

# Energy Efficiency and Innovation Plan

**Lumen**

September 2025



## Message from Ana White, Executive Vice President and Chief People Officer

At Lumen, we're committed to keeping critical digital infrastructure reliable, secure, and affordable for the customers we serve. That's why this plan centers on energy efficiency, innovation, operational resilience, reliability, and cost management, and as a result, helps the company reach its near-term science-based carbon emissions reduction goals and is aligned with net-zero by 2050.

As a global leader in network infrastructure and digital solutions, we have already delivered meaningful reductions in our operational footprint through network modernization, real-estate consolidation, and energy efficiency. Looking ahead, we will continue to prioritize actions that customers and investors value most: improved uptime, lower unit costs, and transparent, decision-useful reporting. Where renewable power and market mechanisms make economic sense and improve the reliability and sustainability of our operations, we will use them to advance the role we play in the global economy. In addition to reducing our direct environmental impacts, Lumen's digital infrastructure helps customers improve efficiency, reduce costs, and meet their own sustainability goals. This plan outlines how Lumen's purpose aligns with our strategic approach to reducing greenhouse gas emissions across our operations and value chain. It builds upon our strong foundation of environmental stewardship, including achievement of our prior science-based targets to reduce Scope 1 and 2 emissions by 25% and Scope 3 emissions by 39% between 2018 and 2025.

Our Energy Efficiency and Innovation Plan (Plan) is guided by the following principles:

- **Science-Based Targets:** We are committed to aligning our emissions reduction goals with climate science, ensuring our actions contribute meaningfully to global efforts to limit warming to 1.5°C.
- **Operational Efficiency:** We will continue to invest in energy-efficient technologies, optimize facility operations, and expand our use of renewable energy.
- **Supplier Engagement:** We will collaborate with our suppliers to encourage environmentally responsible practices and reduce emissions throughout our supply chain.
- **Transparency and Accountability:** We will report our progress annually through frameworks such as the Carbon Disclosure Project (CDP), where we earned an A- score in 2024 for our climate-related initiatives.

This Plan outlines our approach to energy and operational efficiency, innovation, resiliency, and long-term value creation, while responsibly managing our environmental impacts. By addressing climate-related risks and integrating sustainability into every facet of our business, Lumen is helping to shape a more connected and sustainable future-consistent with our purpose to unleash the world's digital potential and serving customers as the trusted network for AI.

## Introduction to Lumen

We are a networking company with the purpose of unleashing the world's digital potential by providing our business and mass market customers with a broad array of integrated products and services necessary to fully participate in our ever-evolving digital world. We operate one of the world's most interconnected networks. Our platform empowers our customers to swiftly adjust digital programs securely to meet immediate demands, create efficiencies, accelerate market access, and reduce costs - allowing customers to rapidly evolve their IT programs to address dynamic changes. Lumen's products and services also help our customers become more efficient and reduce carbon emissions by enabling smart technologies, dematerialization, and virtualization. By aligning with our customers' climate change mitigation goals and communicating our efforts, we create a strategic advantage.

## Plan Background

Extreme weather events and environmental disruptions increasingly impact business continuity and infrastructure resilience. As part of our long-term strategy, we have developed an Energy Efficiency and Innovation Plan (Plan) to proactively reduce risks and position our business for sustainable growth in a rapidly changing global environment. In this plan, we are sharing how Lumen is increasing our resilience to the impacts of climate change to support our customers. This report follows the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) for low carbon transition plans.

## Our Ambition and Targets

In 2019, we set science-based targets (SBTs), approved by the [Science Based Targets initiative \(SBTi\)](#), to reduce annualized absolute Scope 1 and Scope 2 market-based emissions by 18% and to reduce annualized absolute upstream Scope 3 emissions by 10% by 2025, compared to our 2018 emissions base year. Our upstream Scope 3 emissions meet the SBTi Scope 3 target boundary criteria accounting for over 67% of our total Scope 3 emissions, and therefore, downstream Scope 3 emissions were not included in this near-term target.

