

OHIO'S

ENERGY FUTURE TOUR



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OHIO'S

ENERGY FUTURE TOUR

PAVING THE WAY TO A NEW ENERGY VISION

FINAL REPORT

Ohio's 21st century energy policy should embrace cleaner resources and technological innovation to benefit both businesses and consumers. An energy future centered around these characteristics would invigorate a rapidly growing renewable energy and energy efficiency market that diversifies the state's portfolio, establish market certainty, ensure reliability and affordability, transform access to the grid, promote sustainable communities, and leave a healthy legacy for future generations. To transform this vision into reality requires a series of policies that reflect bold leadership, long-term planning and leverages the regional strengths of the state.

THAT PROCESS SHOULD BEGIN WITH OHIO POLICYMAKERS REINSTATING MEANINGFUL AND REQUIRED RENEWABLE ENERGY AND ENERGY EFFICIENCY STANDARDS.

GOALS OF A 21ST CENTURY CLEAN ENERGY VISION

AFFORDABILITY

ADAPTABILITY,
RELIABILITY &
SECURITY

CERTAINTY &
ECONOMIC
DEVELOPMENT

INNOVATION

PROTECTION OF
PUBLIC HEALTH
& IMPROVED
QUALITY OF LIFE

1.

2.

3.

4.

5.

The five goals represent key characteristics of a 21st century clean energy vision. The goals are further defined by themes that were voiced repeatedly in the regional forums and are presented in this report. The four policy recommendations would move Ohio forward on achieving these goals.



POLICY RECOMMENDATIONS TO MOVE OHIO FORWARD

REINSTATE MEANINGFUL AND REQUIRED RENEWABLE PORTFOLIO AND ENERGY EFFICIENCY STANDARDS

DEVELOP A COST-EFFECTIVE STATE PLAN FOR COMPLIANCE WITH THE CLEAN POWER PLAN TO REDUCE CARBON EMISSIONS FROM OHIO'S ELECTRIC POWER SECTOR

INCREASE DISTRIBUTED GENERATION, AGGREGATION AND NET METERING OPPORTUNITIES

REPEAL RESTRICTIVE SET-BACK REQUIREMENTS FOR WIND FARMS

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Ohio is uniquely positioned to emerge as a leader in the clean energy arena. Ohio's Energy Future Tour set out to discover the impact of renewable energy and energy efficiency in various regions of the state. Organizers of the Tour could not have predicted the enthusiasm, commitment, and success that we encountered in every corner of Ohio. Clean energy is a viable, rapidly growing industry sector, with business and community leaders eager to take advantage of the new jobs, cost savings, and improvement in quality of life that have accompanied its rise.

Frustration with public policy changes that impede the continued emergence of this industry could be seen in all sectors across the state. Over the course of the tour, Ohioans repeatedly expressed their support for strong clean energy policies that grow the economy in Ohio, create jobs, generate tax revenue, and protect public health and the environment.

Ohio, having achieved a position of leadership in the clean energy arena, should not relinquish that role at a time when others are moving forward. With its natural resources, skilled workforce, robust manufacturing base, and world-class innovation, Ohio should remain at the forefront of the drive to implement new forms of energy generation, distribution, and use. The good news is that it's not too late – Ohio can get back on track with the right combination of public policy and private action.

This report tells the story of the Tour and the diverse set of participants who shared their vision for Ohio's 21st century clean energy future.

BACKGROUND:

Ohio's Energy Future Tour is a collaboration among businesses, trade associations, nonprofit organizations, and local governments, designed to provide an opportunity for citizens around the state to share the positive impact that renewable energy and energy efficiency have had on economic development and quality of life.

The Tour's six regional forums reached over 800 people and spanned more than 700 miles, with input from experts and community leaders, public dialogue, and special presentations on energy-related issues. Audiences were a diverse mix of local residents, with over a third representing regional business interests. Each forum featured topics such as electricity costs, economic development, energy independence, public health and environmental protection, and focused on moving Ohio's energy future forward.

The Tour identified three interrelated organizing principles: **Leadership**, **Long-Term Planning**, and **Leverage**.

Leadership comes in many forms, from the individual to the collective. Ohio has been a leader in the area of renewable energy and energy efficiency, establishing a strong set of standards in 2008 and encouraging the growth of the industry and its supply chain. Those standards were not only being met, but exceeded, and the benefits in terms of cost savings and job creation were being felt throughout the state. Public policy was designed with the future in mind, and provided incentives for innovation, expansion, and adoption of new forms of energy generation.

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Business leaders who participated in the Tour continue to pursue the proven advantages of these technologies through their companies. Unfortunately, due to the freeze on renewable energy and energy efficiency standards, many of them must now go out of state to sell their products, generate new customers, and bid on projects. Local officials who previously saw their communities benefit from the influx of tax revenue and job opportunities now see the potential for new growth in this field diminishing. Leaders in the public health arena express concern for an increased incidence of chronic disease without continued progress in reducing emissions that lead to poor air quality. These impacts are the direct result of an uncertain and inconsistent set of guidelines for renewables and energy efficiency. Ohio needs an equivalent level of strong leadership in the political arena.

Long-Term planning is always a challenge in systems that revolve around relatively short-term electoral and/or budgetary cycles. It requires leadership to look beyond immediate considerations, and take action that will not only have a positive impact today, but will also contribute to the public good well into the future. Our political system is often said to be reactive – responding to crises, from the lack of sufficient solid waste disposal capacity to the presence of algal blooms in Lake Erie. It is far more difficult to be proactive, to anticipate the potential for a problem to occur and to take preventive steps. It will always be more cost effective to prevent a crisis than to try to remediate an existing one. The difficulty often lies in the lack of an organized constituency before the crisis takes place. In the case of clean energy, the Tour found a large and committed constituency in favor of actions that will reestablish Ohio's leadership role, and engage in policy making with the future in mind.

Few states have a greater diversity and abundance of resources than Ohio. It requires leadership and a long-term vision to **leverage** those resources in pursuit of a 21st century energy strategy. Many of the resources that are available for use in the clean energy sector were showcased during the Tour. We heard from educators representing Ohio's outstanding universities and extensive system of community colleges, where the next generation of technicians, engineers, and entrepreneurs are being trained and world-class research and innovation take place. We saw examples of a strong workforce, ready to take advantage of employment opportunities in the manufacturing sector – the backbone of Ohio's industrial base – with companies transitioning to new products in the advanced energy supply chain. We learned that banks, foundations, and portfolio managers see this sector producing significant returns on investment. And we were told of the increasingly important role that Ohio's dominant agricultural community plays in the future of energy.

