



# Climate Report

NOVEMBER 2022

**FirstEnergy**<sup>®</sup>



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## MISSION STATEMENT

We are a forward-thinking electric utility centered on integrity, powered by a diverse team of employees committed to making customers' lives brighter, the environment better and our communities stronger.

## CORE VALUES

These values guide the decisions we make and the actions we take every day, defining who we aspire to be.

**INTEGRITY:** We always act ethically with honesty, humility and accountability.

**SAFETY:** We keep ourselves and others safe.

**DIVERSITY, EQUITY AND INCLUSION:** We embrace differences, ensure every employee is treated fairly and create a culture where everyone feels they belong.

**PERFORMANCE EXCELLENCE:** We pursue excellence and seek opportunities for growth, innovation and continuous improvement.

**STEWARDSHIP:** We positively impact our customers, communities and other stakeholders, and strive to protect the environment.

“ This updated Climate Report is a key step for FirstEnergy, demonstrating the company's continued commitment to addressing the realities of climate change while meeting stakeholder expectations for transparency and oversight. The company's dedication to building a brighter future for our customers, our communities and the environment is unwavering. With strong oversight and guidance from the Board, FirstEnergy will continue to enhance its preparedness, advance its climate and company strategies, and capitalize on opportunities afforded by the transition to a decarbonized economy. ”

– A Message from Our Board

## FIRSTENERGY AT A GLANCE

6M  
CUSTOMERS

10  
ELECTRIC  
DISTRIBUTION  
COMPANIES

24K  
TRANSMISSION  
LINE MILES

65K  
SQUARE MILES  
OF SERVICE  
TERRITORY

12K  
EMPLOYEES

\$17B  
INVESTMENT PLAN  
(2021-2025)

# Introduction

Climate change is among the most important issues of our time, and FirstEnergy is committed to doing its part to help ensure a bright future for its customers, employees, communities and the environment. We are working toward carbon neutrality by 2050, which we view as a key step in building a more sustainable energy future.

We also have a responsibility to proactively mitigate climate change risks within our control and capitalize on opportunities as we work to advance our climate and company strategies. Understanding the range of potential future risks and opportunities created by climate change is essential to that effort.

We recognize that climate change is also an important topic for our stakeholders, and we strive to be responsive to expectations for transparency into our climate governance practices, risk management processes, climate targets and decarbonization efforts. To that end, we published FirstEnergy's first Climate Report in 2019. Since then, our company has undergone significant transformation. We've evolved into a fully regulated utility, developed a formal Climate Strategy and created updated climate goals.

We are publishing this 2022 Climate Report using guidance from the Task Force on Climate-related Financial Disclosures (TCFD), which is the leading reporting framework on climate risk management. Our report includes, among other things, insights from two climate scenarios – a low-carbon and high-carbon. This updated assessment builds upon the prior 2-degree scenario analysis we conducted as part of our 2019 report. Together, the scenarios help us consider a broad range of possible climate futures and understand the potential climate-related risks and opportunities associated with each.

We expect our understanding of climate risks and opportunities to evolve over time as our industry, service territory and legislative and regulatory environments shift to accommodate the energy transition. Our ongoing analysis of climate risks and opportunities will in turn enhance our risk management efforts and guide our future decision making and strategic and financial planning.

## The TCFD Framework

TCFD recommends that companies develop climate risk disclosures that address four core areas: Governance, Strategy, Risk Management and Metrics & Targets.

### GOVERNANCE

Governance around climate-related risks and opportunities

### STRATEGY

Actual and potential impacts of climate-related risks and opportunities on the company's businesses, strategy and financial planning

### RISK MANAGEMENT

How the company identifies, assesses and manages climate-related risks

### METRICS & TARGETS

Metrics and targets used to assess and manage relevant climate-related risks and opportunities

## FIRSTENERGY'S Company Strategy

Inspired by open and ongoing dialogue with diverse stakeholders, FirstEnergy is experiencing a period of growth and renewal. Our [company strategy](#) demonstrates we are embracing pivotal changes within our operations and culture to energize our company as we further our transformation into a forward-thinking, premium utility.

### A STRONG FOUNDATION: Built by passionate and engaged employees

A culture of ethics and integrity: a trusted partner to our stakeholders

A safe workplace: where employees take responsibility for safety and well-being

A diverse, equitable and inclusive work environment: empowering all employees

A focus on accountability to stakeholders: driving performance excellence

A commitment to stewardship: valuing our customers, communities and the environment

### A CUSTOMER-CENTERED FOCUS: Exceeding expectations through modern experiences, electrification and affordable energy bills

Technology and digital upgrades to enhance the customer experience, expand communication channels and improve satisfaction

Sustainable products, solutions and tools to fulfill our customers' energy needs

New programs focused on emerging technologies to drive electrification

Value driven investments and operational excellence to lower total energy bills and to assist our underserved customers

### ENABLING THE ENERGY TRANSITION: Strategic investments for a clean, reliable, resilient and secure grid

Customer-focused investments that support a secure electric grid, reduce service interruptions and enable electrification and other clean energy trends

Transmission investments that embrace innovation and technology to support grid reliability, resiliency and carbon neutrality goals

Distribution investments to build the grid of the future and leverage advanced metering infrastructure and grid modernization projects that automate and optimize our system

## FIRSTENERGY'S Climate Strategy

### Our Climate Strategy is embedded in our Company Strategy

We believe that our [Climate Strategy](#), while separately articulated, is aligned and embedded throughout our company strategy. This strategic integration positions us to address risks, take advantage of opportunities that could emerge in the energy transition and do our part in reducing greenhouse gas (GHG) emissions.

Our Climate Strategy consists of two main objectives – reducing GHG emissions and enabling the energy transition – and we are taking meaningful steps to execute that strategy.

#### REDUCING EMISSIONS TO ACHIEVE CARBON NEUTRALITY BY 2050

Transitioning away from our two coal plants by 2050

Reducing sulfur hexafluoride (SF<sub>6</sub>) emissions from transmission equipment

Electrifying our vehicle fleet

#### ENABLING THE ENERGY TRANSITION TO A LOW-CARBON FUTURE

Protecting and enhancing the transmission system to support grid reliability and enable increased renewables and other clean energy trends

Building the technologically advanced distribution grid of the future by implementing grid management solutions, smart meters, automation, electric vehicle (EV) charging infrastructure and other emerging technologies

Being innovative and forward-thinking with our coal generation fleet as we explore opportunities to incorporate renewable resources and implement emerging technologies

Additional details on our efforts related to the energy transition and our decarbonization strategy to achieve carbon neutrality by 2050 can be found in the Strategy and Metrics & Targets sections of this report.

# Governance

## Board Oversight in Climate Matters

FirstEnergy's Board of Directors provides oversight and guidance on employee, environmental, social and governance (EESG) topics – including climate change – while ensuring the company's strategy, goals and decision making reflect and align with our Mission, Core Values and EESG priorities.

Climate change is an important component of EESG for the Board. Climate-related matters, including our preparedness for potential risks and pursuit of energy transition opportunities, are discussed regularly, particularly as they relate to the continued alignment and advancement of FirstEnergy's climate and company strategies.

