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Building a better working world

Independent Accountants' Review Report

Management of Verizon Communications Inc.

We have reviewed Verizon Communications Inc.'s (Verizon) Schedule of environmental indicators (the "Subject Matter") included in Appendix A for the year ended December 31, 2022 in accordance with the criteria also set forth in Appendix A (the "Criteria"). Verizon's management is responsible for the Subject Matter in accordance with the Criteria. Our responsibility is to express a conclusion on the Subject Matter based on our review.

Our review was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA) AT-C section 105, *Concepts Common to All Attestation Engagements*, and AT-C section 210, *Review Engagements*. Those standards require that we plan and perform our review to obtain limited assurance about whether any material modifications should be made to the Subject Matter in order for it to be in accordance with the Criteria. The procedures performed in a review vary in nature and timing from and are substantially less in extent than, an examination, the objective of which is to obtain reasonable assurance about whether the Subject Matter is in accordance with the Criteria, in all material respects, in order to express an opinion. Accordingly, we do not express such an opinion. Because of the limited nature of the engagement, the level of assurance obtained in a review is substantially lower than the assurance that would have been obtained had an examination been performed. As such, a review does not provide assurance that we became aware of all significant matters that would be disclosed in an examination. We believe that the review evidence obtained is sufficient and appropriate to provide a reasonable basis for our conclusion.

We are required to be independent of Verizon and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements related to our review engagement. Additionally, we have complied with the other ethical requirements set forth in the Code of Professional Conduct and applied the Statements on Quality Control Standards established by the AICPA.

The procedures we performed were based on our professional judgment. Our review consisted principally of applying analytical procedures, making inquiries of persons responsible for the subject matter, obtaining an understanding of the data management systems and processes used to generate, aggregate and report the Subject Matter and performing such other procedures as we considered necessary in the circumstances.

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As described in Appendix A, the Subject Matter is subject to measurement uncertainties resulting from limitations inherent in the nature and the methods used for determining such data. The selection of different but acceptable measurement techniques can result in materially different measurements. The precision of different measurement techniques may also vary. Furthermore, Scope 3 emissions are calculated based on a significant number of estimations and management assumptions due to the inherent nature of the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard criteria as well as the Technical Guidance for Calculating Scope 3 Emissions criteria.

Based on our review, we are not aware of any material modifications that should be made to the Schedule of environmental indicators included in Appendix A for the year ended December 31, 2022, in order for it to be in accordance with the Criteria.

Ernst & Young LLP

May 2, 2023

Appendix A

Verizon Communications Inc.

Schedule of environmental indicators

Subject Matter

For the year ended December 31, 2022

Indicator Name	Unit	Amount
Total energy consumed	Gigajoules (GJ)	41,167,721
Percentage grid electricity	%	88.9%
Percentage renewable energy	%	11.3%
Scope 1 greenhouse gas (GHG) emissions	Metric tonnes (MT) of CO_2 equivalent (CO_2e)[1]	273,904
Scope 2 GHG emissions (location-based)	MT of CO_2e[1]	3,498,643
Scope 2 GHG emissions (market-based)	MT of CO_2e[1]	3,075,077
Scope 3 GHG emissions[2]	MT of CO_2e[1]	14,401,431
Network traffic[3]	Petabytes	134,202
Water withdrawal	Billions of gallons	1.98
Operational emissions[4] per terabyte (TB) of data[8] (location based)[7]	MT of CO_2e[1] per terabyte of data	0.02745
Operational emissions[4] per TB of data[8] (market based)[7]	MT of CO_2e[1] per TB of data	0.02437
Operational[4] + upstream value chain emissions[5] per TB of data[8] (location based) [7]	MT of CO_2e[1] per TB of data	0.12267
Operational[4] + upstream value chain emissions[5] per TB of data[8] (market based)[7]	MT of CO_2e[1] per TB of data	0.11959
Operational emissions[4] per $ of revenue[6] (location based)[7]	MT of CO_2e[1] per $	0.00003
Operational emissions[4] per $ of revenue[6] (market based)[7]	MT of CO_2e[1] per $	0.00002
Operational emissions[4] + upstream value chain emissions[5] per $ of revenue[6] (location based)[7]	MT of CO_2e[1] per $	0.00012
Operational emissions[4] + upstream value chain emissions[5] per $ of revenue[6] (market based)[7]	MT of CO_2e[1] per $	0.00012

Note 1: Verizon's GHG emissions are reported in CO_2e and are substantially comprised of CO_2.

