



## 2018 ENVIRONMENTAL, SOCIAL, GOVERNANCE, AND SUSTAINABILITY REPORT

Compliant with Edison Electric Institute (EEI) Template

# ENVIRONMENTAL, SOCIAL, GOVERNANCE, (ESG) AND SUSTAINABILITY REPORT

## ESG / SUSTAINABILITY GOVERNANCE

*At DTE Energy, the responsibility for environmental stewardship and sustainability rests at the highest levels of the company.*

### BOARD OF DIRECTORS

Elected annually by our shareholders, the Board of Directors meets regularly to lead the company in fulfilling its mission and achieving its goals. With respect to sustainability, the Board of Directors:

- Bears responsibility for creating long-term value for shareholders while ensuring that the company operates in an environmentally sensitive and socially responsible manner
- Oversees company management and assesses the effectiveness of management policies and decisions, including management's development and execution of the company's strategies
- Approves all major environmental initiatives

### PUBLIC POLICY AND RESPONSIBILITY COMMITTEE (PPRC)

A subcommittee of the Board of Directors, the Public Policy and Responsibility Committee (PPRC) consists of four independent directors, tasked with reviewing the company's performance as a responsible corporate citizen and promoting policies to enable the company to respond appropriately to its social responsibilities. In this role, the PPRC:

- Advises the Board of Directors on emerging ESG issues, including climate change
- Receives and reviews reports from management relating to ESG risks and opportunities
- Meets regularly, including in executive sessions without management present
- Retains independent outside professional advisers, as needed

## **SENIOR MANAGEMENT – GOVERNMENT, REGULATORY AND COMMUNITY (GRC) AND FORCE FOR GROWTH (FFG) COMMITTEES**

Our chairman and CEO, together with other senior leaders of the company, exercise leadership in our sustainability initiatives. Through the GRC, FFG, and other leadership committees, DTE Energy's senior management:

- Executes the company's ESG strategy in consultation with the Board of Directors
- Manages our environmental compliance processes and carbon reduction aspirations
- Mobilizes our employees, resources and partner organizations to strengthen and promote prosperity in our communities
- Reports to Board of Directors on outcomes of ESG initiatives
- Manages risks associated with environmental and sustainability opportunities
- Receives compensation tied to achievement of company goals, including ESG targets

## **VICE PRESIDENT – ENVIRONMENTAL MANAGEMENT AND RESOURCES (VP-EMR)**

Under the direction of senior management, the VP-EMR oversees the company's ESG operations. In managing our sustainability initiatives, the VP-EMR:

- Represents the company on environmental issues with the public and in environmental regulatory and legislative development
- Coordinates environmental studies and conducts environmental audits
- Supervises a department of approximately 75 people

## **ENVIRONMENTAL, SOCIAL AND GOVERNANCE TEAM**

The cross-functional ESG Team was formed to coordinate and execute the company's multiple streams of ESG disclosure. With members from legal, corporate communications, investor relations, environmental compliance, technical accounting, and the corporate secretary, the ESG team:

- Evaluates potential ESG disclosure platforms and templates, and makes recommendations to management
- Reviews peer company disclosures for best practices
- Collects internal ESG data and drafts disclosure documents in consultation with relevant business units
- Incorporates input from management and board reviewers

## SUSTAINABILITY STRATEGY

*DTE Energy recognizes that operating a sustainable business enterprise requires us to:*

- 1. Address the transformational challenge of climate change*
- 2. Develop renewable energy assets*
- 3. Support our local communities*

**DTE Energy is pursuing an ambitious carbon reduction agenda, including a plan for the closure of all remaining coal-fired units, with the ultimate goal of more than 80 percent reduction in carbon emissions by 2050, consistent with the scientific consensus for limiting global warming to 2 degrees Celsius.**