The Board has five standing committees that, through [their respective oversight responsibilities](#), assist in guiding FirstEnergy's Climate Strategy and related efforts. The Corporate Governance, Corporate Responsibility and Political Oversight Committee has general responsibility for oversight of EESG matters and regularly receives climate-related updates at its meetings. In coordination with the Corporate Governance, Corporate Responsibility and Political Oversight Committee, the Operations and Safety Oversight Committee reviews and monitors environmental-related strategies, initiatives and policies, including in the area of climate change. The Finance, Audit and Compensation Committees also provide specific oversight of EESG matters that fall within the scope of the responsibilities set forth in each of [their charters](#). Reports to the Board and its committees are typically provided by members of [the senior leadership team](#) or other company leaders, with input and support from the relevant cross-functional, management-level committees and other subject matter experts. Discussions occurring at the Board Committee level, in turn, are regularly reported to the full Board, including those related to climate as appropriate.

For a complete list of Committee responsibilities, please refer to the [Committee charters](#).



## Management's Role in Climate Matters

At the management level, responsibilities for climate matters are spread across the company's five organizational pillars – Finance & Strategy, Customer, Operations, Legal, and Human Resources & Corporate Services – with cross-functional committees designed to bring relevant leaders together. This collaboration helps ensure we are advancing climate action in alignment with our corporate strategy, identifying and managing climate risks, capitalizing on energy transition opportunities and providing transparency through disclosure efforts.

### Management-Level Steering Committees and Responsibilities

#### CLIMATE STRATEGY

##### CORPORATE RESPONSIBILITY STEERING COMMITTEE

**Meets:** At least quarterly

**Membership:** Senior leaders from across the company's five organizational pillars, including the majority of our senior leadership team.

**Purpose:** The Committee oversees our corporate responsibility approach and EESG initiatives, including those related to climate, with the goal of driving transparency and continuous improvement in the company's EESG performance.

**Climate Reporting:** The Committee receives a report from the Climate Subcommittee at regularly scheduled meetings and facilitates and provides input on climate updates to the Board or Board committees.



#### CLIMATE SUBCOMMITTEE

**Meets:** At least bimonthly (six times per year)

**Membership:** Leaders from a variety of business units across the five organizational pillars.

**Purpose:** Established in 2022, the Subcommittee monitors climate-related initiatives to help ensure alignment with our climate and company strategies, benchmark our progress against peers and evaluate climate-related stakeholder expectations.

**Reporting:** The Subcommittee reports on key discussions and makes recommendations to the Steering Committee.

#### CLIMATE RISK

##### ENTERPRISE RISK MANAGEMENT COMMITTEE (ERMC)

**Meets:** At least bimonthly (six times per year)

**Membership:** Vice President and Chief Risk Officer (CRO) and other senior leaders, including the heads of the company's five organizational pillars and the majority of our senior leadership team.

**Purpose:** The ERMC provides oversight and monitoring to help ensure that appropriate risk policies and management processes – including with respect to climate – are established and executed in accordance with proscribed limits and approval levels. The Committee also vets risk prioritization and mitigation to help ensure that risks – including climate-related risks – are managed in accordance with our expectations.

**Reporting:** The CRO has a standing Enterprise Risk Management (ERM) report on the Board's Audit Committee agenda at least quarterly and also updates the full Board on key risk topics at least annually – all with input from the ERMC.

For information on the Corporate Responsibility Steering Committee's broader responsibilities (beyond climate), please visit the [Corporate Responsibility website](#). For more information on oversight responsibilities pertaining to our ERM function, specifically, please see the Risk Management section of this report.



# Strategy

TCFD recommends identifying and describing (1) climate-related risks and opportunities for the company, (2) the impact of those climate-related risks and opportunities to our business, strategy and financial planning, and (3) the resilience and preparedness of the company's strategy across multiple potential climate scenarios.

While FirstEnergy summarizes current material climate risks – physical, transition, financial and reputational – in our [Annual Form 10-K](#), we recognize that climate risks and opportunities will also emerge over the medium and longer term (i.e., 10-30 years into the future), and those are addressed in this section.

## Identifying Climate-Related Risks and Opportunities

Using peer benchmarking and megatrends in the utility sector, we considered a range of common industry risks that could emerge for FirstEnergy in the future:

**Physical Risks** – impacts from severe weather events and long-term shifts in the climate

**Transition Risks** – market-, customer-, technology-, policy- and legal-driven impacts that could arise in the transition toward a low-carbon economy

**Opportunities** – benefits that could emerge for FirstEnergy and customers in the energy transition

We then identified a selection of physical risks, transition risks and opportunities for further qualitative assessment. This is not an exhaustive list of climate risks and opportunities, but a selection of common industry risks that subject matter experts helped to identify for analysis, based on their relevance to our business and service territory and potential to be particularly impactful or complex for FirstEnergy on a longer-term horizon.

### U.S. - Based Electric Utility Climate Risks and Opportunities Selected for Assessment <sup>1</sup>

TYPE	CATEGORY	DESCRIPTION
PHYSICAL RISKS	Acute	Increased intensity and frequency of severe weather events
	Chronic	Extreme heat
TRANSITION RISKS	Policy and Legal	Federal and/or state policy regulations
	Market and Customer	Increased demand on the grid from the rise of electrification
	Market and Customer	Grid management needs related to increased renewables
OPPORTUNITIES	—	Increased investments in transmission and distribution systems to enable electrification, increased renewables and other energy transition trends

<sup>1</sup>This section focuses on potential long-term climate risks and opportunities. FirstEnergy's ownership of two coal-fired power plants in West Virginia and our non-controlling equity ownership in a coal mine was not included here. As discussed in the Metrics & Targets section of this report, we have committed to moving beyond our two coal-fired generating plants no later than 2050, and we will engage in a broad stakeholder dialogue and work closely with the West Virginia Public Service Commission as we develop and seek approval of that future transition plan. For additional disclosure regarding the near-term material risk associated with FirstEnergy's ownership of coal-fired generation and non-controlling equity ownership in a coal mine, please see our [Annual Form 10-K](#).



## Impact of Climate-Related Risks & Opportunities

### Physical Risks

Physical risks associated with climate change are categorized as either acute or chronic and include examples like extreme heat and increased intensity and frequency of severe weather events. These risks could negatively impact FirstEnergy's generation, transmission and distribution infrastructure and potentially disrupt supply chains and supplier productivity.

### Transition Risks

The shift to economywide electrification, particularly the rise of EV charging, will likely trigger significant growth in baseload and peak electricity demand and potentially create risk to reliable performance. At the same time, the penetration of renewables and distributed energy resources (DERs) is also expected to increase, making utilities' distribution systems more complex to manage. Additional transition risks could also materialize as state and/or federal governments pursue climate-related regulations and/or laws, such as renewable portfolio standards, electrification mandates and/or energy conservation requirements.

