



Climate Change: Taking Action for the Future

The energy industry across the United States is undergoing a major transformation by seeking lower-carbon energy sources while meeting growing demand. At DTE Energy, we recognize our role in this industry-wide transformation and our responsibility to provide affordable, reliable and cleaner energy for our customers. Today, we are pursuing a deliberate course of action to meet the challenges of the future.

Climate Change

Greenhouse Gas Emissions

Emission Reduction Goals:

Reduce carbon dioxide emissions from electric generation by **75 percent below 2005 levels by 2040**

and

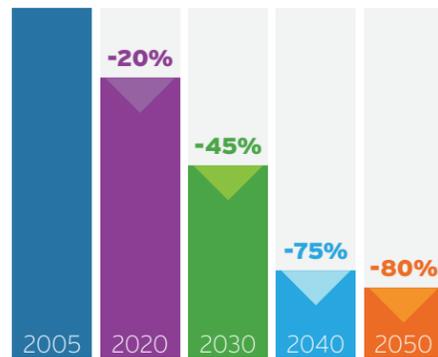
Reduce carbon dioxide emissions from electric generation by **80 percent below 2005 levels by 2050**

DTE Energy recognizes climate change as a key long-term policy issue we must address. Taking into account the long-term needs of our business, our customers and the environment, we have committed to reduce greenhouse gas emissions from electric generation by 75 percent below 2005 levels by 2040 and 80 percent by 2050. These long-term commitments include milestone reductions of 20 percent below 2005 levels by 2020 and 45 percent by 2030.

These goals will be met by retiring existing coal plants, building new natural gas-fired generation, developing more wind and solar projects and continuing to operate our Fermi 2 Power Plant. In addition to our investments in new energy generation, we are taking action across the company to reduce and offset greenhouse gas emissions:

- We are helping our customers reduce energy usage and lower their bills by becoming more energy efficient.
- We are national leaders in developing landfill gas capture systems and in converting small coal-fired power plants to run on biomass fuels.
- In 2016, we received an operating license renewal for our Fermi 2 Power Plant to extend operation from 2025 to 2045. We already hold a license to construct and operate a new nuclear unit at the Fermi site. We have not committed to building new nuclear capacity, but nuclear power is the only proven carbon-free power source that can operate around the clock.
- As a founding partner in the United States Environmental Protection Agency's Natural Gas STAR Methane Challenge Program, DTE has committed to use best management practices to reduce methane emissions from our gas operations over the next five years.

Emission Reduction Goals



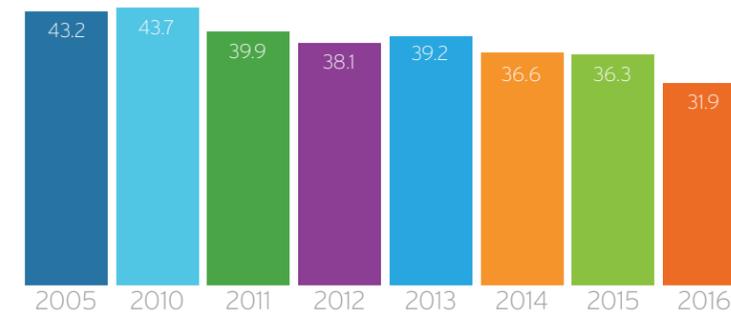
DTE Energy is committed to a long-term strategy to reduce greenhouse gas emissions that will guide our investment in new clean energy generation while minimizing financial impacts on customers.

Beginning in 2016, we moved our baseline for evaluating emission reductions from 2010 levels back to 2005 levels to be consistent with how we report other air emissions. This year's report shows performance against both the 2005 and 2010 baselines. For more information, see our discussion in the [Air Quality section](#).

Controls to reduce carbon dioxide (CO₂) emissions have not been commercially demonstrated. Additional reductions in CO₂ must be achieved through reduced use of fossil fuels to produce electricity, improved efficiency at power plants, switching to less carbon-intensive fuels and other technological alternatives that cut CO₂ emissions for every megawatt-hour (MWh) of generation. We are already on a trajectory to reduce our CO₂ emissions from electric generation by 30 percent below 2005 levels in the early 2020s. Our 2016 total emissions of CO₂ from electric generation were 26 percent below 2005 levels. Some decrease in emissions is due to the extended shutdown of our St. Clair Power Plant following a fire in August 2016. For more information, see our [Safety Section](#).