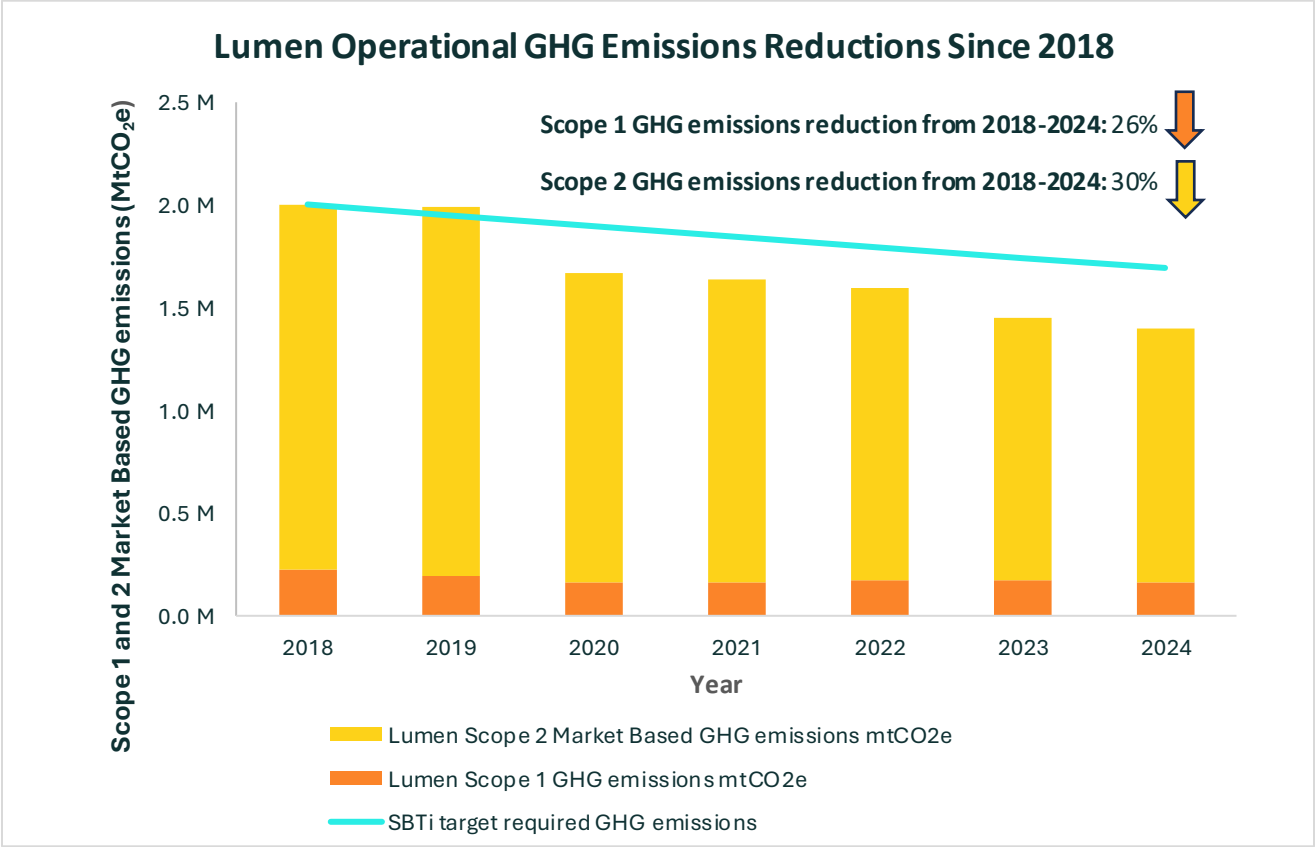


Figure 1. Lumen Operational GHG Emission Reduction Progress in Scope 1 and Scope 2 Market Based Emissions since 2018 through 2024 our most recently calculated GHG inventory year

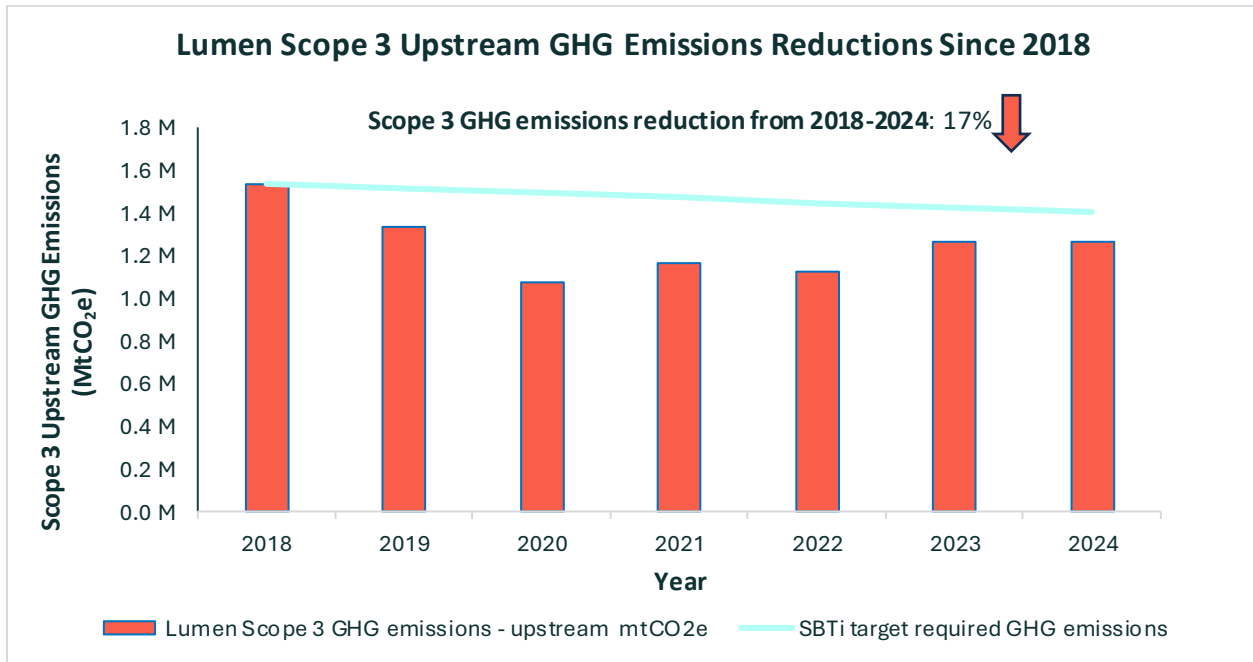


Figure 2. Lumen GHG Emission Reduction Progress in Upstream Scope 3 Emissions since 2018 through 2024 our most recently calculated GHG inventory year

The table below summarizes our 2024 emissions by Scope. Our 2018 base year GHG emissions were re-calculated per the GHG Protocol guidelines, to account for structural changes to our business that occurred in 2022. We obtain annual limited third-party assurance aligned with ISO14064-3 for 100% of our Scope 1-3 emissions.

Table 1. Lumen 2024 emissions summary

| Scope                                     | Emissions in 2024 (thousand MtCO <sub>2</sub> e) |
|-------------------------------------------|--------------------------------------------------|
| <b>Scope 1</b>                            | 165                                              |
| <b>Scope 2 - Market Based</b>             | 1,239                                            |
| <b>Total Market-based (Scope 1 and 2)</b> | 1,403                                            |
| <b>Scope 3 - Upstream</b>                 | 1,267                                            |

As of 2024, our most recently calculated GHG inventory year, we reduced our Scope 1 emissions by 26% and Scope 2 emissions by 30% compared to our 2018 base year, which exceeds our Scope 1 and 2 reduction target of 18%. Additionally, we reduced our upstream Scope 3 GHG emissions by 17% from 2018 to 2024, which exceeds our 10% target. These emissions reductions indicate that we are ahead of schedule in achieving our 2025 SBT. We are committed to maintaining our progress toward this goal through 2025.

In addition, we are furthering our commitment to sustainability by setting updated near-term SBTs and sharing our approach to achieving these updated targets in this plan. These updated targets are undergoing validation by SBTi. Additionally, Lumen is aligned with achieving net zero emissions by 2050 across Scope 1,2 and 3. At this time, our net zero target will not be validated by SBTi.

The updated targets are as follows and as shown in Table 2: Lumen commits to reducing Scope 1 and 2 emissions by 55% by 2033 from a 2022 base year and to reducing upstream<sup>1</sup> Scope 3 emissions by 33% by 2033 from a 2022 base year. Lumen's upstream scope 3 emissions breakdown by category is shown in Figure 3.

