

# MICHIGAN CAN CREATE 6,900 EFFICIENCY-RELATED JOBS, CUT ELECTRICITY BILLS, AND CURB CARBON POLLUTION



*“Earth’s climate is on a path to warm beyond the range of what has been experienced over the past millions of years. By making informed choices now, we can reduce risks for future generations and ourselves, and help communities adapt to climate change. People have responded successfully to other major environmental challenges such as acid rain and the ozone hole with benefits greater than costs, and scientists working with economists believe there are ways to manage the risks of climate change while balancing current and future economic prosperity.”*

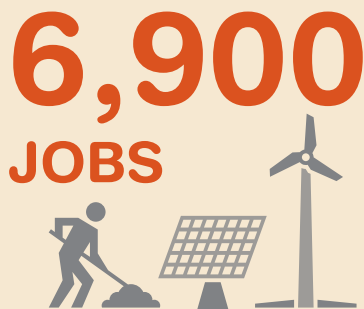
—“WHAT WE KNOW,” AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, 2014

That sobering prospect and challenge from leading scientists makes it clear that **Michigan residents and all Americans** have an obligation to address climate change now, chiefly by reducing the carbon pollution fueling changes we’re already seeing. In doing so, we can reap substantial benefits to our economy while protecting future generations. Under the Clean Air Act, the U.S. Environmental Protection Agency is moving now to curb power plant carbon pollution, which makes up 40 percent of our nation’s total carbon footprint.

## MICHIGAN CAN ADDRESS CLIMATE CHANGE, WITH GREAT BENEFIT TO FUTURE GENERATIONS AND OUR ECONOMY



SETTING THE FIRST-EVER NATIONAL CARBON LIMITS...will cut Michigan’s dangerous carbon pollution by 19 million tons.<sup>1</sup>



USING SMART STRATEGIES... can put more than 6,900 people to work in efficiency-related jobs in Michigan.



AND THAT WILL SAVE MICHIGAN HOUSEHOLD CUSTOMERS... \$462 million, or \$109 per average household.

All figures for 2020

## WE MUST ACT NOW TO MEET THE ENVIRONMENTAL CHALLENGE OF OUR TIME



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## THE EPA'S PLAN TAKES AIM AT THE HEART OF THE PROBLEM

- Electric power plants are the largest source of the dangerous carbon pollution that is driving climate change and extreme weather.
- In 2011, the nation's 100 largest electric power companies, which account for 86 percent of electricity production and 88 percent of the industry's carbon pollution, released 2.1 billion tons of carbon pollution, according to reporting by the industry.<sup>2</sup>
- In Michigan, power plants released 72 million tons of carbon pollution in 2011, equal to the annual emissions of 15 million cars. That ranks 12th-highest in the nation, according to air emissions tracking from the 100 largest electricity providers.<sup>3</sup>
- Today we limit the amount of arsenic, mercury, and soot these plants emit. But there are no limits on carbon pollution. That is wrong, and it must change.

In response, the president has directed the U.S. Environmental Protection Agency to end the limitless dumping of carbon pollution from these power plants. The EPA has both the authority and the responsibility to reduce carbon pollution under the Clean Air Act, and it should move forward to help protect future generations. The EPA has proposed standards for future power plants and is scheduled to issue the first federal standards for existing power plants in June 2014.

## NRDC'S CARBON POLLUTION SOLUTION: EMPOWER STATES TO CURB CLIMATE CHANGE

In December 2012, the Natural Resources Defense Council unveiled a proposal showing one way for the EPA to significantly cut carbon pollution from the nation's power plants—at low cost and with big benefits.<sup>4</sup> This approach:

- **Allows states to tailor policies** to meet the standards, choosing among such actions as cleaning up existing power plants, shifting power generation to plants with lower emissions or none at all, and improving the efficiency of electricity use.
- **Sets carbon intensity-based emissions standards** for all large fossil-fueled power plants. Each state would have a different target; states relying more on coal would have a higher carbon target than those depending less on coal.
- **Charts a path to affordable and effective emissions reductions** by tapping into the ingenuity of the states and leveraging their existing efforts to reduce pollution and provide more clean energy options. This state-based approach has been used for decades to cut other pollutants.
- **Can be implemented now** using the authority the EPA has under the Clean Air Act.