These three organizing principles – Leadership, Long-Term Planning, and Leverage – are essential to move Ohio forward on energy goals identified by the Tour. In this report we discuss the following goals of the clean energy vision: Affordability; Adaptability, Reliability and Security; Certainty and Economic Development; Innovation; and Protection of Public Health and Improved Quality of Life. Within each of these, we have highlighted themes that were repeated by panelists and audience members across the state, along with policy recommendations to address them.

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GOAL: AFFORDABILITY

CLEAN ENERGY TECHNOLOGIES ARE INCREASINGLY COST COMPETITIVE.

“When SB221 passed in 2008, solar was being installed and people were being reimbursed in Ohio at a cost of between \$6 and \$7 a watt. Today we’re building a school in Bath Township at \$1.71 a watt, basically 25% of the cost six years later.”

MIKE SHAUT, PRESIDENT, CARBON VISION

“In terms of the cost, I think a lot of politicians have in their mind the cost profile of renewable energy from five or ten years ago. The reality is that wind energy’s costs have come down by almost 60% over the last five years. The US Energy Information Administration has said that wind energy is one of the most affordable options for electric generation of any type.”

TOM VINSON, VICE PRESIDENT, FEDERAL REGULATORY AFFAIRS, AWEA

“The status quo assumption is that solar is great, it’s better for the earth, but it costs more. The fact is that the cost of going solar is now at parity with the cost of doing nothing. We have customers who go solar and have their monthly payments on the solar system be smaller than they used to pay on their electric bill. The tipping point right now is that we have customers in Ohio – not Arizona or California – decide to go solar and have it cost zero out of pocket and have it save money from the very beginning.”

GEOFF GREENFIELD, PRESIDENT, THIRD SUN SOLAR

The statements above were characteristic of a message that was repeated at every forum – renewable energy is quickly becoming cost competitive with traditional forms of power generation. One of the significant benefits to purchasing renewable energy is the ability to avoid the price volatility of fossil fuels. It is difficult, if not impossible, to predict long-term fluctuations in the price of coal or gas, based on factors such as availability, costs associated with extraction, modes of transportation, and methods of byproduct disposal. However, companies who enter into long-term power purchase agreements with utility scale wind farms can ensure that their cost will not change throughout the life of the contract. The same can be said of solar installations, where technological advances are improving the efficiency and extending the life of solar panels. While both energy efficiency and renewable energy require upfront capital investments, the generation requires little to no operating costs, which can counteract part or all of the capital costs of clean energy investments. This increased cost competitiveness removes one of the most frequently heard arguments against promotion of renewable energy. It is important for policy makers who are concerned about the price their constituents will pay for electricity to recognize this shifting cost curve.

ENERGY EFFICIENCY IS A CRITICAL ELEMENT IN REDUCING DEMAND AND COSTS.

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“Companies approach projects from a business perspective with the goal of saving their customers money on everything from lighting retrofits to new construction and distributed generation. Ohio’s clean energy standards were working effectively prior to the freeze and we question the need to review the standards for this extended period since they were helping lower costs and create jobs.”

GREG SMITH, PRESIDENT, ENERGY OPTIMIZERS

“When you run a grocery business – and Kroger runs a few stores, 2700 nationwide – when margins are thin and competition is extreme, every penny counts and so energy efficiency is great business, huge returns on investment. When I have to take an energy project to my management I have to compete against pizza ovens and Greek yogurt dispensers our returns have to be pretty darn good. Thankfully they are. It helps contribute not only to a better environment, but also to lower costs for our goods and services and it’s nice to be able to deliver those benefits.”

DENIS GEORGE, CORPORATE MANAGER – ENERGY, KROGER

The kilowatt that isn’t used is the cheapest and cleanest form of energy. Recognizing that demand for electricity will continue to grow worldwide, it is clear that managing that growth in a responsible and sustainable manner will require a diverse energy portfolio and an emphasis on efficient use. The range of energy efficiency measures available to homes and businesses is substantial and continues to grow, whether applied to existing structures or to new building designs. The ability to conduct detailed energy audits that determine the need for upgrades and additions to a building’s efficiency profile has led to the creation of a new and highly successful business sector. Architectural and engineering firms increasingly include energy efficient design and construction in their strategic plan for customer growth.

The clear and immediate advantage to energy efficiency is cost savings. In both the public and private sectors, energy prices are a significant percentage of the overall cost of doing business, whether in a manufacturing plant, a retail store, or a government office. An investment in energy efficiency pays dividends quickly, improves the quality of the working environment, and sends an important message to clients and customers. The American Council for an Energy Efficient Economy found that demand reductions through energy efficiency measures often reduce the need for the most expensive power, further lowering wholesale prices. The same is true for Ohio families in the management of their budgets, which has led to large and small changes that reduce electricity costs and enhance their life style. As customers cut energy waste and use electricity more efficiently, they reduce their overall demand and save money on their bills.

According to the Midwest Energy Efficiency Alliance, the amount of electricity saved through utility energy efficiency programs in Ohio has increased dramatically since the implementation of standards, with energy efficiency savings in 2012 more than 25 times greater than savings prior to 2008. The utilities themselves, in reporting to the Public Utilities Commission of Ohio (PUCO), stated that they were able to meet their benchmark targets in a cost effective manner, and that customers were realizing the benefits of these programs.

In the AEP Ohio Energy Efficiency/Peak Demand Reduction Action Plan for 2015-2019, the company stated that the plan would save their customers “approximately \$1.5 billion” and create over 4,000 new jobs.” Dayton Power & Light (DP&L) reported in their 2013-2015 Portfolio Plan: “From 2009 through 2012, DP&L’s residential

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and business programs helped customers save 659,605 megawatt hours of energy, or enough energy to power 54,967 homes for a year. In terms of compliance, DP&L has doubled its 2012 cumulative energy benchmark target. They went on to state that “In addition to energy and monetary savings, DP&L’s energy efficiency programs have had a positive environmental impact. For instance, saving 659,605 megawatt hours of electricity is the equivalent of the annual greenhouse gas emissions from more than 95,000 passenger vehicles.”

RENEWABLE ENERGY AND ENERGY EFFICIENCY ARE THE SMARTEST WAYS FOR OHIO TO MEET NEW FEDERAL REGULATIONS.

“Progress is possible despite recent policy setbacks—if Ohio moves quickly to right the ship. Ohio’s efficiency and renewables policies are keys to successfully and cost-effectively cutting carbon pollution from power plants. As we roll up our sleeves to develop a plan for meeting the federal carbon rule, the state need only look to clean energy to get the job done.”

JACKSON MORRIS, DIRECTOR OF EASTERN ENERGY, NATURAL RESOURCES DEFENSE COUNCIL

In the summer of 2015, the U.S. Environmental Protection Agency finalized the Clean Power Plan (CPP), which sets the first ever federal limits on carbon pollution from existing power plants and calls for investments in clean, renewable energy and energy efficiency measures. This common sense policy demonstrates the United States’ commitment to addressing climate change.