Table 2. Lumen Updated Near Term SBTi GHG Emissions Reduction Target Details

| GHG Emissions Scope        | Base Year | Target Year | % Reduction |
|----------------------------|-----------|-------------|-------------|
| Scope 1 and 2 Market-Based | 2022      | 2033        | 55%         |
| Scope 3 - Upstream         | 2022      | 2033        | 33%         |

<sup>1</sup> Scope 3 target includes the following detailed emission categories: Category 1 Purchased Goods and Services, Category 2 Capital Goods, Category 3 Fuel- and Energy-related Activities, Category 4 Upstream Transportation and Distribution, Category 5 Waste Generated in Operations, Category 6 Business Travel, Category 7 Employee Commuting.

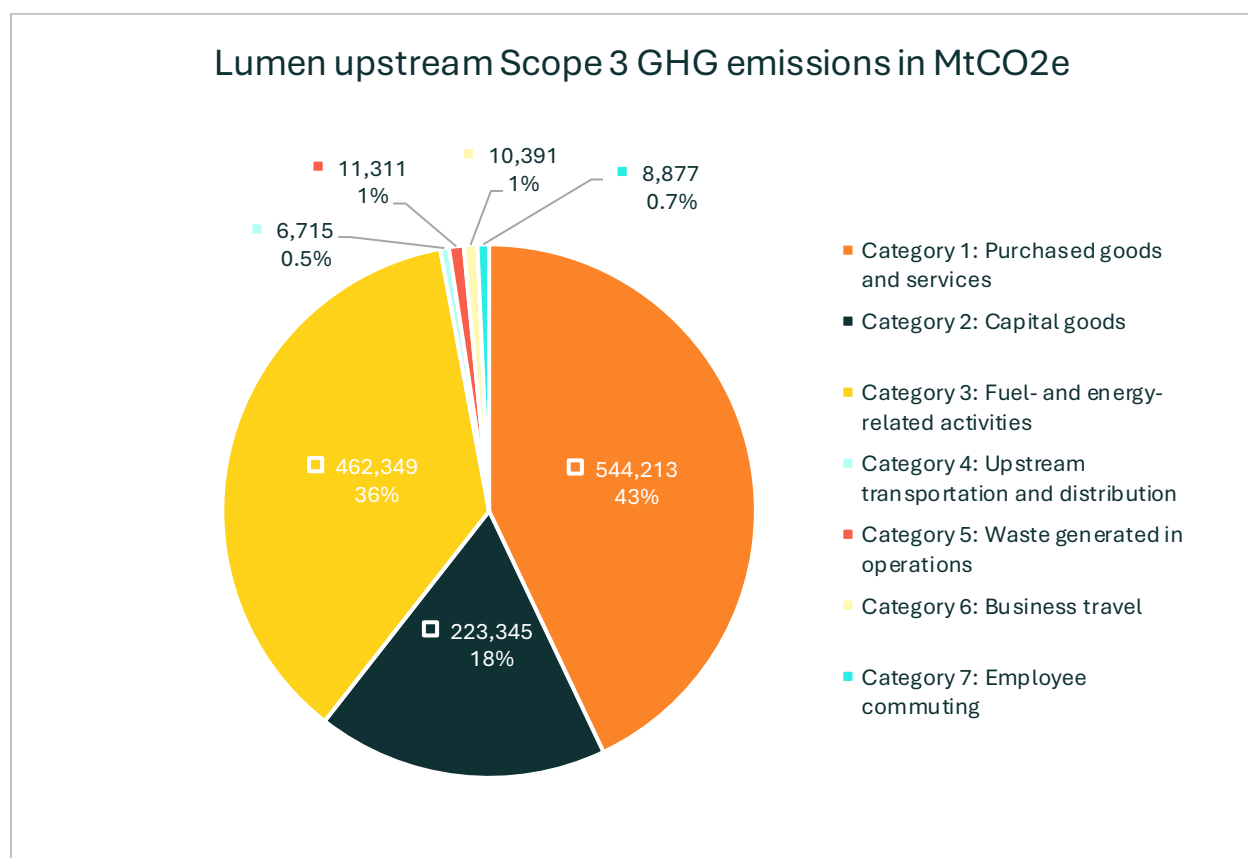


Figure 3. Lumen 2024 Scope 3 GHG emission profile

## Climate-Related Risks and Opportunities

Practical risk management and customer-centric planning are core to Lumen's business. We recognize that even in the face of uncertainty, preparing for a range of future climate-related scenarios is a prudent business strategy. Understanding our climate-related risks and opportunities enables us to identify how we can increase our operating resilience and ensure we can continue to serve our customers.

Lumen's Board of Directors (Board) Nominating and Corporate Governance Committee (NCGC) helps shape the Company's governance policies and practices including those related to our Plan and related risks. This committee may elect to escalate any major risks that arise from our Plan to our Risk and Security Committee (RSC). The RSC has oversight responsibility for management's efforts in identifying, monitoring, and managing major risks to the Company's business, properties, and employees.

Lumen discloses risks which the company believes could have a financially material impact on our business in its Annual Report. Among the risks listed under Item 1A are climate change, natural disasters, and extreme weather events.

Given the potential materiality of these impacts, we performed a forward-looking scenario analysis of our risks and opportunities from the physical and transition impacts of the changing climate. We evaluated each risk and opportunity in the present and in the future to understand their potential impact(s) on our business.

#### Climate scenario analysis

The purpose of scenario analysis is to better understand how a business might perform under different future states (i.e., the business' resiliency/robustness). In the case of climate change, climate-related scenarios allow an organization to explore and develop an understanding of how the physical and transition risks and opportunities of climate change might plausibly impact the business over time. (Source: [The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities](#) written by TCFD)

The NCGC of the Board will oversee the implementation and progress of Lumen's Plan as part of the risk management strategy for climate-related risks described in the following sections.