## BENEFITS FOR MICHIGAN AND THE UNITED STATES FROM ACTING ON POWER PLANT CARBON POLLUTION

NRDC selected a respected firm, ICF International, Inc., often used by industry and government to model impacts of regulations, to analyze the impact of its power plant plan on jobs and electricity bills. In a 2014 analysis conducted by ICF for NRDC and based on NRDC's policy designs and assumptions, it was found that the EPA could design carbon pollution standards to help the nation reduce carbon pollution 29 percent by 2020 and 38 percent by 2025, compared with 2012 levels.<sup>5</sup>

These carbon reductions would generate between \$28 billion and \$50 billion in benefits through avoided climate change impacts and avoided pollution-related illnesses and deaths.

## NEW JOBS AND LOWER BILLS

In addition, this approach could help the country in 2020:

- Create 274,000 new efficiency-related jobs.
- Save U.S. household and business customers \$37.4 billion per year on their electricity bills, including:
  - Save U.S. household customers \$13 billion, or an average of \$103 per household.
  - Save U.S. business customers \$24.3 billion.
- Reduce U.S. carbon pollution by 531 million tons.<sup>6</sup>
- Stimulate significant growth in the energy efficiency industry.

In Michigan, the impacts would be substantial. Using the Clean Air Act in this way to reduce carbon pollution, the state could in 2020:

- **Create 6,900 new jobs**—largely through investments in energy efficiency.
- **Save \$8.60 per month** on the average customer's electricity bill.<sup>7</sup>
- **Save Michigan households a total of \$39 million every month, or \$462 million every year**, on their electricity bills, NRDC estimates.
- **Cut carbon pollution by 19 million tons every year**, equal to the annual emissions of 4 million cars.
- **Save Michigan business customers \$629 million.**
- **Stimulate significant growth** in the state's energy efficiency industry.

Because the bulk of investments in energy efficiency focus on making our buildings and homes more efficient, such investments create thousands of jobs that require a broad range of homegrown expertise, in industries that have been especially hard hit by the recent recession. There will be greater demand for electricians, heating/air-conditioning installers, carpenters, construction equipment operators, roofers, insulation workers, industrial truck drivers, construction managers, and building inspectors.

## MICHIGAN ALREADY LEADS ON CLEAN ENERGY

Michigan's clean energy policies and growing energy efficiency and renewable energy industries have provided big benefits to the state. These include:

- \$1.2 billion in energy bill savings and other benefits for homeowners and businesses;<sup>8</sup>
- more than 30,000 new jobs as of 2009;<sup>9</sup>
- nearly \$1.8 billion in new investments to support renewable energy projects;<sup>10</sup> and
- reductions in carbon pollution.

Michigan's clean energy industries and workforce are growing fast, putting the state in a strong position to further leverage industry innovation and cost-effectively bring carbon pollution down to the level called for in NRDC's proposal. The state's energy efficiency sector employs more than 22,000 workers, according to Michigan's Bureau of Labor Market Information and Strategic Initiatives.<sup>11</sup>

Significant growth in wind capacity and the state's strong wind-related manufacturing industry are also creating jobs—as many as 4,000 people are hard at work at wind farms and nearly 40 wind manufacturing facilities in the state.<sup>12</sup> More jobs are being announced every day. In fact, more than 4,000 clean energy jobs were added in Michigan in 2012 and 2013, according to Environmental Entrepreneurs, a national community of business leaders who promote sound environmental policies that build economic prosperity. Environmental Entrepreneurs continually tracks new announcements of clean energy projects. Compare Michigan's profile in comparison with other states by visiting [www.cleanenergyworksforum.org](http://www.cleanenergyworksforum.org).

Michigan's clean energy policies are supporting this tremendous growth. In 2008, Michigan established energy optimization and renewable energy standards that are driving job and economic growth in the state, reducing pollution and saving homeowners and businesses considerably on their energy bills. Beginning in 2012 and every year after, the standards require Michigan electric utilities to help their customers reduce energy use by 1 percent per year; utilities must also provide 10 percent of electricity from renewable resources by 2015.