DTE actively participates with the following organizations to shape carbon performance standards: the United States Environmental Protection Agency (EPA), Michigan's Agency for Energy, Michigan's Department of Environmental Quality, the Edison Electric Institute and other business and community stakeholder groups to shape carbon performance standards, including the Clean Power Plan issued by the EPA in 2015. Regardless of possible changes in policy, DTE CO₂ emission reductions will continue, driven by our customers' economic and environmental interests. Our greenhouse gas reduction goals meet or exceed the reduction requirements of the Clean Power Plan – a policy designed to lower CO₂ emissions by power generators.

Greenhouse Gas Emissions in millions of tons of carbon dioxide equivalent (CO₂e)

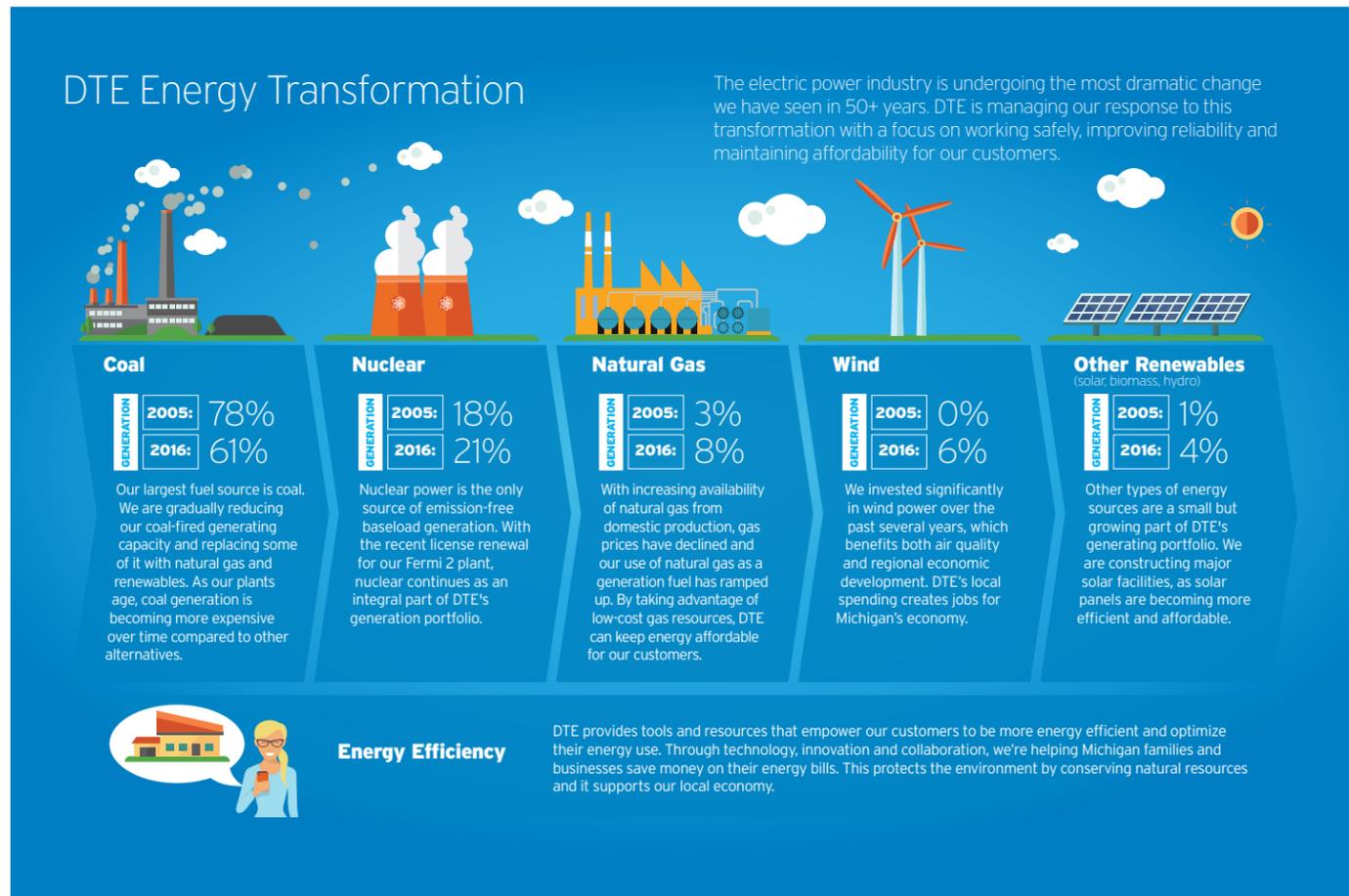


We believe regulations can be established to achieve national environmental and economic goals, plus coordinate with energy policy development in Michigan. Our goals align with Michigan Governor Rick Snyder's focus on adaptable energy and environmental policy. Every decision is based on excellent reliability, affordable prices and protecting/sustaining the environment. In 2016, Michigan passed significant energy legislation to enhance the state's commitment to reliable, clean energy. DTE's approach to managing our energy generation fleet will continue to be coordinated with federal and state policies.

Alternative Fuel Vehicles

Out of our company-wide fleet of vehicles across Michigan, about 500 are either fueled by compressed natural gas or are electric or hybrid vehicles. This represents nearly 13 percent of DTE Energy vehicles. Our alternative fuel vehicles create less greenhouse gas emissions and other air pollution compared to conventional service trucks and cars.

Transformation of Electric Generation



Our power is generated or purchased from a variety of sources including nuclear, coal, natural gas, oil and renewable energy. The overall mix of generation assets – especially the proportion of coal-fired capacity – is already changing and will continue to evolve. The shift in our generation portfolio is expected to cost between \$7 billion and \$8 billion. It is a dramatic transformation we are preparing for and will manage, while being mindful of our customers' needs for affordability and reliability.