### Overview of Lumen's Physical Risk Assessment

- **Physical scenario analysis:** The Lumen Enterprise Risk Management (ERM) program has a well-defined process to identify, assess, evaluate, and respond to risks and opportunities which could have a financial or strategic impact. During the ERM evaluation process, our review of natural disasters and extreme weather conditions highlighted the impact these climate change-related phenomena could have on our network reliability, business continuity, and disaster preparedness. This evaluation, in part, led Lumen to perform a scenario analysis of physical climate risks. The scenario analysis was performed in 2021 and aligned with the recommendations of the TCFD. This study used the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathway (RCP) 8.5<sup>2</sup> scenario and focused on 7 critical Lumen sites. The chronic physical climate hazards considered were increasing temperature, rising sea levels, and changes in precipitation. The study also considered the following acute physical climate change hazards: inland flooding, coastal flooding, tropical cyclones, drought, wildfires, and extreme temperatures. This was analyzed for the present, 2035 and 2060.
- **Physical scenario analysis results:** The scenario analysis showed the hazards associated with climate change are diverse and could potentially impact our direct operations, suppliers, and customers. These include:
  - Increasing average and extreme temperatures and rising humidity are likely to increase cooling costs, increase the frequency of power outages potentially causing business interruption, and increase the exposure of employees and infrastructure to heat stress, potentially causing loss of productivity and injury to workers and infrastructure components to wear out faster.
  - Projected increases in the intensity of extreme precipitation events may increase inland flooding risk for some US sites, potentially causing damage to assets and business interruption.

<sup>2</sup> RCP, Representative Concentration Pathway



- Some sites are exposed to potential future increases in coastal flooding and tropical cyclone hazards. Rising sea levels may increase sites' exposure to storm surge hazards and may also slow the drainage of stormwater, increasing potential flooding impacts from increasingly intense future rainfall events. This may potentially cause damage to assets and business interruption.
  - By 2035 and beyond, increasing temperatures and rising humidity are likely to increase cooling costs, frequency of power interruptions, and exposure of employees and infrastructure to heat stress.
  - For our US sites in urban areas, wildfire impacts are likely to be indirect and include degraded air quality and power interruptions.
- **Responding to physical climate-related risks:** Identified risks and opportunities are prioritized based on the immediacy and potential severity of the disruption to the Company's operations. Risks related to impacts of global climate change, for example, are prioritized based upon their potential to disrupt network services through physical damage to our network.
  - Lumen continues to utilize its Property Protection Audits to assess the risk of impacts to Lumen's reliability and continuity due to flooding, hurricanes, wind, and fire risks, as exacerbated by climate change. Lumen has made vigorous efforts in hurricane preparedness to ensure network reliability and overall risk reduction. Applicable work groups review checklists and training documents, in addition to site-specific business continuity and disaster recovery plans, to ensure they are always prepared. For more information on Lumen's detailed strategies and examples of how Lumen is addressing physical climate-related risks, please refer to Lumen's latest CDP<sup>3</sup> response.

### Overview of Lumen's transition risk and opportunity assessment

- **Transition scenario analysis:** In 2022, Lumen performed a scenario analysis of transition risks and opportunities arising from changes in climate policy, technology, and evolving consumer preferences during the transition to a low-carbon economy. We utilized the International Energy Agency (IEA) Stated Policies Scenario (STEPS) and Sustainable Development Scenario (SDS), as they encompass a wide range of future climate and policy outcomes. This was analyzed for the present day and 2035.
- **Scenario analysis results:** Lumen has identified the following transition risks related to its GHG emissions and decarbonization from the 2022 scenario analysis. These include:
  - Cost to transition to innovative technologies (e.g., renewable energy, energy storage, electric vehicles, new HVAC systems)
  - Customer sentiment and stakeholder concern on climate-related issues
  - Emerging climate-related regulations (e.g., energy efficiency regulations, GHG and other climate disclosures such as the California Climate Disclosure laws)

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<sup>3</sup> CDP, originally known as the Carbon Disclosure Project, is now a comprehensive survey platform for companies and cities to disclose and manage their environmental impacts on climate change, water security, and deforestation.

Lumen has also identified transition opportunities related to products and services that could help better position the business during the low-carbon economic transition. These include:

- Development of new sustainable products and services that leverage Lumen’s capabilities to support the low-carbon transition, including digitalization.
- Differentiating from competitors by enhancing network resilience as climate change increases the frequency and severity of extreme weather events.

For a full list of transition-related risks and opportunities, please refer to Lumen’s latest CDP response. Lumen’s decarbonization strategy is an integral part of our transition risk mitigation and management and is described in detail in the next section.

## Decarbonization Strategy in Lumen’s Value Chain

A key part of Lumen’s Plan is the reduction of transition risks through decarbonization. To support the achievement of our new near-term SBTi targets, Lumen has developed an accompanying roadmap outlining activities across our operations, value chain, and products that will enable us to reduce our GHG emissions and meet our targets.

Lumen commits to reducing our Scope 1 and 2 emissions by more than 50% by 2033 from a 2022 base year. Our emissions reduction efforts will build on our existing initiatives to increase our operational efficiency at facilities under our control such as offices and data centers. Additionally, to achieve our Scope 3 target, we plan to procure renewable electricity (RE) beyond what is required to meet our Scope 1 and 2 targets. This will help ensure that our Scope 3 target is met, because over-procuring RE in the US will decrease our Scope 3 fuel and energy-related activity (FERA) emissions.

The wedge chart in Figure 5 shows the results of our modeling indicating the breakdown of the emissions reductions needed to achieve our Scope 1 and 2 targets in 2033. To complete the modeling exercise, we projected our business as usual (BAU) emissions based on business growth projections assuming we take no additional action towards emissions reductions. Next, we modeled the emissions reductions from key levers that will be required to meet our SBTi target. Our modeling assumes:

- Planned electricity efficiency initiatives
- 70% (RE) procurement in the US in 2033
- Decarbonization of the electricity grid
- Fuel switching

Our modeling shows that emissions reductions from these actions would result in an overachievement of the Scope 1 and 2 goal, enabling us to meet our near-term SBTi target. Note fuel switching is not a significant portion of the reductions required to meet our near-term target but is a strategic initiative we will start implementing in the near term to facilitate emissions reductions beyond 2033. The following section provides detailed actions to achieve this target.