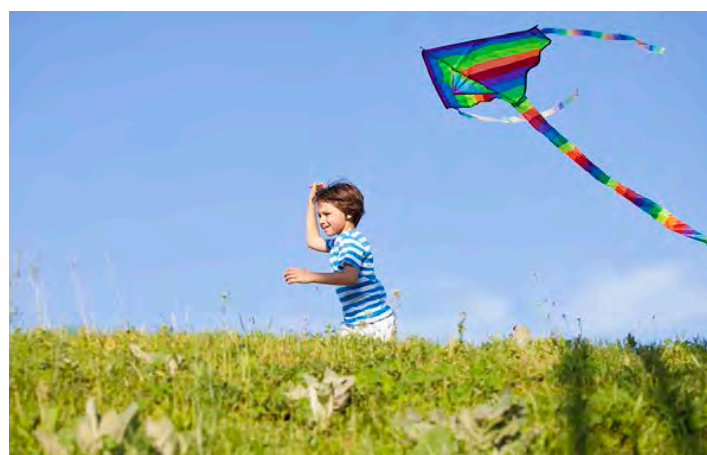
## CLIMATE CHANGE

### Background

DTE Energy is strongly committed to sharply reducing carbon emissions in a manner that is safe, maintains reliability and affordability for our customers. We have invested substantial time and resources in building a strategy to address climate change, which our chairman and CEO, Gerry Anderson, has described as the defining policy issue of our era. Well before the August 2015 announcement of the U.S. Clean Power Plan and the December 2015 adoption of the Paris Agreement, DTE Energy had started its transition toward a lower carbon profile for our generation fleet. Since 2005, we have reduced our carbon dioxide emissions by approximately 24 percent.

### Carbon Reduction Plan

DTE Energy's commitment to provide energy that is both affordable and sustainable resulted in our industry-leading May 2017 announcement: we are undertaking a broad sustainability initiative to dramatically reduce the company's carbon emissions. This comprehensive plan includes (1) steady retirement of all our remaining coal generation units, (2) construction of at least an additional 4,000 megawatts of renewable generation, (3) construction of up to 3,500 megawatts of new natural gas generation, (4) heavy investment in energy waste reduction and reducing peak demand, together with extensive investment in modernization of the electric grid and gas infrastructure. This plan will achieve a 30 percent reduction in CO<sub>2</sub> emissions from 2005 levels by the early 2020s, a 45 percent reduction by 2030, a 75 percent reduction by 2040 and an 80 percent or higher reduction by 2050. We will continue to review technology development, electricity demand and economics and make additional low and zero emission modifications to the plan in the best interest of our customers.

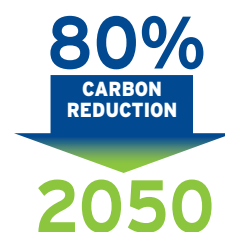


## Scenario Analysis

The feasibility of our carbon reduction plan was confirmed in the [2017 Integrated Resource Plan \(IRP\)](#) filed with the Michigan Public Service Commission (MPSC) by our electric utility. In the IRP, we analyzed multiple scenarios, including different sensitivities relating to gas prices and electricity market prices, as well as different cost and performance curves for renewable technologies. In evaluating these scenarios, it became clear that our IRP can support very robust carbon reduction targets. Our carbon reduction plan assumes a tighter reduction curve than mandated by the Clean Power Plan and higher levels of renewable generation.

## Two Degree Scenario

Through our carbon reduction plan DTE Energy's is committed to being a part of the solution to the global climate crisis. There is broad scientific consensus that achieving 80 percent carbon reduction by 2050 will be necessary to begin to limit the global temperature increase below two degrees Celsius over preindustrial levels.





## ACHIEVING DTE'S SUSTAINABILITY GOALS

Our carbon reduction commitment is not mandated. As such, it is essential that we pursue the commitment in a manner that supports two other critical priorities our customers expect: reliability and affordability. The greatest threat to our carbon commitment would come from choosing (or being asked to adopt) an approach to achieving it which threatens either affordability or reliability.

For this reason, we are focused on pursuing the most economic path to sharp carbon reductions, with a keen eye on reliability. At present, as we continue to retire baseload coal units, our analysis calls for adding both high-efficiency natural gas generation (to backfill baseload energy and provide 24x7 reliability) and significant new renewable investments (primarily wind in the near-term, with increasing solar deployment over time).