The Clean Power Plan is flexible and achievable, and early projections indicate that Ohio can cut significant carbon emissions at low cost. Ohio has an opportunity to craft a customized implementation plan to achieve carbon pollution reductions, including developing renewable energy and deploying energy efficiency measures that promote economic growth and lower electricity bills for consumers. By utilizing the renewable energy and energy efficiency options in the CPP, the state can actually reduce the impact of retrofits and upgrades to the existing fleet and the potential for retirement of baseload generation.

The business community sees potential for new growth and job creation through implementation the CPP. In addition, the CPP presents an opportunity for states to protect public health and the environment by reducing the dangerous industrial carbon pollution that triggers asthma, heart attacks, and premature deaths.

While the final Clean Power Plan gives states more time to cut emissions and a smoother glide path, energy efficiency and renewables investments made today will help get Ohio closer to its goal even before the new 2022 start date on the carbon rules. EPA set the state targets using 2012 as the baseline year, and assumes that states would reduce emissions from that point through 2030. If Ohio presses the “restart” button on its clean energy policies, the state’s investments in efficiency and renewables today will continue to reduce carbon emissions, and as a result push Ohio closer to its final target.

The data are clear: Ohio has the ability to meet the Clean Power Plan when clean energy comes into play. If Ohio reinstates the standards by at least 2017, we will be ahead of the game in building up a store of clean energy resources and programs that deliver cost-effective emissions reductions, and in positioning Ohio as a leader in the clean energy economy. This is an opportunity for Ohio to develop a new, innovative path that will create well-paying jobs and protect human health and the environment.

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GOAL: ADAPTABILITY, RELIABILITY AND SECURITY

CLEAN ENERGY TECHNOLOGIES AND INNOVATIVE PROGRAMS ARE A RESPONSE TO THE GROWING DEMAND FOR NEW MODELS OF PRODUCING AND CONSUMING ENERGY

“We put a small combined heat and power system at one of our facilities here in Sharonville. It’s a 200 Kilowatt System and it generates our baseload electricity. Our peak load is upward of 700 kilowatts but for our baseload we are able to run this engine all the time and we’re producing power at a lower cost than what we can buy from the utility. Then we’re able to take the waste heat from the exhaust gas and generate hot water that is then used in one the processes in our plant.”

MICHAEL BURKE, DIRECTOR, PROCESS ENGINEERING, ENERFAB

“The Museum essentially wants to be sustainable now and into the future. We require stable climate to protect a world class art collection and that means certain energy intensive processes. The collection is available to everyone. The cost of general admission is zero. In order to do that, we must become more efficient. Renewables help us take command of that. By investing in solar we fixed our future power costs. By generating power on site we’ve eliminated transmission losses. We have enhanced reliability. We could function if there was a grid wide problem.”

PAUL BERNARD, MANAGER, PHYSICAL PLANT & CAPITAL PROJECTS, TOLEDO MUSEUM OF ART

“SOPEC was created to address two elements of the community choice aggregation programs – pooling our purchasing power to reduce rates and making additional energy goods and services available to local residents. In doing so we are supporting the transition to a clean energy economy and stimulating economic development in the region.”

ROGER WILKENS, EXECUTIVE DIRECTOR, SOUTHEAST OHIO PUBLIC ENERGY COUNCIL

We live in a time of constantly accelerating technological innovation that offers many new options for energy consumers to lower their costs, increase reliability, and reduce their carbon footprint. Traditional methods of producing, distributing, and consuming electricity no longer meet the needs of many consumers, including businesses. Policies that continue to favor the traditional system undermine the emerging competitive market for generating and using energy in innovative ways. Larger commercial and industrial consumers can enhance reliability and realize costs savings through installation of distributed generation, and smaller businesses and residents can exercise greater control over the source and price of electricity through community aggregation.

Innovations in financing are also changing the way consumers can access clean energy. Many local governments are creating special tax districts to help property owners finance energy retrofits by allowing them to place an additional tax assessment on their property. Known as Property-Assessed Clean Energy (PACE), these programs enable property owners who invest in energy efficiency (EE) measures and small renewable energy (RE) systems repay these assessments over 15 to 20 years via additional annual payments on their property tax bills. This spreads out upfront costs and allows the energy savings resulting from the improvements to be used to pay back the costs.

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Net metering is another important policy tool that enables consumers who install solar systems on their properties to receive full retail credit for the surplus energy they provide to the electric grid. Utilities then sell this clean electricity at the retail rate to customers nearby. Solar customers typically reduce a portion of the conventional electricity they buy from the utility, but not all of it. Through the ability to feed their excess electricity back into the grid, net metering allows them to save additional costs and, at the same time, contribute to a reduction in the need for more expensive centralized generation capacity.

DECENTRALIZED SYSTEMS AND ADVANCED TECHNOLOGIES PLAY AN INCREASINGLY IMPORTANT ROLE IN PROTECTING AGAINST THREATS AT HOME AND AROUND THE WORLD.

“There are external costs of fossil fuel generated electricity that are not being accounted for, whether it’s the environmental costs, health care costs, the security costs. Just think of how risk prone we are as a country because we have these central power plants and transmission grids feeding millions of people and a cyber-attack or a terrorist attack could bring down this country’s economy. The more decentralized the energy industry is designed and built, the more secure we are.”

[STEVE MELINK, PRESIDENT/OWNER, MELINK CORPORATION](#)

“Energy efficiency is very important for national security. The United States Air Force serves on many fronts – military engagement, search and rescue, and humanitarian missions. Approximately 10% of the Air Force budget is energy, and 80% of that goes to aviation. If we can develop more efficient turbine engines and alternative fuels that can be produced in this country, we can not only save money but also protect our people and assets.”

[LESLIE PERKINS, PH.D., DIRECTOR, ENERGY OFFICE, AIR FORCE RESEARCH LABORATORY](#)

While our focus is on Ohio, it is important to remember the interconnected nature of energy systems and the new threat profiles that we face as a nation. Financial institutions, essential government services, commercial and industrial operations all require reliable and secure power sources. We saw the cascading effect that transmission failure – originated in Ohio – had across large areas of Canada and the United States in the summer of 2002, affecting an estimated 10 million people in Ontario and 45 million people in eight U.S. states. Vital public services such as water supplies, transportation systems and communication networks were all impacted. Shifting our reliance from large centralized delivery systems and diversifying our generating fleet provides a hedge against intentional or accidental disruptions that could prove to be catastrophic.