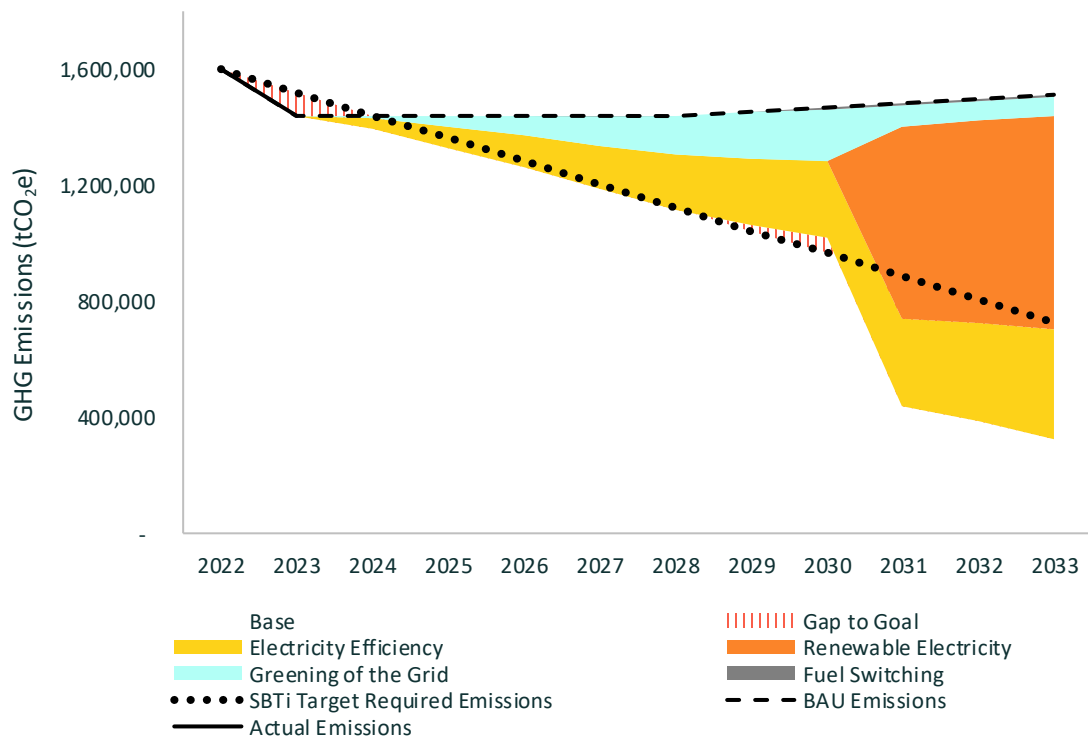


Figure 5. Lumen near-term SBT roadmap for Scope 1 and 2 target achievement

Within our value chain, we have opportunities to collaborate with suppliers and other stakeholders to reduce our Scope 3 emissions by 30% by 2033 from a 2022 base year. The wedge chart in Figure 6 shows the results of our modeling indicating the breakdown of emissions reductions needed to achieve our Scope 3 target by 2033. Using the same method, we used to model our Scope 1 and 2 emissions; we projected our Scope 3 BAU emissions based on our business growth projections assuming we take no additional action towards emissions reductions. Next, we modeled the Scope 3 emissions reductions from key levers to achieve the emissions required to meet our SBTi target. These actions include: (1) 70% RE procurement in the US by 2033 and (2) our efficiency projects, as well as (3) our supplier emissions reduction targets and (4) supplier RE targets.

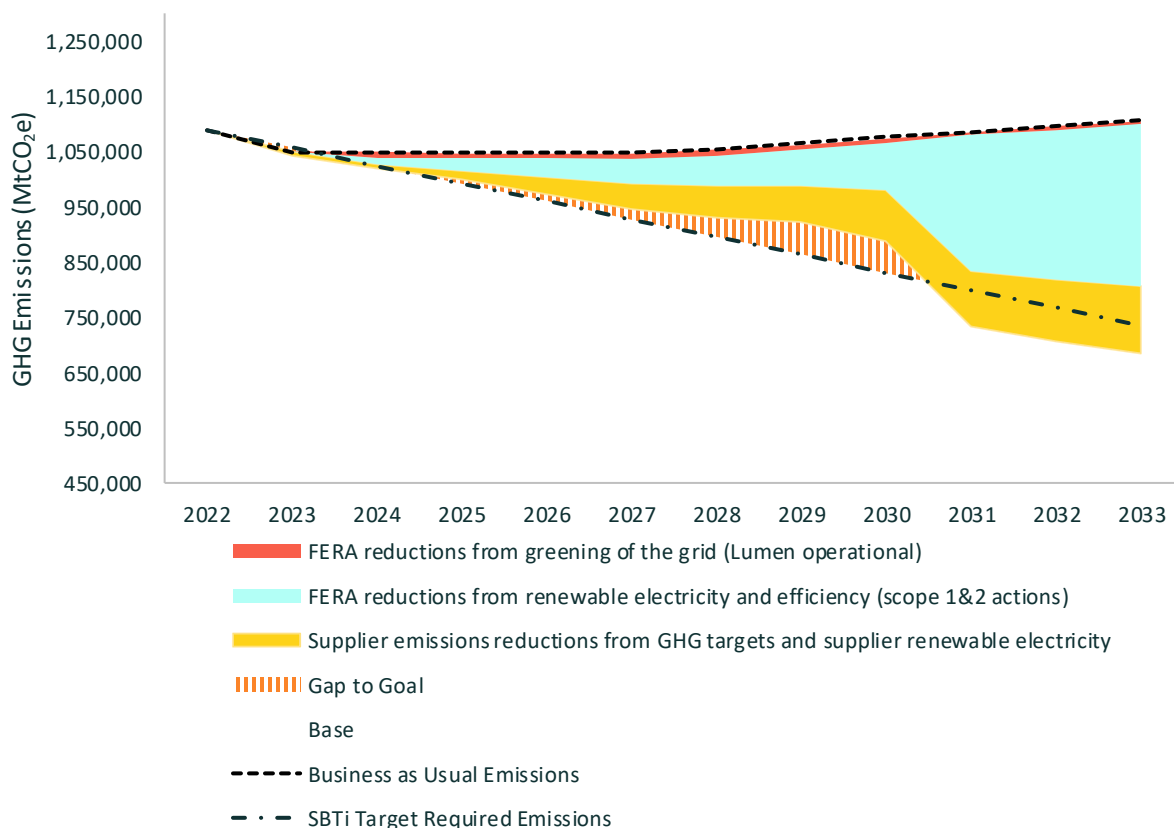


Figure 6. Lumen's near-term SBT roadmap for Scope 3

In the following sections, we provide details about the key levers and emission reduction measures we will take to reduce GHG emissions in each of these areas.

## Our Operations

Since 2018, Lumen has taken action to reduce GHG emissions from our operations by (1) procuring RE, (2) undertaking real estate consolidation efforts, (3) implementing energy efficiency initiatives, and (4) taking advantage of the overall expected decarbonization of utilized electricity grid, also known as greening of the electricity grids.