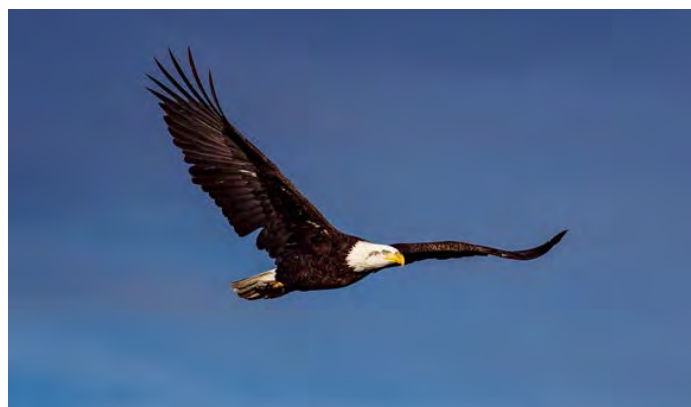
We filed an IRP with the MPSC, which considered several scenarios with a range of assumptions. The proposed 2017 IRP is supported by all the scenarios we considered as part of the planning process. This 2017 IRP lays the foundation to reach the 80 percent by 2050 carbon reduction target consistent with the scientific community's consensus to limit global warming less than 2 degrees Celsius by 2050.

### These scenarios include assumptions for:

- High and low gas prices (from \$2.70 in the near term and rising to \$8.40 by 2035)
- Renewables (ranging from only when economic up to 50 percent of the portfolio)
- CO<sub>2</sub> (ranging from no CO<sub>2</sub> price up to \$40 per ton for allowances)

### Base assumptions considered in the 2017 IRP include:

- Majority of existing coal facilities retired by 2030 (exception Monroe Power Plant)
- Multiple energy efficiency programs deliver annual energy savings of 1.5 percent (exceeding the Michigan minimum energy savings requirement)
- Demand response programs are expected to grow over the next 5 to 10 years



**Assumptions that are critical to the success of the plan include:**

- Availability, cost and siting of renewable resources. If renewable costs decrease and availability increases more than we have forecasted, renewables become more attractive in our plan. Conversely, if we continue to encounter challenges to siting wind renewables, solar or natural gas may be more attractive options in our plan. We have studied the economics of battery storage intensively. While we are deploying them for specific uses on our distribution grid, batteries are not yet economic to serve in conjunction with renewables as a baseload power replacement. As battery prices fall over time, their potential uses will expand.
- Availability and affordability of natural gas. Replacing coal with natural gas yields a ~70 percent reduction in CO<sub>2</sub> and high efficiency gas power plants are currently a very economical means to backfill a portion of the coal-fired generation we are retiring with a highly reliable, low-carbon resource. Our plan assumes that natural gas will continue to be an available and affordable fuel source. Natural gas will play an important role in ensuring electric reliability and if our ability to use this fuel source were to be limited, we may need to alter our plan.

DTE will continue to evaluate changes in load, energy/commodity markets, regulatory rules, legislative requirements, environmental impacts and technologies that may affect the plan.



## RENEWABLE GENERATION

### History and Targets

DTE Energy has complied with all state-mandated targets for renewable energy. Previous legislation had required a 10 percent renewable standard by 2015, which we have met or exceeded each applicable year. The most recent energy legislation sets a 12.5 percent renewable energy target by 2019 and 15 percent by 2021. DTE Energy is well positioned to meet these future goals with the addition of new generation resources currently planned or under development. Our carbon reduction plan anticipates that by 2040 our electric generation portfolio will consist of 20 percent nuclear, 40 percent renewables and 40 percent natural gas.

### Wind Energy

Since 2009, DTE Energy has developed substantial wind energy resources in Michigan, driving Michigan into the top 15 states in the nation for wind production. In 2017, we generated or contracted for more than 3 million megawatt hours of wind-generated electricity, enough to power more than 370,000 homes.

We see wind energy as an important part of our future generation portfolio; it is currently the most efficient and cost-effective form of renewable energy for our region of the country. With much of our wind generation concentrated north of Detroit (particularly in Huron County), we are exploring other areas within Michigan for potential development. We work diligently to maintain strong community support as we pursue new wind projects.



### Solar Power

With 31 solar projects in its portfolio, DTE Energy continues to be Michigan's largest producer of solar energy. We recently opened our Lapeer Solar Park, situated on more than 250 acres and comprised of 200,000 solar panels – one of the largest utility-owned solar parks in the Midwest. We also developed a large urban solar array at Detroit's O'Shea Park. This project is the result of a unique public-private partnership with the City of Detroit in which DTE Energy redeveloped nearly 10 acres of previously vacant land, helping to revitalize the surrounding neighborhood. In 2017, our solar projects generated more than 82,000 megawatt hours.