### Preparedness for Physical and Transition Risks

As our states transition to a reduced carbon economy and our customers begin to adopt technologies to support their own goals, we believe that FirstEnergy is well positioned to invest in transmission and distribution projects that help us mitigate the aforementioned risks and turn many of these risks into opportunities. Indeed, our [company strategy](#) and [investment plan](#) describe investments that support the energy transition toward a reliable, low-carbon future. Examples of those investments are included on the following page. Please see our [Corporate Responsibility website](#) and [Investor Factbook](#) for additional details and examples.

## Key Preparedness Actions

- Our *Energizing the Future* transmission program is an \$8 billion investment plan (2021-2025) focused on supporting clean energy integration while also improving grid reliability and resiliency. This includes embracing innovation and incorporating new technologies and tools that support the shift to increased renewables and maintain our focus on reliable, affordable service for customers.
- Energy efficiency and demand response initiatives aid in reducing overall energy consumption and peak system demands, which can help mitigate stress on the electric system caused by extreme temperatures. Many of our utilities offer a [range of these programs](#) that assist customers in improving their energy efficiency and lowering their overall energy bills while also helping us reduce peak system demands.
- Our *JCP&L Reliability Plus* distribution program (completed in December 2020) sought to, among other things, mitigate the potential for flood- and tree-related damage during severe weather events. We completed vegetation management along more than 1,300 miles of lines to mitigate tree-related damage during storms and installed flood mitigation systems at two substations to protect them from potential flooding that could impact substations during severe storms and cause outages.
- FirstEnergy's Pennsylvania utilities are undertaking approximately \$572 million in accelerated distribution improvement projects from 2020-2024 as part of the second phase of our Long-Term Infrastructure Improvement Plans (LTIIIP II). The LTIIIP II programs are designed to enhance reliability and minimize service interruptions

As part of our company strategy, we are focused on maintaining affordable energy bills for customers through the energy transition. We believe affordability will enable customers to embrace and more fully participate in the transition to a brighter, low-carbon future. We are undertaking an internal affordability study to understand the capital investment required to accommodate high residential EV and heat pump adoption and the corresponding impacts on residential customer rates.

- for our customers. LTIIIP II projects include replacing older poles as well as underground and overhead lines and fuses; installing new substation equipment, network vaults and manhole covers; and reconfiguring circuits.
- Our Potomac Edison utility has been completing distribution reliability improvement programs as a part of its Electric Distribution Investment Surcharge initiative. These programs improve our service restoration capabilities and reduce the impact of severe weather events to our customers.
- Through our advanced metering infrastructure (AMI) deployment, smart grid and supervisory control and data acquisition (SCADA) capability, and advanced distribution management system (ADMS), we are enhancing our visibility into how loading impacts different nodes on the distribution system. This more granular visibility can help identify potential stress on the system and inform our planning and operation functions.
- As a fully regulated utility, FirstEnergy continuously considers regulatory risks, including climate-related regulations. We proactively monitor the regulatory and legislative environments we operate within and engage with relevant stakeholders on an ongoing basis.
- FirstEnergy's supply chain strategy and initiatives help mitigate supply chain disruptions and prepare for potential delays and adverse impacts. This includes expanding our supply base to increase resiliency, evaluating substitute products, reserving production capacity and buying ahead in targeted categories.

## Climate-Related Opportunities

Climate change and the energy transition also present many opportunities for companies like FirstEnergy to support shifting customer preferences in economywide electrification, renewable generation and other energy transition trends. Insights we gain from customers inform our investments in these areas.

We believe these opportunities are well aligned with our energy transition focus on our transmission and distribution systems, and we actively seek opportunities to fund and grow our investment plan. For example, in 2022, FirstEnergy completed the sale of a 19.9% minority equity stake of our FirstEnergy Transmission, LLC, asset to Brookfield Super-Core Infrastructure Partners for \$2.4 billion. This transaction, along with an equity investment in FirstEnergy Corp. from Blackstone Infrastructure Partners, allowed us to increase our 2021-2025 investment plan by \$2.2 billion.

Our \$17 billion investment plan (2021-2025) includes \$8 billion in transmission investments as well as \$9 billion of distribution investments focused on delivering customer-focused growth and seizing opportunities in the energy transition. The distribution investments include implementing grid management solutions, smart meters, automation, EV charging infrastructure and other emerging technologies to build the technologically advanced grid of the future.

Many of the preparedness examples detailed on the previous page also provide opportunities for FirstEnergy. Additional examples of our strategic and financial focus on opportunities associated with the energy transition are included here.

## Grid Management:

- We are pursuing smart meter installation in Pennsylvania, Ohio and New Jersey, with a goal of installing smart meters for two-thirds of our customers by 2025.
- We are [investing in energy efficiency programs](#) for residential, low-income, small and large commercial/industrial customers in our Pennsylvania, New Jersey and Maryland service areas.
- We are [seeking approval](#) through our Ohio Grid Mod II proposal to pilot additional, more innovative management solutions, including a distributed energy resource management system (DERMS), which would enable us to monitor everything connected to the grid and provide insights that could help us maintain reliability as more distributed resources emerge.