Compared to newer energy generating alternatives, our coal fleet is aging and becoming more expensive to operate. Our generation mix is shifting over time from a portfolio of heavily-weighted coal toward a more balanced mix of coal, natural gas, renewable energy and nuclear energy. DTE recently closed the Marysville and Harbor Beach plants. In 2016, we announced plans to retire eight additional coal-fired energy-generating units at three sites in Michigan within the next seven years. The energy-generating units slated for retirement include units at our River Rouge Power Plant, St. Clair Power Plant and Trenton Channel Power Plant. Combined, these three power plants generated about 25 percent of the electricity produced by DTE in 2015 – enough energy to power 900,000 homes. The retirements are part of the fundamental transformation in the way electricity is being supplied across Michigan and throughout the United States.

Managing the Impacts of Coal Plant Closures

DTE Energy, in partnership with the United States Economic Development Administration (EDA), is providing grants to help St. Clair County and the City of Harbor Beach redevelop property following retirements of DTE Energy coal-fired power plants in an effort to help mitigate economic and social impacts of plant retirements in these two cities. DTE Energy's Harbor Beach Power Plant was retired in 2013 and the St. Clair Power Plant is expected to retire by 2023.

We recognize these plants have served communities for decades, providing jobs and significant revenue for municipal and community services. These grants will help St. Clair and Harbor Beach identify potential solutions to reinvest in the community and generate a new tax base. Specifically, the grant money will be used to commission a comprehensive economic impact study for the St. Clair plant closure that will assess the economic value of the plant and recommend strategies for economic diversification and reinvestment. We are also helping Harbor Beach develop a comprehensive feasibility study for a local multipurpose space that could serve as a business start-up hub.

DTE employees at those plants being closed are offered transfers to other positions within the company. We have not laid off any workers as a result of coal plant retirements within our generating fleet.

Pinnebog Wind Park

In December 2016, our Pinnebog Wind Park in Huron County began generating electricity. An expansion of our existing Echo Wind Park, the Pinnebog facility consists of 30 wind turbines with the ability to produce a combined 50 megawatts of clean, renewable energy – enough to power more than 22,000 homes. Pinnebog brings the number of DTE owned or operated wind parks to 13 across Michigan.

Approximately 150 people were employed to work on various aspects of the project during construction. DTE now has a total of 30 full-time employees working at its Huron County Renewable Energy Center. In addition to the creation of construction and operations jobs and local economic development, DTE wind projects in Huron County will generate tax revenue of more than \$20 million by 2020.