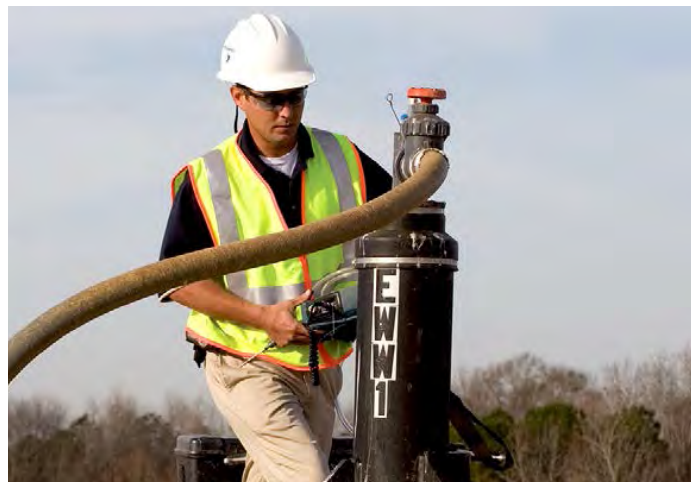
We have additional solar projects in various stages of planning. We anticipate that the price of solar panels and the costs of installation and will continue to decline, making solar power an increasingly attractive element to include in our renewable portfolio.





## Biomass Generation

DTE Energy's non-utility Power and Industrial Projects group is a national leader in developing landfill-gas capture systems and in converting small coal-fired power plants to run on biomass fuels, generating enough renewable energy to supply the equivalent of 238,000 homes. In addition, this group operates facilities at several coal-fired power plants to treat coal prior to combustion, resulting in reduced emissions of nitrogen oxide and mercury. DTE Energy continues to pursue growth opportunities in renewable energy and environmental controls.



## COMMUNITY ENGAGEMENT

### Our Aspiration

*DTE Energy aspires to be a force for growth in the communities where we live and serve. This aspiration grew out of our employees' genuine desire to help build a better future for Michigan and its communities during the economic crisis of 2009-2010. When our employees asked, "What can we do to help this still struggling region?" we responded by asking them to play a critical role in becoming a best-operated company that provides our customers with excellent service, and use our economic scale to help our communities grow and prosper.*

To be a force for growth in our communities, we have organized our efforts around the following focus areas:

### Environmental Leadership

- In addition to our carbon reduction plan outlined above, we have initiatives underway aimed at reducing our company's own utilization of energy, water and waste by 25 percent by 2022.
- Through energy efficiency programs, we will help our customers reduce their utilization of energy over the next five years, in both gas (1 percent annual reduction) and electricity (1.5 percent annual reduction).
- Our chairman and CEO, Gerry Anderson, was presented with the Individual Climate Leadership Award at the Climate Leadership Conference in March 2018, for exemplifying extraordinary leadership in addressing climate change.



### Economic Progress

- DTE Energy is helping to lead the establishment of a regional economic development organization for Southeast Michigan to drive the region's overall development strategy, facilitate collaboration among existing development agencies, and centralize research and analytical tools for the region.
- Our chairman and CEO, Gerry Anderson, helped launch a working group of regional CEOs and other private sector leaders to discuss critical issues facing the region and to coordinate efforts on specific initiatives critical to the success of Southeast Michigan.





## Education and Employment

- We provide 300 co-op and internship opportunities annually for disadvantaged students attending college, and by 2022 we plan to annually fund and provide 700 comprehensive summer job experiences for youth from challenged backgrounds.
- Over the next five years, DTE Energy and its contractors will hire 1,000 individuals who have multiple barriers to employment, and will provide wrap-around training and mentoring to enable their success and advancement.
- We are leading a transformation in skilled trades training, including expansion of a technical education high school for 700 day-time students and 700 adult night students. We are also enhancing our support of the FIRST Robotics Competition and its mission to inspire young people to be science and technology leaders and innovators.