## Electrification:

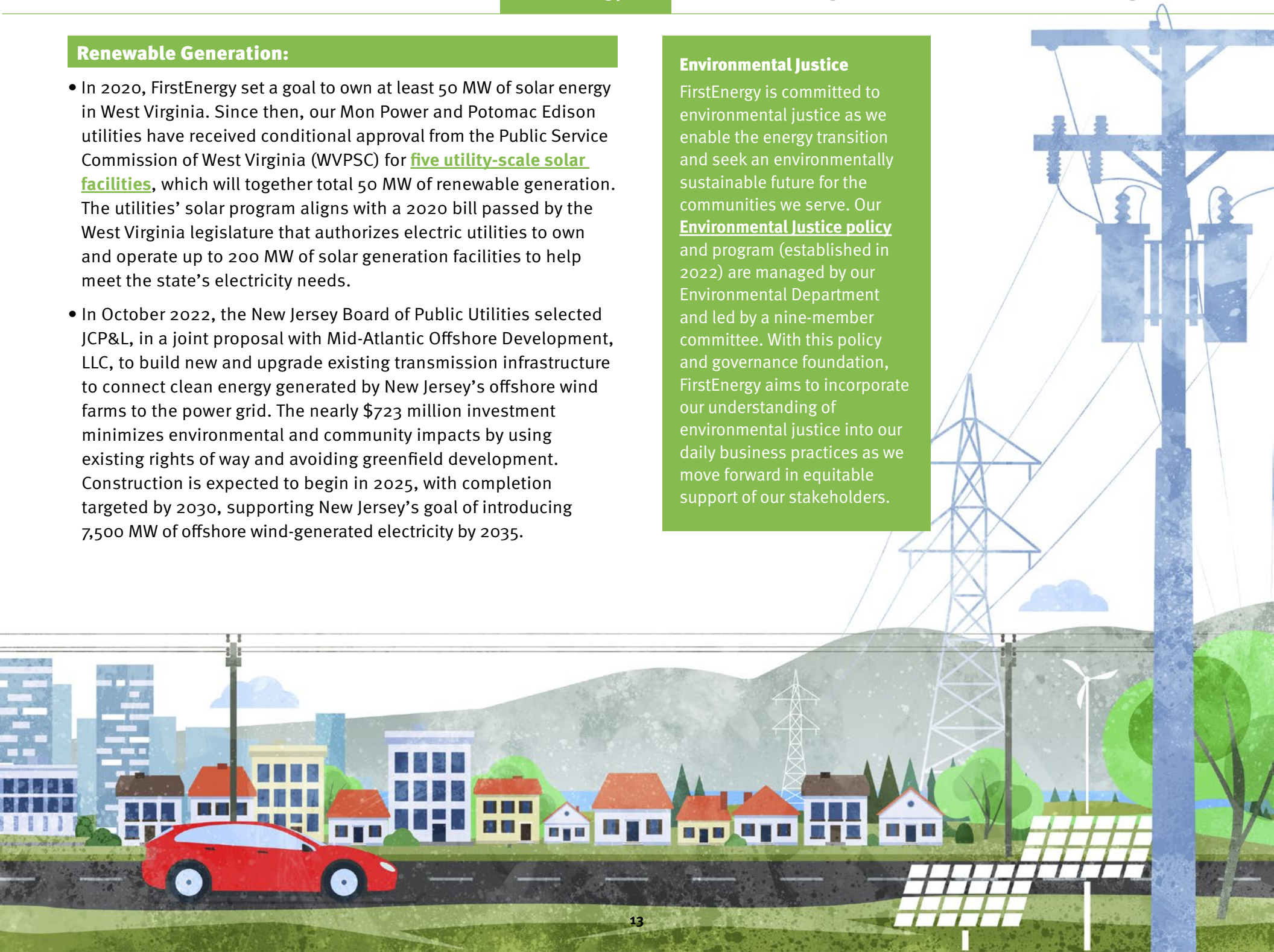
- In Maryland, Potomac Edison is supporting Maryland's electrification efforts through our [EV Driven program](#). The program calls for installing 59 EV charging stations, including 20 fast-charging stations.
- In 2022, our New Jersey utility, JCP&L, launched [EV Driven](#), a \$39.8 million, four-year program that provides incentives for electric vehicle charging infrastructure for residential charging, mixed-use commercial and multifamily property charging, and public-access DC fast charging.
- We are also [seeking approval](#) through our Ohio Grid Mod II plan to, among other objectives, pilot programs that would support the adoption of electric vehicles and test new EV technologies, which will help us prepare to maintain reliability as EV adoption increases.

### Renewable Generation:

- In 2020, FirstEnergy set a goal to own at least 50 MW of solar energy in West Virginia. Since then, our Mon Power and Potomac Edison utilities have received conditional approval from the Public Service Commission of West Virginia (WVPSC) for [five utility-scale solar facilities](#), which will together total 50 MW of renewable generation. The utilities' solar program aligns with a 2020 bill passed by the West Virginia legislature that authorizes electric utilities to own and operate up to 200 MW of solar generation facilities to help meet the state's electricity needs.
- In October 2022, the New Jersey Board of Public Utilities selected JCP&L, in a joint proposal with Mid-Atlantic Offshore Development, LLC, to build new and upgrade existing transmission infrastructure to connect clean energy generated by New Jersey's offshore wind farms to the power grid. The nearly \$723 million investment minimizes environmental and community impacts by using existing rights of way and avoiding greenfield development. Construction is expected to begin in 2025, with completion targeted by 2030, supporting New Jersey's goal of introducing 7,500 MW of offshore wind-generated electricity by 2035.

### Environmental Justice

FirstEnergy is committed to environmental justice as we enable the energy transition and seek an environmentally sustainable future for the communities we serve. Our [Environmental Justice policy](#) and program (established in 2022) are managed by our Environmental Department and led by a nine-member committee. With this policy and governance foundation, FirstEnergy aims to incorporate our understanding of environmental justice into our daily business practices as we move forward in equitable support of our stakeholders.



## Examining Resilience Across Multiple Climate Scenarios

### Climate Scenario Analysis

Climate scenario analysis is a useful supplementary tool for assessing potential climate risks and opportunities 10-30 years into the future, which is further out than the typical long-term time horizons used in enterprise risk management and strategic and financial planning. It's an exercise designed to stress test a company's strategy by examining the climate risks and opportunities a company might face within a range of plausible future scenarios.

We engaged an external consultant to conduct a qualitative climate scenario analysis guided by leading practices. The consultant identified common industry risks and opportunities, recommended climate scenarios and leveraged FirstEnergy information and supplementary climate-related data to conduct the analysis. The consultant also facilitated multiple workshops with a range of FirstEnergy subject matter experts and reported findings to company leadership.

### Climate Scenarios

Climate scenarios are hypothetical, but plausible, constructs that make assumptions about significant elements of a possible future but do not represent a full description of every aspect of that future.

For this scenario analysis exercise, we selected a low-carbon scenario (approximately 1.5-degree Celsius) representative of significant global mitigation against rising temperatures and a high-carbon scenario (approximately 4.5-degree Celsius) representative of a global business-as-usual (as of 2022) pathway. We believe this spectrum of scenarios provides us with a comprehensive range of plausible climate futures that could impact our industry and company.

As recommended by TCFD, FirstEnergy has now leveraged multiple climate scenarios to assess climate risks and opportunities, including a prior 2-degree scenario conducted in 2019, findings from which remain useful to our climate risk management efforts and strategic and financial planning.

SCENARIO TYPE	LOW-CARBON SCENARIO	HIGH-CARBON SCENARIO
<b>TEMPERATURE RISE</b>	~1.6°C by 2050 vs. preindustrial levels, warming held to below 1.5°C by 2100 (Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report)	~2.4°C by 2050, warming up to ~4.4°C expected by 2100 (IPCC's Sixth Assessment Report)
<b>SOURCES</b>	IPCC Shared Socioeconomic Pathway 1-1.9 / Network for Greening the Financial System Net Zero 2050 / Network for Greening the Financial System Divergent Net Zero / International Energy Agency Net Zero Emissions by 2050 / Princeton Net-Zero America Scenarios / Energy Information Administration International Energy Outlook 2021 / Wood Mackenzie High NG	IPCC Shared Socioeconomic Pathway 5-8.5 / Network for Greening the Financial System Current Policies / Network for Greening the Financial System Nationally Determined Contributions / Princeton Net-Zero America REF / International Energy Agency Stated Policies Scenario (STEPS) / US Department of Energy 2019 EV Study / NERC 2021 Long-Term Reliability Assessment / Wood Mackenzie 2022 Policy Headwinds
<b>SUMMARY ASSUMPTIONS</b>	Assumes an immediate and rapid reduction in economywide GHG emissions and aggressive policy implementation to achieve rapid decarbonization.	Assumes reductions in GHG emissions at the current pace and no significant policy implementation related to decarbonization.