The Truman National Security Project states: “America must reduce its demand for oil, combat climate change, and secure energy infrastructure. Oil dependence puts our security at risk no matter how much we pump here at home. We must also encourage cleaner energy technologies to combat global climate change, which military and security leaders say makes the world a more dangerous place. Finally, we must secure our nation’s power grid against attacks and disruptions that threaten our economy.” In many places – including bases in Ohio – the military is taking the lead to develop clean energy and energy productivity technologies through private-public partnerships with the energy industry. Whether to increase efficiency and reduce costs at their domestic facilities, to enhance the productivity of their fleet and operations around the world, or to ensure the safety of military personnel, all branches of the armed forces have instituted aggressive clean energy initiatives.

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GOAL: CERTAINTY & ECONOMIC DEVELOPMENT

OHIO COMPANIES AND BUSINESSES WILL BENEFIT FROM THE GROWTH OF A CLEAN ENERGY ECONOMY.

“Many Fortune 100 companies are starting to invest directly in clean energy. Companies like Amazon, Facebook, Google and eBay see the business opportunity and are now looking to power their new data centers with renewable energy. These same companies want greater local choice, resilience, savings and flexibility when considering purchasing electricity.”

STU DALHEIM, VICE PRESIDENT, SHAREHOLDER ADVOCACY, CALVERT INVESTMENTS, DAYTON.

“In data published by the National Renewable Energy Labs, Ohio could be hitting as high as 40% of your overall mix from renewable sources of power. If Ohio achieved that, it would create over 1000,000 construction jobs with five billion in wages and benefits. Over the long term that's 6,000 jobs in operations and maintenance, 400 million in tax revenue, 50 million in leases to farmers and land owners. There is significant economic potential for the state if you pursue renewables aggressively.”

RYAN HODUM, VICE PRESIDENT, DAVID GARDINER & ASSOCIATES FOR A RENEWABLE AMERICA

Development officials aggressively recruit companies to locate in their states and communities by offering a range of financial incentives. A few years ago, Ohio had the foresight to create a tax credit for technology data centers, recognizing the growing demand for offsite, geographically dispersed data storage. This data center tax credit is clearly working with Amazon commencing construction of three facilities in central Ohio and Columbus being one of two finalists for a Facebook data center. However, Amazon committed to buying their power from a wind farm to be built in North Carolina. And Facebook selected Ft. Worth, Texas over Columbus as the home of its next data center, with the facility being powered by wind energy from a Texas wind farm just beginning construction.

It is becoming increasingly clear that access to sources of renewable energy generation is a priority for many of the companies seeking to expand or relocate. This is especially true for the proliferation of data centers across the country, as nearly all technology companies have sustainability goals to be 100% powered by renewable energy by certain dates in time. Sustainability targets alone do not drive the significant influence of renewable energy in site location decisions. The declining cost of renewable energy is the primary reason companies like Amazon, Dow Chemical, Kaiser Permanente, and Facebook choose to purchase their power directly from wind farms. The cost of wind energy has declined nearly 60 percent in the past five years, making it competitive with traditional energy sources – with the added bonus of being able to lock in a fixed price for 20 years with a power purchase agreement.

Though corporations generally do not state reasons for siting decisions, the importance of reliable and affordable power to energy intensive operations and the expansion of corporate commitments to sustainability by both management and shareholders is undeniable. In order for states to contend in this “beauty contest” of attracting data centers and other significant companies, they must send signals that their policies are friendly to renewable energy and energy efficiency.

BUSINESSES NEED POLICY CERTAINTY WHEN CONSIDERING SIGNIFICANT NEW INVESTMENT AND EXPANSION.

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“Energy Developments, Inc. has already invested approximately \$105 million in Ohio and would like to invest more, but decided to halt any further development given the recent “freeze” on standards and potential future changes to the law”.

[DENNIS BOLINGER, VICE PRESIDENT, BUSINESS DEVELOPMENT, ENERGY DEVELOPMENTS, INC.](#)

Given that companies operate in an environment of regulatory requirements and that these requirements are factored into their decisions, greater stability in the regulatory regime will give business leaders a greater degree of confidence in making crucial decisions. This is especially true of decisions related to new investment and expansion of existing operations.

In addition to broad policy initiatives that recognize the importance of clean energy technologies in the 21st century economy – such as renewable portfolio and energy efficiency standards – siting requirements for new installations must be fair and consistent. Changes in siting requirements that significantly reduce or completely eliminate the opportunity for companies to develop new projects have an impact beyond the individual company involved. Punitive siting requirements negatively affect the potential for economic development throughout a region – in the production of goods and services, generation of tax revenues, and influx of support for local educational, cultural, and charitable institutions.

One significant policy barrier should be addressed immediately. In 2014, Ohio lawmakers dramatically increased the minimum setback requirements for wind turbines with no public debate or input from those directly impacted. Despite the fact that the Ohio Power Siting Board oversees every aspect of wind energy development in the state and that the two existing wind farms in Ohio are operating with no complaint from those living in and amongst them, Ohio lawmakers chose a draconian approach which has halted wind farm development in Ohio. However, House Bill 190, introduced just this spring, will address some of the problem by allowing counties and communities that want wind farm development to choose to return to the original turbine setback requirements, giving a green light for wind farms to be built in their communities. The bottom line for companies, whether it's a data center, wind developer, or major corporation interested in a 20 year fixed price for energy, is policy stability.

GOAL: PROTECTION OF PUBLIC HEALTH AND IMPROVED QUALITY OF LIFE

CLEAN ENERGY IS A PATHWAY TO DECREASING THE INCIDENCE OF PREVENTABLE DISEASES AND CHRONIC CONDITIONS

“The density of morbidity and mortality that's related to power plant pollution, specifically cardiorespiratory disease, is statistically concentrated right here in Ohio and western Pennsylvania. Like many environmental health burdens, that burden is born disproportionately by vulnerable populations. Those include socio-economically disadvantaged communities who tend to host power plants, communities of color, and a population that concerns me in particular, which is children.”

[DR. APARNA BOLE, PEDIATRICIAN AND SUSTAINABILITY DIRECTOR AT UNIVERSITY HOSPITALS](#)

“While most view clean energy as an environmental issue, it has direct health benefits as

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well. When looking at the sources of electricity, the full life cycle – including total impacts from extraction to transportation, end use, and emission – should factor into the costs.”

RICK HICKS, DIRECTOR OF HEALTH PLANNING, COLUMBUS PUBLIC HEALTH

Speakers representing the public health and health care sectors stressed the need to consider public health effects in any discussion of the total cost of generating and delivering electricity, in particular, the connection between air quality and sickness, chronic disease, and premature death. Poor air quality affects populations differently, depending on the levels of pollutants, the length of exposure, and the degree of sensitivity.