In recent years, real estate consolidation efforts have yielded significant energy and emission reductions. In 2024, we invested approximately \$22 million in the USA in projects that improved the energy efficiency of our properties, including switch grooming and decommissioning. These are calculated to avoid an annualized total of 64,400,000 kWh in energy consumption.

Furthermore, our energy management teams continually seek ways to enhance energy efficiency at our global facilities before resorting to other emission reduction measures. For example, in 2024, we undertook 51 projects at our US sites to install, upgrade, and commission Building Energy Management Systems (BEMS).

We achieved a 30% reduction in Scope 1 and Scope 2 emissions from 2018-2024, surpassing our original targets of an 18% reduction compared to our 2018 base year. We also achieved a 17% reduction in our upstream Scope 3 emissions from 2018-2024, which surpassed our original targets of a 10% reduction compared to our 2018 base year. We achieved this by procuring renewable energy, energy efficiency, and real estate consolidation. Moving forward, we aim to take the following approaches to achieve our updated near-term science-based target for Scope 1 and 2:

- In our offices and data centers:
  - a) Continuously optimize our electricity and natural gas consumption through energy efficiency programs
  - b) Purchase RE in the US
  - c) Shift diesel generators to renewable diesel with phase-in starting in 2027

## Renewable Energy Procurement Strategy

Scope 2 represented 88% of Lumen's total operational (Scope 1 and 2) emissions in 2024. Therefore, the procurement of renewable energy is a crucial component of Lumen's Plan, playing a pivotal role in achieving our updated near-term Science-based Targets (SBT). It also serves to mitigate our exposure to transition risks associated with existing and future carbon and climate-related regulations.

Our next objective is to procure additional renewable energy for our US operations. We aim to transition 70% of our US energy to renewables by 2033 to enable achievement of our Scope 3 goal by reducing fuel and energy-related activity emissions (FERA, as shown in Figure 6). Our RE sources will be determined as a part of our ongoing RE strategy development and may include sources such as virtual Power Purchase Agreements (vPPAs) or Power Purchase Agreements (PPAs), utility green power products, and high-quality RECs<sup>4</sup>. In 2024, we engaged with 2 electricity suppliers in the US (which collectively supply 57% of the electricity within the deregulated markets in which Lumen operates) to better understand their energy generation portfolio and their goals regarding GHG emissions reduction. This approach enables Lumen to evaluate our opportunities for transitioning to renewable or green tariffs<sup>5</sup>. We chose to engage with our power suppliers due to the significant potential impact on our GHG emissions, and we will continue evaluating renewable energy options for our US operations.

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<sup>4</sup> REC, Renewable Energy Certificates. High-quality RECs are certified and verifiable credits that ensure renewable energy projects provide additional environmental benefits and adhere to rigorous standards for sustainability and transparency.

<sup>5</sup> Green tariffs are optional programs in regulated electricity markets offered by utilities and approved by state public utility commissions (PUCs). They allow larger commercial and industrial customers to buy bundled renewable electricity from a specific project through a special utility tariff rate.

## Our Value Chain

As of 2024, we have achieved a 17% reduction in our upstream Scope 3 emissions relative to our 2018 base year. This reduction reflects the significant structural changes that took place in our business in 2022 and the associated efforts to re-baseline our emissions, meaning we re-calculated our 2018 base year greenhouse gas emissions per the GHG Protocol guidelines to reflect the 2022 structural changes to our business in our base year inventory.

To further advance our progress toward this target, we transitioned to a hybrid supplier-specific methodology in 2022, moving away from an economic and financial metric-based methodology. This shift to a more granular calculation method enables us to measure emissions reductions throughout our supply chains and in our supplier engagement initiatives.

Lumen actively encourages our suppliers to adopt specific practices that align with our environmental sustainability goals. These practices include implementing environmental management systems, monitoring their performance, and using energy-efficient products and processes. We have also enhanced our methodology for calculating Scope 3 Category 1, Purchased Goods and Services by incorporating supplier emission data and spend data wherever available.

Moving forward, we aim to take the following approaches to achieve our near-term SBT for Scope 3:

### 1) Suppliers

- a. Prioritize engaging suppliers based on whether they are reporting GHG emissions and taking steps to actively reduce their contribution to Lumen's Scope 3 emissions. We plan to gradually expand the engagement program to include more suppliers over time.
- b. By 2033, we will engage the top 90% of our suppliers by emissions to share their complete Scope 1, 2 and 3 GHG inventory data, initiate emission reduction activities, and set renewable energy and science-based targets.

### 2) Fuel and Energy-related Activities (FERA)

- a. Efficiency measures and renewable energy implementation to address Lumen's Scope 1 and 2 emissions will also result in FERA emissions reductions
- b. Purchase high-quality RECs to cover transmission and distribution (T&D) related emissions

## Our Products and Services

Lumen always considers ways to help customers become more efficient and reduce carbon emissions with our products and services by enabling smart technologies, dematerialization, and virtualization. By aligning with our customers' climate change mitigation goals and communicating our efforts, we create a strategic advantage.

We also proactively respond to surveys and inquiries we receive from our customers, asking about our climate plans and ambitions. Many of our enterprise customers have a high level of awareness and climate-related expectations and request information about our management and reduction of carbon emissions. We engage in several voluntary and customer-driven reporting initiatives, including CDP, many of which are publicly available, and serve to demonstrate our good corporate citizenship with respect to climate action.

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### **Case Study: Innovating to create safer, more sustainable data centers**

The Lumen Platform is powering Wyoming Hyperscale's vision for sustainable data centers with solutions that allow them to fully realize their sustainability goals. By providing long-haul fiber convergence to the customer, Lumen enables them to move beyond just operating "cold storage" hosting facilities, to enabling low latency, CO<sub>2</sub> negative, carbon credit generation data centers that leverage the heat generated from their operations to feed indoor farms that grow produce. We are also providing DDoS technology to prevent Wyoming Hyperscale from falling victim to cyberattacks that would make its data inaccessible.

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## **Regulatory, Compliance & Industry Participation**

Involvement in organizations such as trade associations is assessed prior to Lumen's active participation and is relevant across the organization in all countries to ensure that Lumen's external engagement activities are consistent with our climate commitments and Lumen's Plan. Lumen's Public Policy Group is also engaged in changes or new initiatives that may impact regulatory compliance or public policy for the Company.