## Community Transformation

- We are executing a comprehensive campus and neighborhood development plan around our Detroit headquarters, and we are redeveloping existing properties in our portfolio with an eye to being a catalyst for neighborhood revitalization.
- Through the DTE Energy Foundation, we support communities across the state with grants to non-profit organizations focused on conservation, education, diversity and culture.

## Volunteerism

- DTE Energy is committed to fostering best-in-class volunteerism among employees, and by 2020 we will see 50 percent of our employees actively volunteering in the community, with a quarter of the volunteer hours in highly impactful skills-based efforts.



## Political Leadership

- In the political arena, DTE Energy supports key legislation impacting our employees and communities through targeted engagement with business and policy leaders and support for sensible policies at the local, state and federal levels.

## ESG/SUSTAINABILITY QUANTITATIVE INFORMATION

Parent Company: DTE Energy

Operating Company(s): DTE Electric, DTE Gas, Power and Industrial Projects, Citizens Gas

Business Type(s): Vertically Integrated

State(s) of Operation: MI (for gas and electric utilities)

State(s) with RPS Programs: MI

Regulatory Environment: Regulated

Report Date: 2/28/18

METRICS	BASELINE 2005 ACTUAL	LAST YEAR 2016 ACTUAL	CURRENT YEAR 2017 ACTUAL	NEXT YEAR 2018 PROJECTION
<b>PORTFOLIO</b>				
<b>Total Available Nameplate Generation Capacity at end of year (MW)</b>				
Coal	7,733	6,874	6,178	6,178
Natural Gas	2,683	3,090	2,957	2,957
Nuclear	1,154	1,217	1,161	1,161
Petroleum	666	365	325	325
Total Renewable Energy Resources	997	1,813	1,845	2,016
Biomass/Biogas	8	321	321	31
Geothermal	N/A	N/A	N/A	N/A
Hydroelectric	989	989	1,019	1,019
Solar	N/A	54	56	64
Wind	N/A	449	449	612
<b>Net Generation for the data year (MWh)</b>				
Coal	41,764,875	27,178,381	26,559,727	28,646,000
Natural Gas	1,033,086	2,164,304	2,230,042	1,187,000
Nuclear	8,753,555	9,146,766	9,565,994	8,477,000
Petroleum	7,800	12,130	80,188	4,000
Total Renewable Energy Resources	551,685	3,423,349	3,677,031	3,836,000
Biomass/Biogas	N/A	671,919	529,414	N/A
Geothermal	N/A	N/A	N/A	N/A
Hydroelectric	N/A	22,895	56,841	N/A
Solar	N/A	23,994	82,204	N/A
Wind	N/A	2,704,541	3,008,572	N/A
<b>Investing in the Future: Capital Expenditures, Energy Efficiency (EE), and Smart Meters</b>				
Total Annual Capital Expenditures (in millions)	\$722	\$1,503	\$1,574	\$1,900
Incremental Annual Electric Savings from EE Measures (MWh)	N/A	631,000	677,000	706,721
Incremental Annual Investment in Electric EE Programs (in millions)	N/A	\$89	\$93	\$106
Percent of Total Electric Customers with Smart Meters (at end of year)	0%	98%	99%	100%
<b>Retail Customer Count (at end of year)</b>				
Commercial	126,706	114,212	109,709	N/A
Industrial	2,235	1,962	1,294	N/A
Residential	2,043,475	2,034,084	1,830,641	N/A