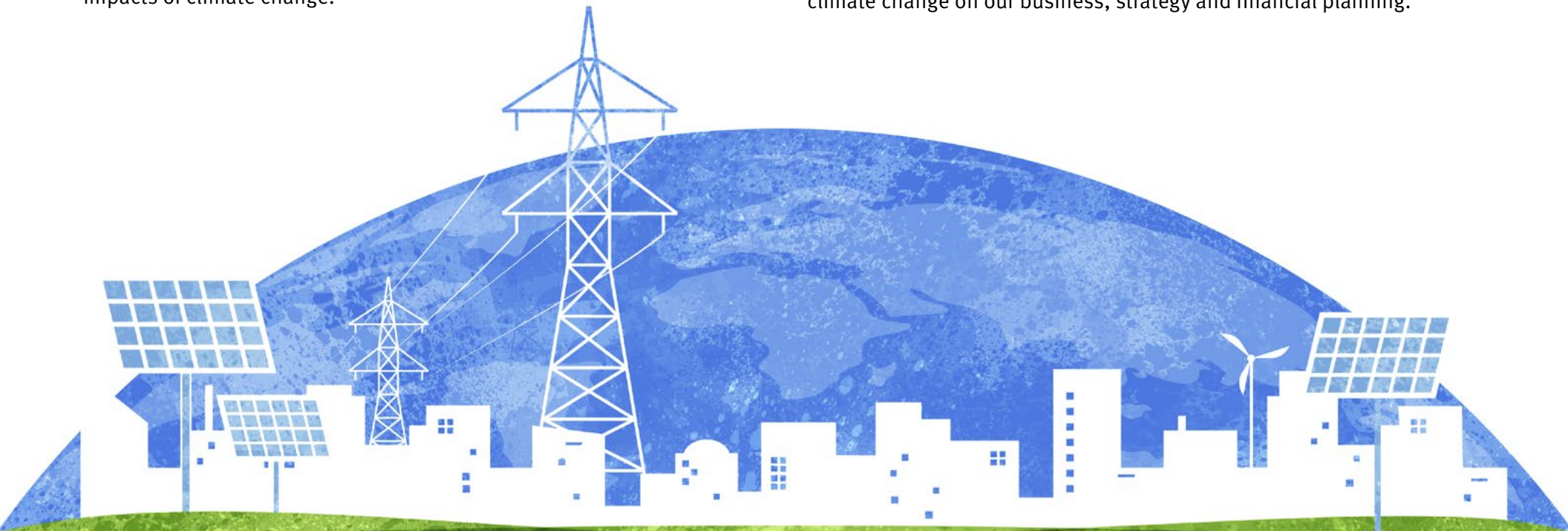
## Climate Scenario Analysis – Qualitative Findings

The 2022 scenario analysis exercise illuminated potential climate-related risks and opportunities that could emerge for FirstEnergy in both a low-carbon and high-carbon scenario. We believe FirstEnergy is well-positioned to mitigate the risks and act on the opportunities that could emerge in both the low-carbon and high-carbon scenarios we leveraged – as well as presumably any scenario variation that might emerge between the two poles of that plausible spectrum.

Physical risks from climate change are expected to emerge in both the low- and high-carbon scenarios, but significantly greater physical impacts and corresponding costs are projected in the high-carbon scenario. Among other efforts, our *Energizing the Future* and *Distribution Grid of the Future* programs, which remain focused on reducing the frequency and duration of outages and strengthening grid reliability and resiliency, can help us prepare to mitigate the potential physical impacts of climate change.

Transition risks and opportunities, such as new climate-related regulations, the rise of electrification and increased renewables, are present in both low- and high-carbon scenarios but are expected to be significantly more impactful in a low-carbon scenario. Investments needed in transmission and distribution systems to enable electrification, renewables and other energy transition trends are well-aligned with our company strategy. Our transmission and distribution programs provide a solid foundation from which we can prepare to mitigate risks associated with increased demand and complex distributed resources and capitalize on opportunities to enable the energy transition.

The qualitative scenario analysis we conducted provides insights about how the climate could change and the energy transition could unfold under different circumstances. The findings and insights will support FirstEnergy's continued evaluation of the possible medium- and long-term effects of climate change on our business, strategy and financial planning.



# Risk Management

## Enterprise Risk Management

Our Enterprise Risk Management (ERM) framework consists of identification and assessment of the company's enterprisewide risk profile, clear risk ownership and mitigation accountability, and continual monitoring and reporting.

## Risk Identification and Assessment

As part of our ERM identification and assessment process, we categorize risks according to our risk taxonomy – strategic, financial, operational, compliance and litigation, and reputational. With subject matter expert support, we then assess risk size and scope and make risk prioritization decisions by quantifying potential impact, identifying time horizon for onset and assessing likelihood of occurrence.

A summary of FirstEnergy's current material risks, including climate-related risks, is included in our [Annual Form 10-K](#).

## Monitoring and Managing Risks

Oversight and accountability are key facets of our ERM process for monitoring and managing risks. We assign risk owners as well as responsibilities for control and mitigation of risks. The Corporate Risk department works with those owners cyclically as part of our ERM process to certify risk controls and make any needed management adjustments.

### IDENTIFICATION & ASSESSMENT

Top-down and bottom-up risk identification processes

External scan of the risk landscape (industry research, peer benchmarking, etc.)

Board and leadership interviews and surveys

Workshops and deep dives with subject matter experts

Risk assessment, sorting, quantification and prioritization

### GOVERNANCE & MANAGEMENT

Risk owner identification and responsibilities

Control and mitigation identification and certification

Clear ERM oversight through the ERMC, Audit Committee and full Board

### MONITORING & REPORTING

Reporting to the risk owners, ERMC, Audit Committee and full Board



## Climate Risk Integration

EESG risks, including climate risks, are integrated into our ERM process much like any other business risk. However, climate-related risks can have long-term time horizons that extend beyond the bounds of our ERM program's long-term window. Climate scenario analysis – like the 2-degree scenario we performed in 2019 and the low-carbon and high-carbon scenarios we conducted in 2022 – help to supplement our ERM program by informing us of potential future climate risks and impacts. That understanding of future scenarios can help enhance how climate-related risks and opportunities inform our strategic and financial planning.

## ERM Oversight

**The ERM program has both management and board oversight.**

**BOARD OF DIRECTORS:** provides oversight of risk management practices, reviews material company risks and ensures processes are in place to support a strong risk management culture

**AUDIT COMMITTEE OF THE BOARD:** oversees the ERM program and process for identifying, assessing, managing and monitoring enterprise risks; assures risks are appropriately communicated with the Board and its committees; oversees enterprise risks and corresponding control and mitigation steps related to the Committee's specific responsibilities; annually reviews the risk management governance, guidelines, policies and procedures

**MANAGEMENT-LEVEL ENTERPRISE RISK MANAGEMENT COMMITTEE:** provides oversight and monitoring to help ensure that appropriate risk policies and management processes are established and executed. The Committee also vets risk prioritization and mitigation to help ensure that risks – including climate-related ones – are managed in accordance with our expectations

**VICE PRESIDENT AND CHIEF RISK OFFICER:** provides highest executive-level oversight of day-to-day risk management efforts; prepares enterprisewide risk management reports for presentation to the ERMC, Audit Committee and the full Board; provides additional timely reports on significant risks as appropriate to employees, senior leadership, respective Board committees and the full Board

**CORPORATE RISK DEPARTMENT:** executes the ERM process

For details on the Audit Committee's full responsibilities, review the [Board Committee Charter](#).