We are actively working to replace retiring coal-fired capacity with other generating assets to maintain adequate reserves. DTE is evaluating options for new capacity to ensure safe, clean and reliable energy for our customers. One alternative under consideration is construction of a new, state-of-the-art natural gas-fired power plant. We have also brought in a substantial amount of new renewable energy capacity to our system. Building new generating assets in Michigan has the added benefit of creating jobs for Michigan residents.

To address immediate capacity needs, in 2015 we purchased two natural gas-fired simple cycle plants that, combined, can provide more than 1,000 megawatts of power during peak demand periods. Our major investments in natural gas transmission and storage infrastructure, including the NEXUS interstate pipeline and our new Link lateral and gathering pipeline system, also support the overall energy industry transformation.

Nuclear power generation provides a significant amount of carbon-free, base-load electricity, which is crucial for helping the state of Michigan and the entire United States meet the challenges of reducing greenhouse gases. In fact, 87 percent of Michigan's carbon-free electricity output is generated by the state's three nuclear energy facilities. In 2016, DTE received a 20-year license renewal from the United States Nuclear Regulatory Commission (NRC) for the Fermi 2 Power Plant, enabling the plant to continue operating through 2045. In addition, we hold an NRC license – obtained in 2015 – to construct and operate a new nuclear energy facility on the site of the existing plant, although we have no immediate plans to build a new nuclear plant. With these NRC approvals in hand, DTE Energy now possesses a diverse, comprehensive slate of options to plan for Michigan's energy future.

Renewable Energy

In 2016, we generated or contracted for more than 3.4 million megawatt hours of electricity from renewable energy sources – enough to power nearly 450,000 households.

Electricity from renewable resources – wind, sunlight and biomass – plays an important role in meeting our customers' energy needs while reducing our environmental impact. DTE is Michigan's largest investor in and producer of renewable energy. In 2016, our capital spending was \$83 million for solar projects and \$49 million for wind projects. The company has driven over \$2 billion in investments in renewable energy since 2008.

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In compliance with state-mandated targets, DTE Energy met the 10 percent renewable energy standard for 2016 based on retail sales. This was accomplished by retiring approximately 4.2 million certified Renewable Energy Credits (RECs) and other eligible credits that equated to 10 percent of our total 2014 retail sales of 42.4 million MWh, weather-normalized. Each of the RECs represents one MWh of renewable energy generated by DTE or purchased from third-party renewable sources.

Under the new Michigan energy legislation, electricity suppliers must meet a 12.5 percent renewable energy target by 2019 and 15 percent by 2021. DTE is well positioned to meet these future goals with the addition of wind and solar resources.



Wind Energy

Wind power is increasingly cost-competitive with traditional power generation technologies and we anticipate this trend to continue. Over the past six years, the average price of United States wind power has declined by 66 percent. For our region of the country, it is also the most efficient and cost-effective form of renewable energy.

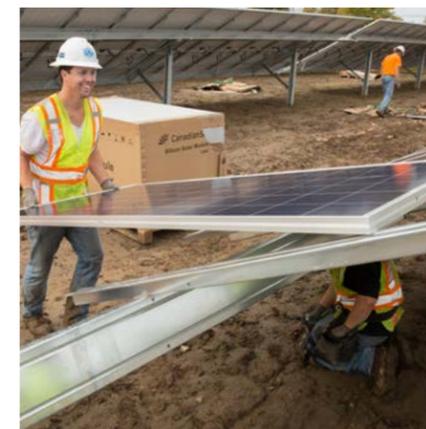
Michigan is among the top 15 states in the nation for wind production. The cost to produce wind energy is now on par with natural gas generation.

DTE Energy values its relationships with landowners and local communities at our wind power sites. We work diligently to maintain strong community support as we pursue new wind projects. Wind energy continues to be valuable to DTE Energy as part of a well-balanced generation portfolio.