Of the 35 cities most affected by carbon pollution nationally, seven are in Ohio: Dayton, Cleveland, Toledo, Akron, Cincinnati, Youngstown and Columbus. These cities are home to roughly five million Ohioans. In the Northeast Ohio area, the pediatric asthma rate among African American children and those living in homes at or below the poverty line is close to 20%, compared to a national average of 9%. Due to these concerning statistics, Ohio clinicians are joining newly formed groups through the American Lung Association called Doctors for Climate Health and Nurses for Climate Health. These trusted messengers recognize the opportunity to help their patients understand the connection between fossil fuel emissions, air quality and lung health. Strong limits on emissions could prevent 3,500 premature deaths, 1,000 hospitalizations, and hundreds of heart attacks each year by 2020, according to a 2014 study by scientists from Harvard, Syracuse, and Boston Universities on the health “co-benefits” of reducing carbon pollution.

CLEAN ENERGY IS A CATALYST FOR REDUCING HOSPITAL COSTS AND IMPROVING HEALTH CARE.

“Like most businesses, energy efficiency translates into the bottom line direct cost savings, but more importantly for us are the indirect benefits in health savings. Our facilities are very energy intensive. We run 24/7 energy intensive equipment, so energy efficiency is really important. We also have to make sure that we are delivering high quality care to our patients at the same time.”

KATIE SCHNEIDER, SUSTAINABILITY CONSULTANT, TRIHEALTH, CINCINNATI.

Health care is the second most energy intensive sector in the United States, with an estimated \$8.3 billion in costs associated with energy use, representing 8% of US energy consumption and 7% of US greenhouse gas emissions. In an effort to reduce those costs and shift savings into improved patient care, hospitals are taking proactive steps to enhance operating efficiencies. According to Energy Star for Healthcare, every dollar that a nonprofit healthcare institution saves on energy translates to \$20 in new revenues. In addition to cost savings, improvements in energy use by hospitals can reduce emissions and improve local air quality for their patient population.

Two of the organizations in the broad coalition that supported Ohio's Energy Future Tour – Healthier Hospitals Ohio and the Ohio Hospital Association (OHA) – prepared a collection of energy case studies from four Ohio hospitals. Among the findings were:

- Cleveland Clinic has implemented pilot projects that already save \$250,000 annually toward its \$12 million energy demand reduction target;
- Highland District Hospital implemented a combination of projects and operational improvements that increased its ENERGY STAR rating to 64 and resulted in rebates of over \$20,000 from their local electric utility;

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- ProMedica Wildwood Orthopedic and Spine Hospital installed an advanced combined heat and power system that has achieved the energy and greenhouse gas reduction goals within the first two years of operation; and,
- More than 450 University Hospitals employees pledged 2,071 energy saving actions at work in the UH Employee Energy Challenge.

In 2014, hospitals benchmarking energy use with OHA reduced annual energy consumption by more than 2.8 percent – four times the national average. In 2015, the Ohio Hospital Association (OHA) launched the inaugural OHA Energy Cup, an ENERGY STAR Battle of the Buildings Competition. OHA will recognize the overall Top Large Hospital (more than 100 beds) and Top Small Hospital (less than 100 beds), determined by the percentage-based reduction in energy use achieved from 2014 to 2015. OHA will also recognize the Top Healthcare Building using the same metric, as well as all competitors who reduce energy use by at least 2 percent from 2014 to 2015 and any hospital that is ENERGY STAR certified. The OHA Energy Cup is co-sponsored by AEP Ohio, Dayton Power & Light, and the American Society for Healthcare Engineering's (ASHE) Energy to Care initiative. The OHA Energy Cup is one of a handful of local competitions related to the EPA's national Battle of the Buildings Competition. Over 6,500 buildings entered the competition nationally. Of the 172 hospitals that have entered, OHA is a leading participant with over 70 enrolled, more than 40% of hospital entries. Ohio also has the third most overall competitors of any state (402), and OHA is the 15th behind Ohio-based Kroger for the number of entries.

CLEAN ENERGY IMPROVES QUALITY OF LIFE AND CREATES SUSTAINABLE AND SUCCESSFUL COMMUNITIES.

“The primary responsibility of the Sustainability Commission is to implement The Greater Toledo “Going Beyond Green” Sustainability Plan that we completed about a year ago. Energy Efficiency and renewable energy are called out in specific parts of our sustainability strategy, but in many ways energy as a solution is woven throughout the plan. Through our initiatives, reduction in energy use is either a means to achieve some of our goals or the outcome of some of our projects.”

MELISSA GREENE, SUSTAINABILITY COORDINATOR, LUCAS COUNTY

There are some very impressive steps that the city is taking in-house, but the things we are doing in-house are only part of what city government does. City government is also promoting changes in the broader community. We're motivated by the good things and the hopeful things that happen in Cincinnati when we do something about energy – cleaner air, healthier populations. It attracts people and businesses to the city. After fifty years of population decline, for the last four years Cincinnati is growing again. All of those are benefits that come from getting serious about sustainable energy.”

LARRY FALKIN, DIRECTOR, OFFICE OF ENVIRONMENT & SUSTAINABILITY, CITY OF CINCINNATI

“Blue Creek Wind Farm in Northwest Ohio has been operating for almost three years now. There are so many different levels of benefits. First and foremost is clean energy. But there is also tremendous local economic development opportunity. We're the largest single taxpayer in Van Wert County and the second largest in Paulding County – a enormous source of revenue for townships, counties and, particularly schools. Our turbines are located primarily on farm land and allow farmers to collect about 2 million dollars a year in royalties.”

DAN LITCHFIELD, SENIOR BUSINESS DEVELOPER, IBERDROLA RENEWABLES, INC.

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The Tour heard from a number of local officials whose role is to advance the sustainability agendas of their communities. Quality of life is high on the check list of companies looking to relocate or expand and hoping to attract top talent to their operations. Young professionals increasingly rank quality of life considerations above salary when seeking employment. Quality of life can mean many things – green space, public transportation, locally sourced foods – as well as environmental characteristics such as clean air and water, which we know to be impacted by power plant emissions. Clean energy is a significant element in the quality of life equation, and more and more companies and residents alike are concerned not only about cost, but about where their power comes from and what impact it is having on the environment.

Ohio citizens and communities benefit from the location of a renewable energy facility. Ohio landowners receive \$3 million from annual land lease payments and local communities' annual tax revenue from these facilities has reached \$3.7 million. The Blue Creek Wind Farm in Van Wert and Paulding Counties is an excellent example. Located in parts of six different townships and four school districts, Blue Creek has brought an influx of direct and indirect revenue to the Northwest Ohio area.

GOAL: INNOVATION

CLEAN ENERGY INNOVATION CREATES SIGNIFICANT INVESTMENT OPPORTUNITIES.