# Metrics & Targets

## GHG Emissions Reduction Targets

As part of FirstEnergy's **Climate Strategy**, we are working to reach a 30% reduction in companywide Scope 1 GHG emissions by 2030, from a 2019 baseline, and targeting carbon neutrality by 2050. We view this GHG reduction effort as a key step in meeting the climate challenge and doing our part to help ensure a sustainable energy future for the next generation.

### Customer Energy Efficiency and GHG Avoidance

Many of FirstEnergy's utility companies help customers understand and use energy more efficiently and wisely through energy efficiency education. Between 2021 and 2025, we aim to help customers achieve cumulative reductions in electricity usage exceeding 7.5 million MWh and lower their demand on the electric grid during peak usage hours by 400 MW. These targeted reductions through 2025 would avoid the equivalent of more than 5.3 million metric tons of GHG — or the annual emissions of more than 1.1 million passenger cars.



**Our GHG Goal**

**30%**  
**REDUCTION**  
from a 2019 baseline  
**by 2030**  
and  
**CARBON NEUTRAL by 2050**

## Tracking our Progress

We track our progress toward this important Scope 1 GHG emissions reduction target. As of year-end 2021, we have reduced our Scope 1 GHG emissions by 12% from our 2019 baseline.

The 2019 baseline was established in 2020 when we adopted a GHG reduction goal to better reflect our shift to a fully regulated company focused primarily on our transmission and distribution businesses. Prior to 2020, we used a generation-based carbon dioxide (CO<sub>2</sub>) emissions goal. To understand the historical carbon reductions we achieved from our prior 2005 baseline – 80% through 2019 – as part of that former CO<sub>2</sub> goal, please visit our [Investor Factbook](#).

### 30% GHG Reduction by 2030<sup>2</sup> Key Steps

1

Implementing efficiencies at our two regulated coal-fired generation plants

We are committed to achieving our 2030 interim goal and are implementing efficiencies, such as heat rate improvements from equipment upgrades, operating monitoring systems and auxiliary power reductions, at our two coal plants to help us achieve some emissions reductions. We thoughtfully balance this reduction effort with our obligation to operate our two coal plants prudently according to market trends and customer needs. We expect our reduction pathway to our 2030 interim target to reflect changing market conditions and our responsibility to reliably serve our customers rather than a steady, consistent decline in emissions.

2

Converting one-third of our light-duty and aerial truck fleet to electric and hybrid alternatives

#### Steps in Action

We are making progress toward our goal to electrify 30% of the light-duty and aerial truck fleet. As of October 2022, we've ordered enough electric or hybrid replacements to reach 10% electrification.

The first hybrid electric bucket trucks were delivered in 2021. Because utility trucks typically idle for 65% of their total engine hours (with one hour of idling equivalent to approximately 25 miles of driving), these hybrid trucks significantly reduce emissions by using a high-capacity battery pack motor to power the hydraulic lift, thereby reducing traditional gas engine idling.

3

Repairing and replacing transmission breakers that leak SF<sub>6</sub><sup>3</sup>

We run leak analytics reports and leverage gas imaging technology in the field to identify the source of SF<sub>6</sub> leaks. In 2022, these strategies helped us to identify one of our highest-leaking breakers in New Jersey and are also helping to inform the corresponding repair/replace plan.

<sup>2</sup>The targeted 30% reduction is a cumulative Scope 1 emissions reduction and does not signify a 30% reduction in each Scope 1 subcategory (stationary combustion, mobile fleet, SF<sub>6</sub>).

<sup>3</sup>Gas commonly used by energy companies as an electrical insulating material and arc extinguisher in high-voltage circuit breakers and switchgear. If escaped to the atmosphere, it acts as a potent greenhouse gas with a global warming potential significantly greater than CO<sub>2</sub>.

## Decarbonization Strategy: Our Scope 1 Approach

### Thoughtfully Transition Away from Coal Generation by 2050

As outlined in our Climate Strategy, we have committed to moving beyond our two coal-fired generating plants (Fort Martin and Harrison) no later than 2050. Our commitment is consistent with the Effluent Limitation Guidelines compliance filing we submitted to the WVPSC, in which we proposed end-of-life dates for the Fort Martin (2035) and Harrison (2040) plants. We will engage in a broad stakeholder dialogue and work closely with the WVPSC as we develop and seek approval for that future transition plan.

The state of West Virginia strongly prefers asset-backed generation from its utilities. As such, our exact pathway to carbon neutrality by 2050, even after an eventual coal transition, is not clear at this time. In 2025, we must submit to the WVPSC an Integrated Resource Plan that, among other things, will analyze market conditions and illustrate how we intend to fulfill our obligation to reliably and cost effectively supply our customers through 2040. This will be an important step toward understanding our path forward.

### Electrify Our Mobile Fleet

We are electrifying our own vehicle fleet as part of our larger efforts to reduce Scope 1 emissions companywide and support electrification of the transportation sector. Since 2021, we have been targeting 100% electric and hybrid purchases for our light-duty and aerial truck fleet. By steadily and responsibly converting our conventional fuel vehicles, we expect to achieve our goal to electrify 30% of our light-duty and aerial truck fleet by 2030 and 100% by 2050.<sup>4</sup>

It is also our intention to electrify our medium-duty and heavy-duty fleet and set corresponding electrification goals for those classes as technology becomes available. We are regularly engaged with vehicle manufacturers on their progress to develop electric solutions for those weight classes that suit the terrain in our region.

#### LIGHT DUTY CLASS 1



Passenger cars  
Minivans  
SUVs  
Pickup trucks

#### MEDIUM DUTY CLASS 2



3/4-Ton pickup trucks  
1-Ton pickup trucks  
1-Ton vans  
Cab and chassis  
E series cutaway

#### HEAVY DUTY CLASS 3



F-550  
Freightliner M2  
Cab and chassis greater  
than 19500 GVWR

#### AERIAL CLASS 4



All material and man lifts,  
regardless of size

<sup>4</sup>Our fleet electrification goals could be affected by supply chain challenges, particularly in the transportation industry, and are dependent upon manufacturers being able to make their deliveries.

Additionally, we include emissions associated with our corporate aircraft in the Scope 1 category. Though there currently is no technological solution to eliminate or significantly reduce aircraft-related emissions, we will continue to monitor global and national efforts to scale up the development and deployment of sustainable aviation fuel and other potential solutions.