The state's electric utilities exceeded their energy efficiency targets by amounts ranging from 16 to 49 percent each year from 2009 to 2011. This helped Michigan homeowners and businesses save more than \$1.2 billion in energy bills and other benefits. The state's utilities are also on track to meet the 2015 renewable energy target. The renewable energy projects installed thus far have cost less than new coal power plants would have cost, while bringing in \$1.8 billion in new investments in the state's economy and creating new jobs.<sup>13</sup>

Increasing the state's energy efficiency targets to 2 percent per year and continuing the state's renewable energy targets beyond 2015 would help customers save more on their bills, create new Michigan jobs, and provide more clean energy options that will reduce the need to build costly, dirty

## Case Study: Nextek Power Systems Is Driving Energy Savings in Michigan

Detroit-based Nextek Power Systems is helping decarbonize our electricity grid by creating smaller, self-contained grid systems—micro-grids—that facilitate the use of energy-efficient and renewable energy technologies. Since its founding in 1995, Nextek has completed projects across the country in locations as diverse as Fort Hucachua, Arizona, and Rochester, New York; has advanced energy efficiency in the developing world; and has made contributions in its own community. For instance, it recently converted Detroit's NextEnergy Center, a business incubation center and showcase for new technologies, to run on a direct current micro-grid. Partially funded by a grant from the state of Michigan, the NextEnergy project helped reduce the building's energy use by 67 percent—enough to power two to three average homes. It also demonstrated a unique solar panel technology developed by Detroit-based Power Panel.

Nextek, which managed the project, collaborated with the NextEnergy Center and Power Panel to convert the lab and office space ceiling, lighting, and fan systems to run on direct current generated by renewable sources of energy such as wind and solar. Reconfiguring the building to run on DC helped save energy because the energy harnessed by the roof's solar panels didn't need to be converted to alternating current (AC), as it usually is when transferred to the conventional grid, and then back to DC to be consumed by digital devices.<sup>14</sup>

The project also included installation of motion sensors and other energy-saving lighting controls, and additional energy improvements. Since the building's conversion, the solar panels on the roof now provide the bulk of the building's electricity needs—often more than 96 percent of the facility's DC equipment energy demand.<sup>15</sup> Nextek currently employs 22 people and is gaining traction not only domestically but in international markets as well.<sup>16</sup>

power plants. This will put Michigan in a strong position to meet carbon reduction targets under NRDC's proposal, which could be a model for federal EPA standards, and reap significant new economic benefits.

## THE IMPACT OF POLLUTION AND CLIMATE CHANGE IN MICHIGAN AND THE UNITED STATES SHOWS WHY WE NEED TO ACT NOW

### Rising temperatures are a health concern

Asthma sickened about 229,817 children and 750,019 adults in Michigan in 2013.<sup>17</sup> Climate change, driven by rising carbon pollution, leads to higher concentrations of ground-level ozone, or the pollutant smog, which aggravates asthma.

## Extreme weather is becoming more common

In 2012, there were 3,527 monthly weather records broken for heat, rain, and snow in the United States, according to information from the National Climatic Data Center. That's even more than the 3,251 records smashed in 2011—and some of the newly broken records had stood for 30 years or more.<sup>18</sup>

## And it is imposing growing and grievous costs

Nationally, in 2012 alone, crop losses, flood damage, wildfires, and other climate-related disasters cost our country more than \$140 billion. Taxpayers picked up the lion's share of the tab, to the tune of \$1,100 each.<sup>19</sup>

## Michigan's share is significant

In 2012, an estimated \$2.4 billion in federal taxes paid by Michiganders went to clean up after extreme weather, according to Natural Resources Defense Council calculations.

## Extreme Weather and Pollution Are Affecting Michigan Residents Now

Although we cannot say climate change is responsible for any individual event, climate change is already making itself felt:

- Nearly 83,000 Michiganders live in an area where average summertime temperatures set records in 2010, and eight counties saw record-breaking nighttime temperatures that year.<sup>20</sup>

- In 2012, Michigan residents endured intense high temperatures that broke 139 heat records, drenching rainstorms that broke 18 precipitation records, and four large wildfires.<sup>21</sup>
- Climate change will worsen smog and cause plants to produce more pollen pollution, increasing respiratory health threats, particularly for people with allergies and asthma. Residents in 81 Michigan counties encounter ragweed pollution, and those in at least 19 counties suffer from both unhealthy smog levels and ragweed pollution.<sup>22</sup>
- Heavy rainfall and increasing temperatures are expected to increase the harmful risks of toxic algal blooms in the Great Lakes.<sup>23</sup>
- Michigan has been declared a disaster area five times since 2000 due to severe storms and flooding.<sup>24</sup>
- Combined sewer overflows due to heavy rains threaten nearly 50 Michigan communities, including Detroit and Lansing.<sup>25</sup>

THE LONGER WE DELAY TAKING SUBSTANTIAL STEPS TO CURB CARBON POLLUTION, THE WORSE THESE CHANGES WILL BECOME. TO PROTECT OUR CHILDREN AND FUTURE GENERATIONS FROM CATASTROPHIC CLIMATE CHANGE, WE MUST ACT NOW.

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