaten our environment and health."²

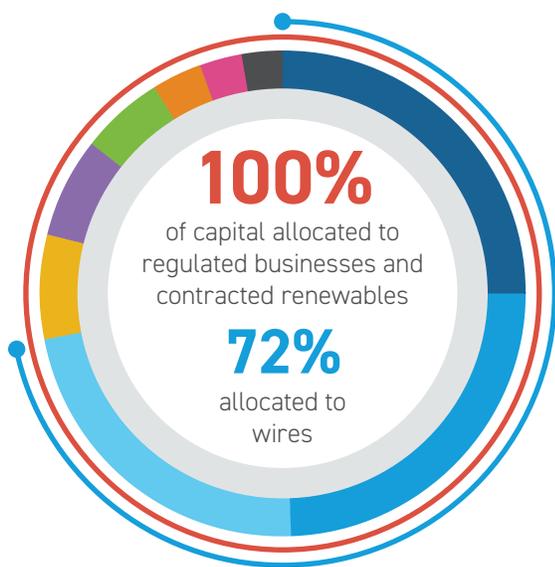
AEP supports the conclusion that electricity is an enabler of reducing carbon emissions economy-wide. For example, electrifying the transportation sector or other commercial and industrial processes, such as forklifts and electric arc furnaces, enables significant carbon emission reductions at a fraction of the cost of other solutions. The net positive is that it reduces carbon without necessarily reducing the use of electricity, which is good for the environment, customers, investors and AEP.

As the resource mix of electric generation continues to evolve over time to cleaner, lower and no-carbon sources, such as natural gas and renewables, the overall carbon impact will be further reduced. In addition, this will offer new business opportunities for AEP in the form of increased revenues as demand for electricity grows.

If AEP is successful in partnering with our customers to manage the timing of when they charge

² Study: "Electric Vehicles Can Dramatically Reduce Carbon Pollution from Transportation, and Improve Air Quality," Electric Power Research Institute and the Natural Resources Defense Council, September 17, 2015, <https://www.nrdc.org/experts/luke-tonachel/study-electric-vehicles-can-dramatically-reduce-carbon-pollution>.

Capital Forecast (in billions)



\$17.7 Billion Capital Expenditures: 2018 – 2020

● AEP Transmission Holdco	\$4.4	25%
● Distribution	\$4.4	25%
● Transmission	\$4.0	22%
● Contracted Renewables	\$1.2	7%
● Corporate	\$1.4	8%
● Regulated Environmental Generation	\$0.6	3%
● Regulated Fossil/Hydro Generation	\$0.7	4%
● Nuclear Generation	\$0.5	3%
● Regulated Renewables	\$0.5	3%

their vehicles to use excess capacity that is typically available in off-peak times of the day, this can reduce the need for new generating resources in the future. This is a great opportunity for top-line growth for AEP and represents a win-win-win situation for our customers, AEP and the environment.

The pace of adoption of EVs will determine the benefits achieved. For AEP, adoption rates are expected to be lower and slower because of the socio-economic makeup of our service territory. AEP's participation in the Smart Columbus smart city initiative is one way we are investing in smarter energy technologies. This includes supporting EV infrastructure that will increase mobility for underserved neighborhoods and improve grid

efficiency, while reducing carbon emissions in both the transportation and electric power sectors.