“There are three roles for a foundation that fit into our decision to invest in clean energy. The first is supporting innovation. The second is lowering the risk potential and helping get ideas to market. And the third is the leadership role that we have in philanthropy and the ability to take long-term views. One of the challenges in Northeast Ohio is that we missed the IT revolution and were always playing catch up. We want to get out in front of something new and help make clean energy one of our region's strengths.”

[ROBERT ECKARDT, EXECUTIVE VICE PRESIDENT, THE CLEVELAND FOUNDATION](#)

Increasingly, investors are paying closer attention to the risks and opportunities associated with energy and climate change. Fund managers look at a company's ability to assess and respond to risks and their willingness to engage in new ways of doing business that include new energy configurations. Investment firms take into account policy considerations as one of the external influences on the success of corporate enterprises. Foundations whose focus is on a particular region, as well as foundations with broader geographic influence, are increasingly focused on developing and deploying advanced energy technologies because of the local and regional benefits they create.

CLEAN ENERGY POWERS THE ACADEMIC ENTERPRISE AND PROVIDES OPPORTUNITIES FOR OHIO TALENT AND TRAINING.

“The university community can play an important role in the energy revolution. We have incredibly bright, motivated innovators who need the support of Ohio because without it our competition elsewhere in the country will have an unfair advantage. And it is incredibly important that we prepare our future leaders to understand and navigate the dynamically changing energy landscape.”

[ALEXIS ABRAMSON, PROFESSOR AND GLEI DIRECTOR, CASE WESTERN. CLEVELAND](#)

OHIO'S ENERGY FUTURE TOUR: FINAL REPORT

“My idea with the renewable energy program is to take the mystery out of these technologies. Fuel cells were patented in 1838, wind turbines in 1868, the modern solar panel in 1955. These are not new technologies, they are technologies that were literally “back-bur-nered” for cheap and abundant fossil fuels. A hundred years later we realized there were some major mistakes with that strategy.”

LARRY FEIST, PROFESSOR AND PROGRAM CHAIR, CINCINNATI STATE TECHNICAL AND COMMUNITY COLLEGE

Few states can rival Ohio for the number of public research universities, the quality and quantity of independent colleges and universities, and the extensive system of community and technical colleges. These institutions are training the next generation of scientists, engineers, entrepreneurs, and technicians, as well as future business and community leaders.

The Ohio Board of Regents and other public officials frequently bemoan “brain drain” – the situation in which the best and the brightest young people, raised and educated in Ohio, are moving elsewhere to pursue their careers. Nowhere is this more likely to occur than in the clean energy sector if Ohio relinquishes its leadership role and fewer and fewer projects are being built. Corporate recruiters are finding that an increasing number of potential employees are seeking positions focused on clean energy, even in companies with large and diverse operations. One electrical contractor has said that the skilled tradesmen who are applying for positions with his company want to build their careers around solar installations. If we continue to create academic programs that prepare students for careers in advanced energy and we enact policies that promote the development and deployment of those technologies, talented students will enroll and they will stay after graduation – contributing to the economic wellbeing of Ohio communities.

Universities are also looking to renewable energy as a way of saving money on their energy bills – a significant part of the bottom line for many institutions – and as a way of attracting students in a very competitive recruitment market. GEM Energy, a Rudolph Libbe Company, is partnering with the Ohio Federation of Independent Colleges (OFIC) on several solar installations that are intended to be both teaching tools and a hedge against rising energy costs. Other institutions are entering into long term agreements for renewable energy, the most notable being The Ohio State University purchase of up to 25% of main campus power requirements from the Blue Creek Wind Farm in Van Wert and Paulding Counties. Through this agreement, OSU was able to lock in fuel prices for a twenty-year period and to advance their goal of carbon neutrality at the same time.

OHIO'S ENERGY FUTURE TOUR: FINAL REPORT

THE FORUMS:

MILEPOST 1: CLEVELAND

Ohio's Energy Future Tour began on December 15 at the Great Lakes Science Center in Cleveland. The Cleveland forum drew one of the Tour's largest crowds and featured the largest number of speakers divided among three panels: The Business of Clean Energy, Building a Sustainable Region, and The New Energy Economy – Positioning Ohio to Lead. Led by moderator Tom Chema, former Hiram College President and PUCO Chair, audience members heard from local business leaders with unique stories of success in the advanced energy economy. Some companies were founded specifically to work in the renewable energy space; others took advantage of existing capabilities and transitioned to new products and processes. We heard from financial institutions and foundations that fund clean energy projects, local government agencies promoting sustainability, universities engaged in energy research and education, and health care facilities concerned with patient well-being. A special showing of the video “Harnessing the Wind” – chronicling the development and impact of the Blue Creek Wind Farm in Northwest Ohio – showed the audience firsthand the enthusiasm from a local community towards their largest corporate citizen.

MILEPOST 144: COLUMBUS

On February 10, the Tour assembled at the Athletic Club of Columbus, in sight of the Ohio Statehouse. Among those present were legislators and their staff members, state agency personnel, citizens and local public officials. The Business of Clean Energy and the New Energy Economy panels were reprised, with the addition of a third panel focused on The Impact of Clean Energy – Improved Quality of Life for Ohioans. In addition to companies doing business in the central Ohio area, we heard from the Mid-Ohio Regional Planning Commission (MORPC), the Ohio Farm Bureau Federation, and the Columbus Public Health Department, who shared data on the intersection of public health issues and energy generation. The first of a series of studies whose findings support the economic benefits of renewable energy development was presented in Columbus. “Powering Up Ohio” – a report from A Renewable America (ARA) – assesses the “current and potential benefits from developing renewable electricity in Ohio” by examining various deployment scenarios. Under all circumstances, the state benefits from new investment and job creation. At the conclusion of the forum, Moderator Eric Thumma, Director of Policy and Regulatory Affairs for Iberdrola Renewables, urged audience members to make their voices heard through interaction with policy makers.

THE PLEDGE

During the first forum, we heard audience members ask: “What can we do to help? In response, the Tour announced the development of a statement or “pledge” declaring support for renewable energy and energy efficiency. By signing the pledge either online or at a forum, citizens have told Ohio's leaders to support policies that include these cost competitive technologies in the State's energy plan. To date, thanks to outreach by coalition partners, approximately 10,000 signatures have been collected.