### Reduce SF<sub>6</sub> Emissions from Transmission Equipment

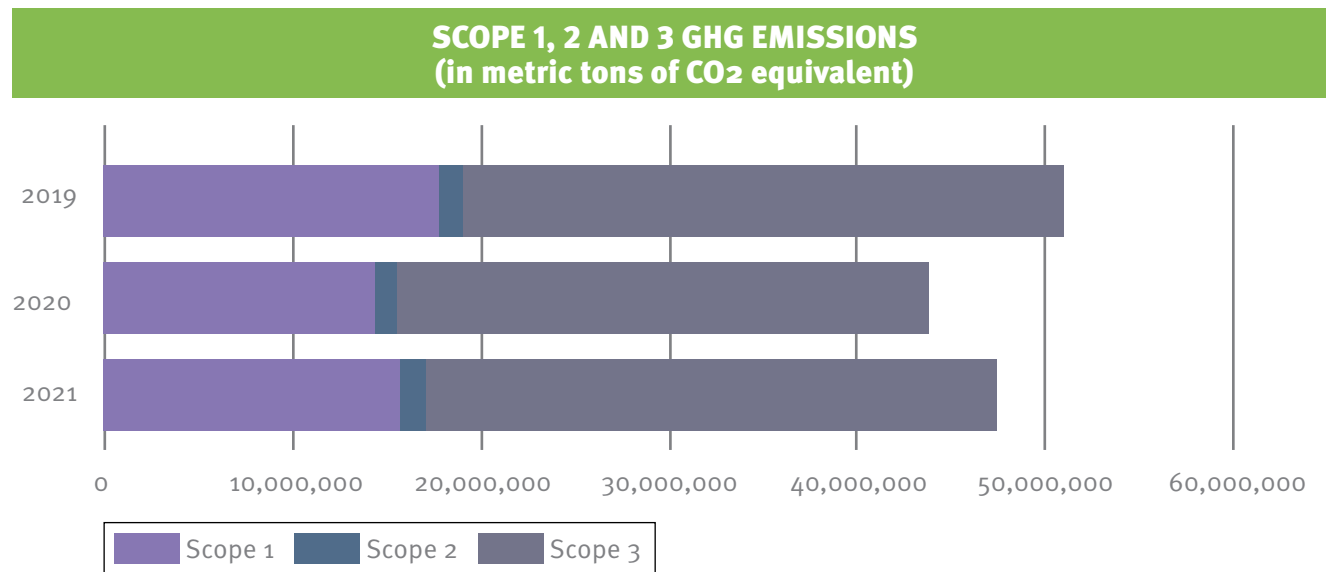
Sulfur hexafluoride, or SF<sub>6</sub>, is a gas commonly used by energy companies as an electrical insulating material and arc extinguisher in high-voltage circuit breakers and switchgear. If escaped to the atmosphere, it acts as a potent greenhouse gas with a global warming potential significantly

greater than CO<sub>2</sub>. FirstEnergy employs a multi-pronged strategy to reduce SF<sub>6</sub> emissions:

- Replacing circuit breakers with obsolete SF<sub>6</sub> designs with newer models that have reduced nameplate capacity and improved gasketing materials
- Improving our repair/replace strategies through the use of quarterly reports that track leak severity and frequency
- Utilizing gas imaging technology in the field to help identify the source of SF<sub>6</sub> leaks
- Evaluating SF<sub>6</sub>-free vacuum technology on 72.5kV-rated equipment at 40kV and 63kA interrupting capacities

## GHG Scopes Reporting

Annual updates of our Scope 1, 2 and 3 emissions are reported on [our Corporate Responsibility website](#).



### GHG SCOPE DEFINITIONS

**Scope 1:** direct emissions from operations that an organization owns or controls, i.e., the emissions from our company's conventional fuel-based vehicle fleet

**Scope 2:** indirect emissions that result from the generation of energy an organization purchases/uses, i.e., emissions from the generation of energy we use to power our facilities

**Scope 3:** indirect emissions associated with upstream and downstream operations in an organization's value chain, i.e., emissions from employee commuting or the generation of energy we deliver to customers

## Energy Transition

In addition to emissions reductions, our climate and company strategies are focused on our role in the energy transition to a low-carbon future.

The growth of renewable energy across the country is a key part of that energy transition. We believe our main role in the energy transition, however, is to enable the evolution to a low-carbon future through our transmission and distribution business. Among other objectives, that means we are making investments in our transmission system to reliably support the growth of renewables and in our distribution system to handle widespread electrification of transportation and other sectors.

Please visit the Strategy section of this report and our [Investor Factbook](#) for details on our energy transition related programs and goals.

### Collaboration, Research and Development

FirstEnergy participates in a variety of efforts to support the research, development and deployment of advanced technologies that could enable a low-carbon future. Additionally, we participate in industry collaborations designed to guide energy transition strategies, support equitable decarbonization of the economy and inform climate change responses.

#### ELECTRIC POWER RESEARCH INSTITUTE (EPRI) LOW-CARBON RESOURCE INITIATIVE

A five-year effort to accelerate the development and demonstration of technologies to achieve deep decarbonization.

#### EPRI'S CLIMATE READI INITIATIVE

Three-year initiative aimed at developing a science-based, standardized approach to managing climate risks to the power system and identifying appropriate adaptation and resilience investments.

#### ENERGY IMPACT PARTNERS

Global venture capital firm that invests in early-stage, innovative decarbonization technologies that can help accelerate the transition to a low-carbon future.

#### ALLIANCE FOR TRANSPORTATION ELECTRIFICATION

This coalition of utilities, manufacturers, EV supply equipment vendors and others advocates for transportation electrification in states across the country. The Alliance believes a broad, multi-stakeholder approach is key to effectively educating policymakers and accelerating the deployment of EV charging infrastructure.

#### EPRI'S EQUITABLE DECARBONIZATION INTEREST GROUP (EDIG)

This collaborative EPRI forum is designed for member companies to investigate a range of equity and environmental justice issues and best practice solutions pertinent to the energy transition. The EDIG develops research, resources and analytical tools that can support member companies in making decisions and designing programs to advance equitable decarbonization and a just energy transition.

## Emerging Technologies

In addition, our own Emerging Technologies (EmT) department helps us research and plan investments in key technology areas to bring our vision for the grid of the future to life. Projects include:

### GRID MODERNIZATION

As our customers and industry shift toward a more sustainable energy future, we need an increasingly smart, resilient and flexible distribution system that can reliably handle increased, intermittent renewable generation sources, as well as widespread electrification of transportation and commercial and industrial processes.

### SMART METERS

Our customers want more control over the choices that affect their energy use and electricity bill. Smart meters provide customers with information they need to manage their usage and reach their efficiency and sustainability goals. Smart meters can also offer our utilities improved visibility into the health of the energy grid, helping us to serve customers more efficiently.

### ELECTRIFICATION

Customers want options that help them improve the energy sustainability of their homes or businesses. Electric utility support for EV adoption, charging infrastructure and more efficient use of electricity in buildings and various energy-intensive industrial processes can yield benefits for customers and the environment, including progress toward sustainability targets, significant emissions reductions and improved air quality.

### SMART CITIES

Our widespread utility infrastructure and energy expertise positions us well to help enable our customers' increased adoption of sustainable smart city initiatives, which help municipalities operate more efficiently, reduce their carbon footprint, enhance community safety and improve their citizens' quality of life.