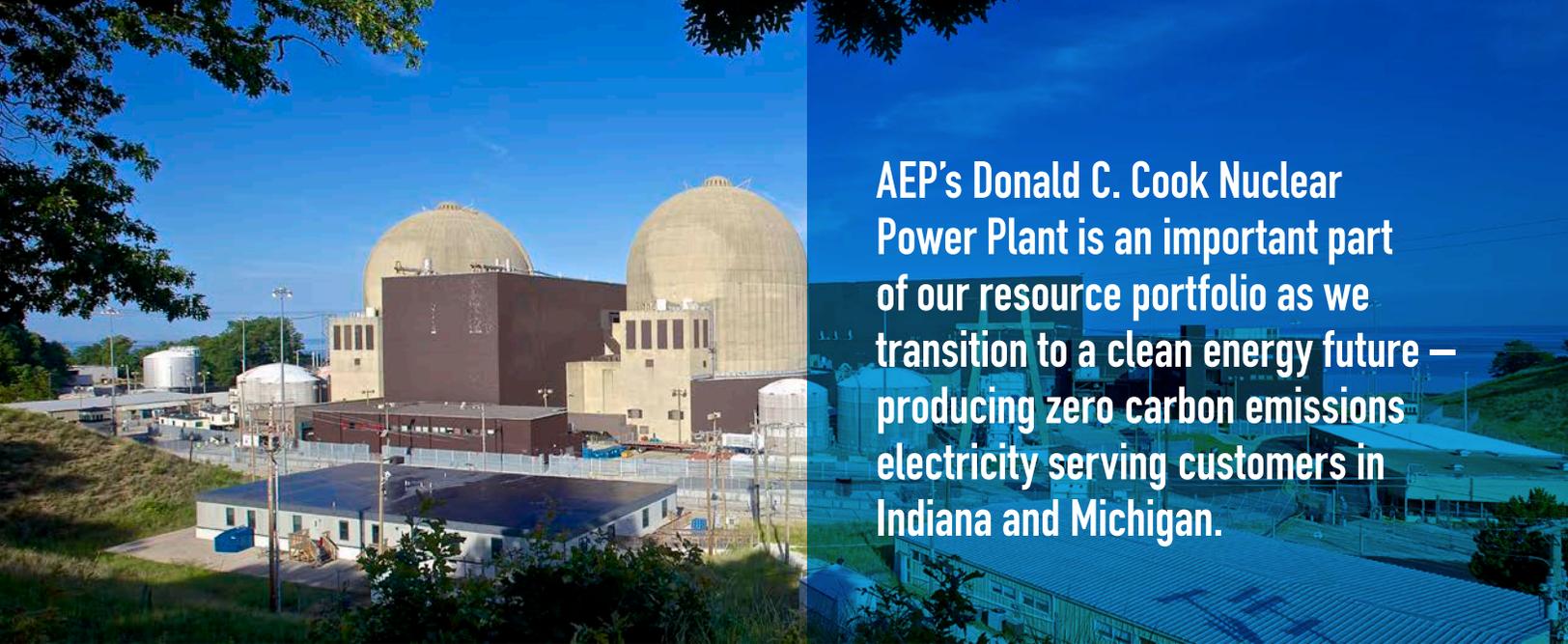
Distributed energy resources, also known as private generation (e.g., rooftop solar), could also bring changes in demand for electric service as customers replace the electric generation they receive from AEP with their own generation sources. This could reduce load and place a financial burden on AEP's customers, as operating costs become allocated among a smaller customer base. However, decreasing load could result in lowering AEP's carbon emissions because fewer fossil-fueled units will be needed to meet customer demand.

We believe it makes more sense for all stakeholders if AEP invests in universal renewables — those developed at large scale — because the cost is much less and the integration with the grid can be optimized. Universal renewables provide more efficient (higher capacity factor) clean energy to many more customers than private generation can. The proposed Wind Catcher project is one example of this.

In addition to Wind Catcher, AEP's operating companies have invested in wind and universal solar. Renewable Energy Purchase Agreements (REPA) also reflect increasing renewable generating capacity to serve our customers. The Bluff Point Wind Energy Center REPA will serve Appalachian Power customers in Virginia and West Virginia beginning in mid-2018. And AEP's Indiana Michigan Power Company is home to AEP's first large-scale solar facilities, with 14.7 MW of solar on the system.

While shifting to a more efficient and clean energy sector can produce significant benefits, there are economic trade-offs to consider. Investment in less-economic energy production results in social costs that affect household disposable income and employment. AEP's service territory is highly tied to natural resource extraction. Therefore, shifts away from these resources could have negative economic impacts for our customers and AEP, especially if new investments in low-carbon technologies or other new industries cannot be attracted to these areas.

Other uncertainties also exist, such as the



AEP's Donald C. Cook Nuclear Power Plant is an important part of our resource portfolio as we transition to a clean energy future — producing zero carbon emissions electricity serving customers in Indiana and Michigan.

future cost of natural gas, changes to tax incentives, the pace of economic growth and the development of new technologies both to generate electricity and reduce emissions.

TRANSPARENCY OF PERFORMANCE

AEP is committed to being transparent about its carbon risk management. We publish emissions data in several forums, including providing annual emissions updates in the CAR, responding annually to the CDP's Climate and Water Surveys, and participating in the Edison Electric Institute's (EEI) new ESG/Sustainability Reporting Template, which provides qualitative and quantitative ESG metrics for investors. We will continue to be transparent about our progress.

Additionally, AEP has ongoing proactive outreach and collaboration with various stakeholders (NGOs, customers, investors, etc.). Other collaborative efforts include working with the World Resources Institute's (WRI) Clean Power Council, a collaboration of WRI, utilities and some of our largest commercial and industrial customers to deploy low-carbon energy and technologies that achieve carbon reductions. AEP is also a member of the Alternative Transportation Electrification Alliance, whose mission is to accelerate the deployment of EVs and EV infrastructure, and support grid transformation by promoting open standards, helping shape state

policies and rate structures and facilitating expansion of EV infrastructure.

In addition, AEP actively engages in industry initiatives addressing a range of issues from electrification to new technologies through EPRI. These efforts, along with ongoing engagement with elected officials and policymakers about related public policy issues, are critical in managing regulatory, public policy and financial risks associated with climate change.

CONCLUSION

We believe AEP is sufficiently prepared to make the transition to a clean energy future. Our current resource plans and business strategy set a path that allows us to meet the 2030 and 2050 carbon reduction goals we have set, through a gradual series of steps, working hand-in-hand with our customers and regulators. As we plan for a low-carbon future, we are focused on the entire value stream of generation, transmission and distribution. Our investment strategy mirrors our customers' needs and values while enabling us to reduce our environmental footprint, modernize the grid and manage our coal-fueled fleet to deliver ongoing benefits to shareholders, customers and the environment.



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