MILEPOST 216: DAYTON

Heading west, the Tour convened at the University of Dayton (UD) on March 16. We were honored to have Dayton Mayor Nan Whaley offer welcoming remarks and set a positive and forward-looking tone for the evening. The panels included: The Business of Clean Energy and Building a Sustainable Future. The Dayton area has a robust and long standing tradition in the energy field and a diverse set of companies and institutions who lead

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the way, including Wright Patterson Air Force Base, where the Air Force Research Laboratory (AFRL) and the Air Force Institute of Technology (AFIT) are housed. AFRL and UD are partners in collaborative research on technologies and fuels to improve both our military capacity and our energy security. We heard from the director of AFRL, as well as the director of the new Hanley Sustainability Institute on the campus of UD. The Tour was pleased to welcome the Hanley Institute as our first regional forum co-sponsor, and to see the large number of faculty and students in attendance at the forum. Several of the companies represented on the business panel focused on energy efficiency, describing the significant cost savings that school districts and other public entities have achieved through energy efficiency retrofits and new designs.

John Seryak, founder of Go Sustainable Energy and one of several business leaders in attendance with ties to the UD engineering program, served as forum moderator.

INTERIM REPORT: OBSERVATIONS FROM MILEPOST 216

It became clear from the first three forums that certain themes were emerging in our discussion. Regardless of regional differences, the business and community leaders had common concerns and aspirations related to the advancement of renewable energy and efficiency, not just in their area but for Ohio as a whole. Therefore, between the Dayton and Toledo forums, the Tour issued an Interim Report briefly summarizing preliminary findings and including quotations from panel members who had addressed the dominant issues.

MILEPOST 366: TOLEDO

On April 27, the Tour turned back to the North Coast for the fourth forum, with the Toledo-Lucas County Port Authority as our regional co-sponsor and the Grand Lobby of the Toledo Amtrak Station as our venue. Kevin Moyer, Port Authority Executive Director, served as the moderator. In a video welcome, Congresswoman Marcy Kaptur recounted the many energy initiatives underway in Northwest Ohio and the need for policies that encourage and support progress. Among the panelists were Toledo-based companies working closely with local institutions to advance projects that enhance the region and deliver cost savings, as seen in the impressive transformation of the Toledo Museum of Art to a zero emissions facility. Wind energy is a significant contributor to the region's economy. Audience members heard from a local educator whose career center is one of many entities benefitting from the tax revenue generated by the Blue Creek Wind Farm. "Harnessing the Wind" – first shown at the Cleveland forum – was shown in Toledo as well. The second of the reports highlighted on the Tour was issued by the Pew Charitable Trusts and presented during this forum. "Clean Energy Rising: Manufacturing powers clean energy in Ohio" explores the elements that have contributed to Ohio's success in the clean energy economy with recommendations on maintaining future competitiveness in the industry.

MILEPOST 570: CINCINNATI

Southwest Ohio was well represented by a set of expert panelists and a large and enthusiastic audience at Cincinnati State Technical and Community College on June 1. Moderated by Jeremy Faust, from the Greater Cincinnati Energy Alliance (GCEA), the panels not only presented compelling stories of regional success, but also addressed the "big picture" issues of why clean energy is necessary and what needs to be done in order to move forward. The importance of educating the public on energy matters and the ability to assess non-monetary benefits of renewables and efficiency were discussed in the context of health care institutions, consumer-driven businesses, and the agricultural community. Third in the series of reports presented during the Tour was an Ohio Advanced Energy Economy (Ohio AEE) study that assessed the advantages and disadvantages of four different resource alternatives or scenarios. Scenarios involving energy efficiency and demand manage-

OHIO'S ENERGY FUTURE TOUR: FINAL REPORT

ment, as well as renewable energy and combined heat and power (CHP), were found to be the most advantageous, registering long term benefits without any of the disadvantages present in fossil fuel-based scenarios. Green Umbrella, Cincinnati State, and GCEA were generous co-sponsors of the Cincinnati event.

MILEPOST 726: ATHENS

The final forum was held on June 26 at the Community Center in Athens. Congressman Steve Stivers provided a video welcome and Athens County Commissioner Chris Chmiel offered opening remarks on the unique challenges and benefits of living and working in Southeast Ohio. The Ohio University Voinovich School of Leadership and Public Affairs and Upgrade Athens County, a project of the Southeast Ohio Public Energy Council (SOPEC), were event co-sponsors and shared their deep understanding of the region's energy needs, history, and potential. Athens was the first forum to have two moderators – Scott Miller representing the Voinovich School and John Glazer from TechGROWTH. The diversity of speakers was characteristic of the region, with the strength of the solar industry in Southeast Ohio reflected in the composition of the business panel. The Ohio Hospital Association presented the final study highlighted on the Tour. Hospitals, like all large institutions, constantly strive to lower costs; however, hospitals also have the unique goals of better patient care and improved health within the general population. “Ohio Healthier Hospitals: A Collection of Energy Case Studies” presents the story of how three major health care facilities have achieved significant success through investments in clean energy, energy efficiency and resiliency.

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BUSINESS:

CLEVELAND:

Dennis Bollinger, Vice President, Business Development, Energy Developments, Inc.

Al Frasz, President, Dovetail Solar and Wind

Steve Peplin, CEO, Talan Products

Andrew Watterson, Head of Sustainability, Key Bank

Laura Nicholson, Applications Engineer, Echogen

Mike Shaut, President, Carbon Vision

Tom Sherman, President, Sustainable Energy Services, Inc.

Tom Chema, Founder and President, The Gateway Group (Moderator)

COLUMBUS:

Tom Roberts, Senior Director of Operations, Nationwide Energy Partners

Dennis Bollinger, Vice President, Business Development, Energy Developments, Inc.

Mark Schuetz, President, Replex Plastics

Matt White, General Counsel, IGS Energy

Dan Litchfield, Senior Business Developer, Iberdrola Renewables, Inc.

John Seryak, CEO, Go Sustainable Energy, LLC

Chris Allwein, Partner, Williams Allwein & Moser, LLC

Eric Thumma, Director, Policy & Regulatory Affairs, Iberdrola Renewables (Moderator)

DAYTON:

Michael Berning, Director, Business Development, Marketing & Sustainable Design, Heapy Engineering

Greg Smith, President, Energy Optimizers

Nadja Turek, Director, Sustainability Services, Woolpert, Inc.

Mark Wiley, President, Kastle Solar

John Seryak, CEO, Go Sustainable Energy, LLC (Moderator)

TOLEDO:

Anthony Smith, Energy Coordinator, Cooper Tire & Rubber

Greg Steenrod, VP Business Development, GEM Energy

Jay Troger, CEO, Nextronex

Dan Litchfield, Senior Business Developer, Iberdrola Renewables, Inc.