### ALTERNATIVE GENERATION

Our customers are increasingly interested in sustainable electricity generation, which is beneficial for the environment and an important component of a clean energy future.

### ENERGY MANAGEMENT

Our utilities' energy efficiency programs continue to aid customers in reducing their energy use, carbon footprint and energy bills. As energy-related choices continue to evolve, we are well positioned to provide customers with information and tools to help them weigh their options and develop a personalized energy management plan.

## Conclusion

Looking ahead, FirstEnergy's customer-focused transmission and distribution investments are key to reliably supporting the energy transition and realizing a low-carbon future where our customers can thrive. Grounded by our commitment to stewardship and performance excellence, our long-term vision is to help facilitate the reliable inclusion of increased renewables with a strong transmission system, support a seamless economywide electrification effort and empower our customers with solutions that reduce their carbon footprint and meet their energy needs. We remain committed to our continued focus on customer insights, customer-focused policies and affordable solutions as these changes unfold in the energy transition.

Board and management-level oversight is a vital component of our corporate responsibility approach, and we continue to enhance our climate governance practices and processes. Comprising leaders from across FirstEnergy, our newly established Climate Subcommittee is an important step toward advancing climate action in alignment with our corporate strategy. In addition, we recently refreshed our Enterprise Risk Management program to, among other things, strengthen our practices and processes to increase our preparedness and mitigation efforts.

The climate scenario analysis detailed within this report illuminates a range of plausible climate futures, providing valuable insights to bolster our understanding of potential climate risks and impacts we might expect over the long term. Climate risk assessment is a long and ongoing

process, and we strive to develop an informed and agile approach that leaves us well positioned to address changes in climate, customer needs, our industry and the world around us. As our climate risk assessment evolves over time, we believe it will play a key role in guiding not only our risk mitigation efforts but our strategic and financial planning decisions as well.

As we strive to reduce GHG emissions and achieve carbon neutrality by 2050, we recognize that success depends on both collaboration and innovation. We are building diverse and talented teams across our organization – leaders and employees with a range of knowledge, experience and perspective to help us address risks and take advantage of opportunities that could emerge in the energy transition. We are also focused on developing important collaborations within the electric power industry and our service territory to achieve our shared vision. Together, we are building pathways to reliably enable a cleaner, greener energy future for generations to come.





**Forward-Looking Statements:** This report includes forward-looking statements based on information currently available to management. Such statements are subject to certain risks and uncertainties and readers are cautioned not to place undue reliance on these forward-looking statements. These statements include declarations regarding management's intents, beliefs and current expectations. These statements typically contain, but are not limited to, the terms "anticipate," "potential," "expect," "forecast," "target," "will," "intend," "believe," "project," "estimate," "plan" and similar words. Forward-looking statements involve estimates, assumptions, known and unknown risks, uncertainties and other factors that may cause actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements, which may include the following: the potential liabilities, increased costs and unanticipated developments resulting from government investigations and agreements, including those associated with compliance with or failure to comply with the Deferred Prosecution Agreement entered into July 21, 2021 with the U.S. Attorney's Office for the Southern District of Ohio; the risks and uncertainties associated with government investigations and audits regarding Ohio House Bill 6, as passed by Ohio's 133rd General Assembly ("HB 6") and related matters, including potential adverse impacts on federal or state regulatory matters, including, but not limited to, matters relating to rates; the risks and uncertainties associated with litigation, arbitration, mediation, and similar proceedings, particularly regarding HB 6 related matters, including risks associated with obtaining dismissal of the derivative shareholder lawsuits; changes in national and regional economic conditions, including recession, inflationary pressure, supply chain disruptions, higher energy costs, and workforce impacts, affecting us and/or our customers and those vendors with which we do business; weather conditions, such as temperature variations and severe weather conditions, or other natural disasters affecting future operating results and associated regulatory actions or outcomes in response to such conditions; legislative and regulatory developments, including, but not limited to, matters related to rates, compliance and enforcement activity, cybersecurity, and climate change; the ability to accomplish or realize anticipated benefits from our FE Forward initiative and our other strategic and financial goals, including, but not limited to, overcoming current uncertainties and challenges associated with the ongoing government investigations, executing our transmission and distribution investment plans, greenhouse gas reduction goals, controlling costs, improving our credit metrics, growing earnings and strengthening our balance sheet; the changing market conditions affecting the measurement of certain liabilities and the value of assets held in our pension trusts may negatively impact our forecasted growth rate, results of operations, and may also cause us to make contributions to our pension sooner or in amounts that are larger than currently anticipated; the risks associated with cyber-attacks and other disruptions to our, or our vendors', information technology system, which may compromise our operations, and data security breaches of sensitive data, intellectual property and proprietary or personally identifiable information; mitigating exposure for remedial activities associated with retired and formerly owned electric generation assets; the ability to access the public securities and other capital and credit markets in accordance with our financial plans, the cost of such capital and overall condition of the capital and credit markets affecting us, including the increasing number of financial institutions evaluating the impact of climate change on their investment decisions; actions that may be taken by credit rating agencies that could negatively affect either our access to or terms of financing or our financial condition and liquidity; changes in assumptions regarding factors such as economic conditions within our territories, the reliability of our transmission and distribution system, or the availability of capital or other resources supporting identified transmission and distribution investment opportunities; changes in customers' demand for power, including, but not limited to, economic conditions, the impact of climate change, or energy efficiency and peak demand reduction mandates; the potential of non-compliance with debt covenants in our credit facilities; the ability to comply with applicable reliability standards and energy efficiency and peak demand reduction mandates; changes to environmental laws and regulations, including, but not limited to, those related to climate change; labor disruptions by our unionized workforce; changes to significant accounting policies; any changes in tax laws or regulations, including, but not limited to, the Inflation Reduction Act of 2022, or adverse tax audit results or rulings; and the risks and other factors discussed from time to time in our Securities and Exchange Commission ("SEC") filings. Dividends declared from time to time on FirstEnergy Corp.'s common stock during any period may in the aggregate vary from prior periods due to circumstances considered by FirstEnergy Corp.'s Board of Directors at the time of the actual declarations. A security rating is not a recommendation to buy or hold securities and is subject to revision or withdrawal at any time by the assigning rating agency. Each rating should be evaluated independently of any other rating. These forward-looking statements are also qualified by, and should be read together with, the risk factors included in FirstEnergy Corp.'s filings with the SEC, including, but not limited to, the most recent Annual Report on Form 10-K and Quarterly Report on Form 10-Q, and any subsequent Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. The foregoing review of factors also should not be construed as exhaustive. New factors emerge from time to time, and it is not possible for management to predict all such factors, nor assess the impact of any such factor on FirstEnergy Corp.'s business or the extent to which any factor, or combination of factors, may cause results to differ materially from those contained in any forward-looking statements. FirstEnergy Corp. expressly disclaims any obligation to update or revise, except as required by law, any forward-looking statements contained herein or in the information incorporated by reference as a result of new information, future events or otherwise.