Lumen's Sustainability Committee works to ensure that actions Lumen takes that could influence policies remain consistent with our climate change strategy. This team includes the functional groups across the organization that would be involved directly or indirectly in influencing public policy related to climate change. Consistency is achieved, in part, through consultation with our Chief Compliance Officer and General Counsel (as needed). In general, public policy activities are geared towards increasing and expanding the adoption of broadband internet, which can significantly reduce the carbon footprint of our customers and their business partners. Peer-reviewed scientific studies have shown that increased broadband use supports smart grids/buildings, telecommuting, virtualization, and e-commerce. On average, a 10% increase in mobile broadband penetration is associated with a 7% reduction in per capita CO<sub>2</sub> emissions<sup>6</sup>.

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<sup>6</sup> [Edquist, H. and Bergmark, P. \(2024\) 'How is mobile broadband intensity affecting CO2 emissions? – a macro analysis', \*Telecommunications Policy\*, 48\(2\), p. 102668. doi:10.1016/j.telpol.2023.102668.](#)

Examples of recent public policy engagements related to climate issues include:

- Engaging with the US Securities and Exchange Commission (SEC) regarding a proposed SEC rule, “The Enhancement and Standardization of Climate-Related Disclosures for Investors” (File Number S7-10-22).
- In January 2021, Lumen joined the Global Enabling Sustainability Initiative ([GeSI](#)) and as part of that organization has been working with other ICT companies to review potential climate-related legislative bills. Lumen collaborates on topics related to GeSI’s key focus areas including digital solutions, carbon accounting and ESG Reporting.
- Through our Business Continuity Planning function, Lumen is one of four members participating in the President's National Security Telecommunications Committee. This involvement supports Lumen’s efforts to protect business continuity at key locations.

## Financial Planning

Lumen recognizes that in the short (within 5 years) and medium term (5-15 years), the business may be faced with additional costs associated with the potential introduction of new carbon taxes. Carbon taxes do not presently affect our facilities in the United States; however, we anticipate being regulated by a carbon pricing system in the next three years. Lumen has an established and dedicated budget for all environmental sustainability initiatives to mitigate the transition risks from potential carbon tax systems in the future and reduce exposure to climate-related regulations.

To illustrate the potential future financial implications of emerging regulations, and specifically carbon pricing mechanisms like California and Washington State Cap-and-Trade Programs, we have calculated the impact as follows. We have taken the minimum and maximum values of US fuel combustion emissions from the last 6 years (2018-2024). These are 137,422 MtCO<sub>2</sub>e (2024) and 205,485 MtCO<sub>2</sub>e (2018). We have multiplied these values by the Environmental Defense Fund's estimated social cost of carbon of \$50/ton (or \$45.36/ton), the price of which has remained constant over this period. This gives a minimum value of \$6,233,462 and a maximum value of \$9,320,800.



We anticipate a potential increase in energy costs in Colorado due to the Renewable Energy Standard (RES) requiring utilities to generate 30% of their electricity from renewable sources. Our strategic response has been to authorize programs supporting energy efficiency improvements across much of our property portfolio, thus reducing our consumption with immediate effect, in response to this short-term transitional risk. This includes the budget for our ongoing energy efficiency and climate change mitigation efforts, including the key reduction levers to meet our updated SBTi target (currently undergoing validation) shown in Figures 5 and 6. The business has therefore pursued a strategy of authorizing major improvement programs aimed at energy and emissions reduction. For example, in 2024 Lumen invested \$21.7 million in projects that improved the energy efficiency of our US properties. Additionally, in 2024, we pursued utility rebates and incentives for our utility cost reduction and energy efficiency programs. In 2024, we received approximately \$813,000 in utility rebates and incentives including switch rooms and decommissioning, mechanical system upgrades, replacement of motors and fans, installation of building control systems, and lighting retrofits. Also, in 2024, Lumen continued to invest in Power Purchase Agreements in Arizona, securing the supply of electricity from renewable sources and therefore potentially reducing our exposure to future carbon taxes.

Moving forward, Lumen will continue to invest resources into emission reduction and climate resilience efforts such as renewable energy procurement and energy efficiency improvement to ensure reliable services while helping customers reduce their GHG emissions. This also creates benefits for Lumen, as improved efficiencies are modeled to result in cost savings each year. By 2035, significant opportunities exist for cost savings and carbon reductions through energy-efficient real estate and fleet management, alongside ongoing sustainable product development, especially in a rapid transition scenario.

Our modeling indicates the total cumulative net operational cost estimate in 2033 to meet the Scope 1 2 and 3 near-term target is \$14-140MM and the total cumulative net operational cost when combined with the energy efficiency cost savings is \$130-250MM in savings. There are no capital investment costs required to meet our 2033 near-term targets.

## Governance

### Board's Oversight

As part of its risk and governance oversight responsibilities, Lumen's Board monitors environmental management programs, including climate change-related issues. After our recent Board changes in 2025, the Board included 2 members with environmental, social, and governance and climate-related expertise and 4 members with risk management expertise which the Board believes are among the essential skills necessary for effective oversight. With the necessary expertise and skills, the Board will oversee the implementation and progress of Lumen's Plan. As of February 2025, the Plan was presented and reviewed by the Board's NCGC.

The Board receives periodic reports (quarterly and annually) from management and the Board's four standing committees (Figure 7) to inform and support the Board with its various risk management, governance, and strategic responsibilities, which include our policies, planning, and compliance with strategic sustainability objectives.

For climate-related issues, the Board relies on the NCGC and the RSC to monitor issues and report back to the full Board. The Board and the NCGC, in conjunction with designated management teams periodically evaluate our sustainability program and seek to identify meaningful opportunities to strengthen our program and our sustainability commitments and performance.