CINCINNATI:

Michael Burke, Director, Process Engineering, Enerfab

Denis George, Corporate Manager – Energy, Kroger

Steve Melink, President/Owner, Melink Corporation
Beth Robeson, Community Solutions Director, Empower G&E

ATHENS:

Geoff Greenfield, President, Third Sun Solar

Don Linder, Broker/Owner, Larry Conrtah Realty

Jan Willem van der Werff, CEO, Ecolibrium Solar

Christine Hughes, Owner, The Village Bakery

Al Frasz, President, Dovetail Solar and Wind

LOCAL GOVERNMENT/COMMUNITY INSTITUTIONS

CLEVELAND:

Jenita McGowan, Chief, Office of Sustainability, City of Cleveland

Joann Scudder, Director of Sustainability, Cuyahoga County Agricultural Society

Lorry Wagner, President and CEO, LEEDCo

COLUMBUS:

Christina O'Keeffe, Director of Energy & Air Quality, Mid-Ohio Regional Planning Commission

DAYTON:

Eileen Moran, MPA, RS, Unit Supervisor, Regional Air Pollution Control Agency

TOLEDO:

Melissa Greene, Sustainability Coordinator, Lucas County

Paul Bernard, Manager, Physical Plant & Capital Projects, Toledo Museum of Art

Kevin Moyer, Executive Director, Energy Programs, Toledo-Lucas County Port Authority (Moderator)

CINCINNATI:

Larry Falkin, Director, Office of Environment & Sustainability; City of Cincinnati

ATHENS:

Chris Chmiel, Athens County Commissioner

Sarah Conley-Ballew, Director, Upgrade Athens County

Roger Wilkens, Executive Director, SOPEC

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Gary Goosman, Senior Programs Director, COAD; Mayor of Amesville

PUBLIC HEALTH/HEALTH CARE/HOSPITALS

CLEVELAND:

Aparna Bole, Pediatrician and Sustainability Manager, University Hospitals

COLUMBUS:

Rick Hicks, Director of Health Planning, Columbus Public Health

DAYTON:

Jerry Renfrow, CHFM, Director, Facilities & Environmental Services, Kettering Health Network – Grandview Medical Center

TOLEDO:

David Dennis, Director, Energy & Property Management, ProMedica

CINCINNATI:

Katie Schneider, Sustainability Consultant, TriHealth

ATHENS:

Rick Sites, General Counsel & Senior Director of Health Policy, Ohio Hospital Association

ECONOMIC DEVELOPMENT/TRADE ASSOCIATIONS/ORGANIZATIONS

CLEVELAND:

Tom Vinson, Vice President, Federal Regulatory Affairs, AWEA

COLUMBUS:

Brandon Kern, Director of State Policy, Ohio Farm Bureau Federation

Ryan Hodum, Vice President, David Gardiner & Associates (A Renewable America)

DAYTON:

Jackson Morris, Director, Eastern Energy, NRDC

TOLEDO:

Dale Arnold, Director, Energy, Utility & Local Government Policy, Ohio Farm Bureau Federation

Tom Bullock, Ohio Representative, Pew Charitable Trusts

CINCINNATI:

Dale Arnold, Director, Energy, Utility & Local Government Policy, Ohio Farm Bureau Federation

Ted Ford, CEO, Ohio AEE

Jeremy Faust, Strategic Business Development Director, Greater Cincinnati Energy Alliance (Moderator)

ATHENS:

John Glazer, Director, TechGROWTH (Moderator)

ACADEMIA

CLEVELAND:

Alexis Abramson, Professor and Director of the Great Lakes Energy Institute, Case Western Reserve University

DAYTON:

Robert Brecha, Professor, Research Director of the Hanley Sustainability Institute, University of Dayton

TOLEDO:

Pete Prichard, Director, Adult Education, Vantage Career Center

CINCINNATI:

Larry Feist, Professor and Program Chair, Cincinnati State Technical & Community College

ATHENS:

Joseph Lalley, Senior Associate Vice President for IT and Administrative Services, Ohio University

Scott Miller, Director, CE3, Ohio University Voinovich School (Moderator)

FOUNDATIONS/INVESTMENT COMMUNITY

CLEVELAND:

Robert Eckhardt, Executive Vice President, Cleveland Foundation

DAYTON:

Stu Dalheim, Vice President, Shareholder Advocacy, Calvert Investments

MILITARY

DAYTON:

Leslie Perkins, Ph.D., Director, Energy Office, Air Force Research Laboratory

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TOLEDO:

Lt. Col. John Cupp, Commander, 180th Civil Engineer Squadron, Ohio Air National Guard

FAITH

DAYTON:

Leanne Jablonski, FMI, Ph.D., Director, Marianist Environmental Education Center and University of Dayton

ATHENS:

Rev. Robert Martin, Pastor, First Presbyterian Church of Athens

REPORTS PRESENTED ON OHIO'S ENERGY FUTURE TOUR:

COLUMBUS:

Powering Up Ohio: A Report on the Economic Benefits of Renewable Electricity Development. www.ARenewableAmerica.org

TOLEDO:

Clean Energy Rising: Manufacturing Powers Clean Energy in Ohio. www.PewTrusts.org

CINCINNATI:

Ohio's Electricity Future: Assessment of Context and Options. www.AnalysisGroup.com

ATHENS:

Ohio Healthier Hospitals: A Collection of Energy Case Studies. www.HealthierHospitals.org

VIDEO PRESENTATION ON OHIO'S ENERGY FUTURE TOUR

CLEVELAND AND TOLEDO:

"Harnessing the Wind" www.theoec.org

ORGANIZATIONS CONTRIBUTING TO OHIO'S ENERGY FUTURE TOUR

A Renewable America (ARA)
American Council on Renewable Energy (ACORE)
American Council for an Energy-Efficient Economy (ACEEE)
Audubon Ohio
American Wind Energy Association (AWEA)
Catholic Climate Covenant
Ceres
Chambers for Innovation
Cincinnati State Technical and Community College
Consortium for Energy, Economics & the Environment at the Ohio University Voinovich School of Leadership & Public Affairs
Environmental Defense Fund (EDF)
Environmental Law and Policy Center (ELPC)
Green Umbrella
Great Lakes Science Center
Greater Cincinnati Energy Alliance (GCEA)
Interfaith Power and Light (IPL)
Hanley Sustainability Institute at the University of Dayton
Healthier Hospitals Initiative
Midwest Energy Efficiency Alliance (MEEA)
Mom's Clean Air Force Ohio
Natural Resources Defense Council (NRDC)
National Wildlife Federation (NWF)
Ohio Advanced Energy Economy (OhioAEE)
Ohio Citizen Action
Ohio Environmental Council (OEC)
Ohio Hospital Association (OHA)
Ohio League of Conservation Voters
Ohio Manufacturers Association (OMA)
Ohio Sierra Club
Small Business Majority
The Nature Conservancy – Ohio
Toledo-Lucas County Port Authority
University of Dayton
Upgrade Athens County/Southeast Ohio Public Energy Council (SOPEC)
WireNET