METRICS	BASELINE 2005 ACTUAL	LAST YEAR 2016 ACTUAL	CURRENT YEAR 2017 ACTUAL	NEXT YEAR 2018 PROJECTION
EMISSIONS				
GHG Emissions: Carbon Dioxide (CO <sub>2</sub> ) and Carbon Dioxide Equivalent (CO <sub>2</sub> e)				
Owned Generation				
Carbon Dioxide (CO <sub>2</sub> )				
Total Owned Generation CO <sub>2</sub> Emissions (MT)	39,177,354	28,948,987	29,765,976	29,034,666
Total Owned Generation CO <sub>2</sub> Emissions Intensity (MT/Net MWh)	0.752	0.690	0.707	0.689
Carbon Dioxide Equivalent (CO <sub>2</sub> e)				
Total Owned Generation CO <sub>2</sub> e Emissions (MT)	N/A	29,153,373	Pending	N/A
Total Owned Generation CO <sub>2</sub> e Emissions Intensity (MT/Net MWh)	N/A	0.695	Pending	N/A
Purchased Power				
Carbon Dioxide (CO <sub>2</sub> )				
Total Purchased Generation CO <sub>2</sub> Emissions (MT)	806,515	5,982,810	4,229,577	2,878,725
Total Purchased Generation CO <sub>2</sub> Emissions Intensity (MT/Net MWh)	0.695	0.695	0.695	0.695
Carbon Dioxide Equivalent (CO <sub>2</sub> e)				
Total Purchased Generation CO <sub>2</sub> e Emissions (MT)	N/A	5,931,029	4,192,970	N/A
Total Purchased Generation CO <sub>2</sub> e Emissions Intensity (MT/Net MWh)	N/A	0.689	0.689	N/A
Owned Generation + Purchased Power				
Carbon Dioxide (CO <sub>2</sub> )				
Total Owned + Purchased Generation CO <sub>2</sub> Emissions (MT)	39,983,869	34,931,798	33,995,553	31,913,391
Total Owned + Purchased Generation CO <sub>2</sub> Emissions Intensity (MT/Net MWh)	0.751	0.691	0.705	0.689
Carbon Dioxide Equivalent (CO <sub>2</sub> e)				
Total Owned + Purchased Generation CO <sub>2</sub> e Emissions (MT)	N/A	35,084,402	4,192,970	N/A
Total Owned + Purchased Generation CO <sub>2</sub> e Emissions Intensity (MT/Net MWh)	N/A	0.694	0.087	N/A
Non-Generation CO <sub>2</sub> e Emissions				
Fugitive CO <sub>2</sub> e emissions of sulfur hexafluoride (MT)	N/A	N/A	N/A	N/A
Fugitive CO <sub>2</sub> e emissions from natural gas distribution (MT)	N/A	568,837	564,730	N/A
Nitrogen Oxide (NOx), Sulfur Dioxide (SO <sub>2</sub> ), Mercury (Hg)				
Generation basis for calculation	Fossil			
Nitrogen Oxide (NOx)				
Total NOx Emissions (MT)	59,805	18,731	19,635	17,688
Total NOx Emissions Intensity (MT/Net MWh)	1.15E-03	4.47E-04	4.66E-04	4.20E-04
Sulfur Dioxide (SO <sub>2</sub> )				
Total SO <sub>2</sub> Emissions (MT)	198,334	47,396	44,161	45,755
Total SO <sub>2</sub> Emissions Intensity (MT/Net MWh)	3.81E-03	1.13E-03	1.05E-03	1.09E-03
Mercury (Hg)				
Total Hg Emissions (kg)	748.4	104.3	80.8	108.5
Total Hg Emissions Intensity (kg/Net MWh)	1.44E-05	2.49E-06	1.92E-06	2.57E-06

METRICS	BASELINE 2005 ACTUAL	LAST YEAR 2016 ACTUAL	CURRENT YEAR 2017 ACTUAL	NEXT YEAR 2018 PROJECTION
<b>RESOURCES</b>				
<b>Human Resources</b>				
Total Number of Employees	11,360	10,302	10,422	N/A
Total Number on Board of Directors/Trustees	13	13	13	N/A
Total Women on Board of Directors/Trustees	2	2	2	N/A
Total Minorities on Board of Directors/Trustees	3	3	3	N/A
<b>Employee Safety Metrics</b>				
Recordable Incident Rate	N/A	0.45	0.67	N/A
Lost-time Case Rate	N/A	0.15	0.21	N/A
Days Away, Restricted, and Transfer (DART) Rate	N/A	0.24	0.37	N/A
Work-related Fatalities	N/A	0	0	N/A
<b>Fresh Water Resources</b>				
Water Withdrawals - Consumptive (billions of liters/Net MWh)	1.57E-06	1.72E-06	1.80E-06	N/A
Water Withdrawals - Non-consumptive (billions of liters/Net MWh)	1.03E-04	9.53E-05	9.52E-05	N/A
<b>Waste Products</b>				
Percent of Non-hazardous Municipal Solid Waste Diverted	N/A	N/A	N/A	N/A
Percent of Coal Combustion Products Beneficially Used	N/A	49.77%	49.17%	N/A