## ESG Sustainability Leadership

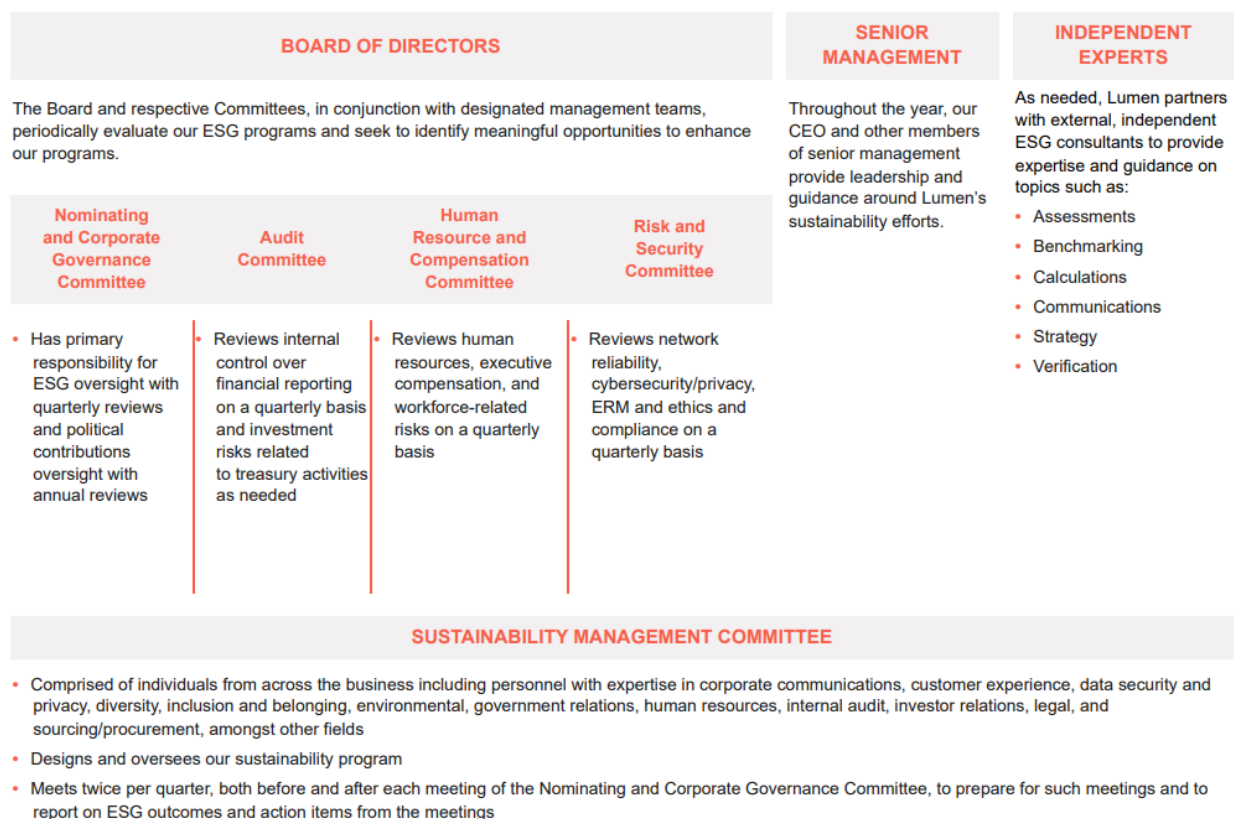


Figure 7. Board Climate Oversight and Accountability

## Management Implementation

Our compensation structure encompasses sustainability goals and includes our GHG emission reduction targets as an indicator on executive officers' individual performance scorecards. An Individual Performance Modifier cap of 20% is applied to Short-Term Incentives for C-Suite Officers and is therefore applicable where these relate to environmental issues. In addition, Customer Experience has a 15% weighting for executive compensation, and Lumen views its climate and sustainability performance as a critical component of maintaining and improving its relationships with our customers.

The Chief People Officer (CPO) has overall responsibility for our GHG emission reduction targets. The CPO's annual incentive bonus is partially based on achieving performance goals.

A cross-functional team, including members from global sustainability, real estate, fleet, energy management, procurement, and operations, will provide support and take responsibility for executing Lumen's Plan. As we commence implementing this plan and continue investing in GHG emission reduction measures, we will monitor and track our progress through our annual GHG emissions inventory process.

We will also conduct an annual review and update as needed Lumen's Plan, ensuring its flexibility and responsiveness to evolving market conditions, technologies, and opportunities. Progress made toward our targets and the measures implemented to date will be shared with stakeholders through our annual sustainability disclosures. Mechanisms to identify required plan updates may involve an annual stakeholder survey and/or workshop to solicit feedback on the Plan and to suggest improvements to future iterations and actions to implement the improvements.

## Key Assumptions and Uncertainty

Table 3. Lumen's Energy Efficiency and Innovation Plan key assumptions

| Forward-looking Statement | Key Assumptions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GHG Targets</b>        | <p>Lumen's ability to reach our GHG targets depends on:</p> <ul style="list-style-type: none"> <li>• Our ability to procure RE in the US from vPPAs, PPAs, or utility green products.</li> <li>• Our ability to procure high-quality RECs that are certified and verified, have transparent ownership, and avoid double counting.</li> <li>• Our ability to increase our energy efficiency year over year.</li> <li>• Sufficient supplier and business partner engagement and collaboration in setting their own SBTs and reducing their own GHG emissions.</li> </ul> |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | <ul style="list-style-type: none"> <li>• Our ability to access and effectively implement the technology necessary to achieve our science-based GHG emissions reduction targets. No negative impacts on the calculation of our GHG emissions from refinements or modifications to international standards.</li> <li>• No required changes to our SBTs pursuant to the SBTi methodology that would make the achievement of our updated SBTs more onerous.</li> </ul> |
| <b>Management of Climate Risks</b> | <p>Lumen’s successful management of climate risks requires:</p> <ul style="list-style-type: none"> <li>• Sufficiency of internal resources, processes, and systems to track and manage risk.</li> <li>• Access to data needed to estimate physical and transition climate risks.</li> <li>• Ability to monitor and track regulatory changes related to climate.</li> </ul>                                                                                         |

## Forward-looking Statement

This report outlines Lumen’s Energy Efficiency and Innovation Plan, which is aligned with the recommendations of the TCFD. Further information on other sustainability topics can be found in Lumen’s 2023 ESG Report. This report contains forward-looking statements based on current expectations and assumptions regarding anticipated developments and other factors. They are not historical facts, nor are they guarantees of future performance since they are subject to numerous assumptions, risks, and uncertainties, which change over time. Forward-looking statements apply only as of the date they are made, and several factors could cause actual performance to differ materially from that expressed or implied by these forward-looking statements. Lumen assumes no duty to, and does not undertake to, update, or revise any forward-looking statements whether because of new information, future events or otherwise, except as required under applicable securities regulations. Lumen aims to evolve its disclosures in the future to provide meaningful information to stakeholders by adapting it to new facts and regulations impacting the changing climate landscape.

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