Leading Michigan in Solar Power

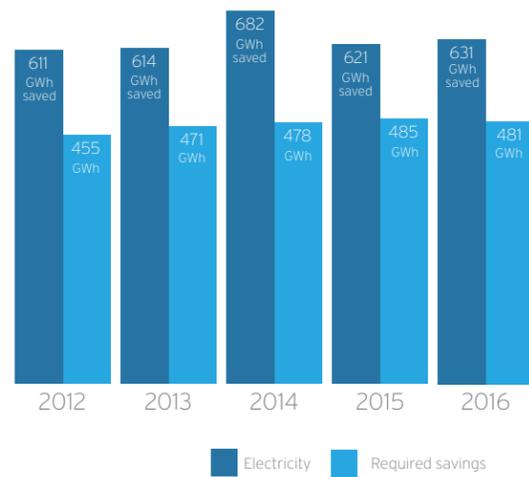
With 28 solar projects in its portfolio, DTE Energy continues to be Michigan's largest producer of solar energy. The company has additional solar projects in various stages of development. In 2016, DTE broke ground on three new solar projects in Michigan, two in the city of Lapeer and one in Detroit. The two Lapeer projects combined represent the largest utility-owned solar installation in Michigan and rank among the top five in the Eastern United States. Comprised of nearly 200,000 solar panels, the arrays (pictured at left) will produce enough clean, emission-free energy to power 9,000 homes when they begin generating electricity in 2017. The O'Shea Park array on the west side of Detroit – also scheduled for operation in 2017 – will be one of the largest urban solar arrays in the country.



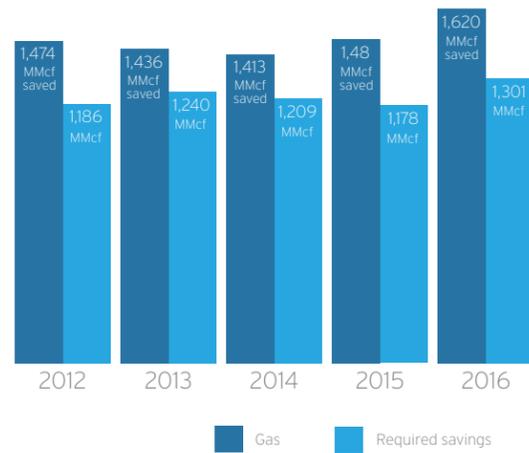
Energy Efficiency

Metro Detroit Freeways Light Up with New Energy Efficient LEDs

Annual Energy Efficiency Savings - Electricity



Annual Energy Efficiency Savings - Gas



Customers

We provide incentives, information and techniques to help residential and business customers use energy more efficiently. This helps our customers reduce their costs, strengthening Michigan's economy. Energy efficiency also provides environmental benefits by conserving resources and reducing pollution.

DTE's energy efficiency programs help reduce customers' energy use by increasing awareness of energy saving possibilities and provide products and services. Rebates, tips, comparison tools, strategies and energy efficiency education help customers make informed energy saving decisions. Programs are designed to capture both electric and natural gas savings for all customers. For those DTE customers with only electric or only natural gas service, we make efforts to coordinate with other utility companies so that these customers can easily take advantage of energy efficiency program offerings to reduce both electricity and gas usage.

Michigan enacted legislation in 2008 that set energy optimization targets for utility companies and provided a funding mechanism to pay for program costs. As the charts to the left demonstrate, we have consistently exceeded the legislated targets. During 2016, utility customers saved energy by implementing measures such as installing more efficient appliances and lights, adding insulation, weatherizing homes and conducting boiler tune-ups. The efficiency programs are managed by DTE Energy and serviced by expert contractors. Our [Energy Optimization Annual Report](#) provides more detail about the specific programs in place.

Efficiency at DTE Energy Facilities

Across the organization, we are re-designing our workspaces to be more energy efficient, particularly our lighting systems, which are significant users of electricity. We completed light-emitting diode (LED) retrofits in office spaces and warehouses and developed a corporate standard for controlled temperatures. We have switched to all LED lighting with automated controls in our Detroit headquarters building. Company-wide, these facility improvements will save an estimated 2.8 million kilowatt hours annually, representing about 2,000 tons of greenhouse gases avoided.

At DTE Energy, we create energy efficiency programs designed to save customers money, reduce energy waste and safeguard the environment. In 2016, DTE Energy partnered with the Michigan Department of Transportation to install energy efficient LED lighting on a number of major Metro Detroit freeways as part of DTE's Energy Efficiency Business Program. In total, nearly 13,000 high-pressure sodium, metal halide and mercury vapor fixtures were replaced by new, efficient LED fixtures. This lighting upgrade successfully reduced energy use by 65 percent and is expected to save Michigan residents an estimated \$2 million in energy costs in 2017.

Visit the DTE website to find our [Energy Optimization Annual Report](#) and other DTE newsletters, magazines and reports for [residential](#) and [business](#) customers.