Note 2: Within Verizon's Scope 3 GHG emissions, Categories 1 and 2 (purchased goods and services and capital goods) (11,604,280 MT CO2e), Category 3 (fuel- and energy-related activities not included in Scope 1 and Scope 2) (1,138,993 MT CO2e) and Category 11 (use of sold products) (1,181,761 MT CO2e) account for approximately 97% of the emissions.

Note 3: Beginning in 2022, Verizon made adjustments to assumptions and estimations used in the calculation of network traffic. Verizon replaced the Verizon Business and Telecom Transport segments with Customer Wave Services Segments (TIRKS, BGW, and Nautilus) which capture actual circuit bandwidth rather than estimated billed amounts. Verizon has also updated its assumption of the utilization rate from 100% to 10% to more accurately capture traffic across these segments. As a result, 2021 network traffic calculated based on the 2022 assumptions and estimates is 114,413 PB.

Note 4: Operational emissions include Scope 1 and 2 GHG emissions.

Note 5: Upstream value chain emissions refer to scope 3 upstream emissions as defined by the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, namely Categories 1 to 8.

Note 6: Revenue refers to "Total Operating Revenue" of $136,835 (dollars in millions) as reported in the Verizon 2022 10-K.

Note 7: The intensity metrics are calculated based on Global Reporting Initiative (GRI) Standard 305-4 GHG emissions intensity.

Note 8: Terabyte of data refers to Verizon's network traffic reported above converted from petabytes using the binary conversion 1 PB = 1,024 TB.

Criteria

Reporting Boundaries

Verizon has selected an organizational boundary based on operational control for all reported metrics. The approach covers Verizon's global operations. Where available, energy, greenhouse gas emissions and water withdrawal are calculated for the fiscal year ended on the basis of actual (e.g., metered) data received as of January of the following year. In certain instances where actual data is not available, Verizon estimates usage data based on estimation methodologies defined in the Greenhouse Gas Protocol.

Verizon applies the minimum boundary for Scope 3 emissions as defined by The Greenhouse Gas Protocol Scope 3 Value Chain Reporting Standard and The Greenhouse Gas Protocol Scope 3 Technical Guidance.

Verizon works to capture all of its GHG emissions. However, it is not always possible to obtain all of the necessary information to complete all segments of the inventory. When information cannot be obtained in a timely manner, Verizon uses extrapolations to provide the most complete inventory possible. As data becomes available identifying additional material sources of emissions, they will be incorporated into the inventory. Certain emissions sources, such as fugitive emissions, are currently excluded from the annual inventory, which are less than the materiality threshold indicated by The Greenhouse Gas Protocol Corporate Standard of five percent of the sum of Scope 1, 2 and 3 emissions. In accordance with the Greenhouse Gas Protocol, a one-year grace period is allowed for including new acquisitions in the reporting boundary. An exception has been made for Scope 3 GHG emissions for Tracfone which are expected to be included in 2023 reporting.

Energy

Total energy consumed is calculated based on Sustainability Accounting Standards Board (SASB) Standard for Telecommunications TC-TL-130a.1 for emissions sources included in Scope 1 and 2 GHG emissions, namely natural gas, gasoline, diesel, jet fuel, propane, kerosene, compressed natural gas, B02, B05, B11, B20, E85, methanol, ethanol, electricity, steam and chilled water.

Percentage grid electricity is calculated based on SASB TC-TL-130a.1 as total electricity consumed as purchased from the grid (and reported for Scope 2 GHG emissions) divided by total energy consumed.

Percentage renewable energy is calculated based on SASB TC-TL-130a.1 as total renewable electricity generated on-site or purchased in the form of energy attribute certificates divided by total energy consumed.

Scope 1 GHG emissions

Scope 1 emissions reported include direct emissions from stationary and mobile fuel combustion from the following sources and are calculated on the basis of actual (e.g., metered) and estimated data:

- Natural gas
- Gasoline
- Diesel
- Jet fuel
- Propane
- Kerosene
- Compressed natural gas
- B02
- B05
- B11
- B20
- E85
- Methanol
- Ethanol

Fugitive emissions are excluded.

Business-related fuel consumption from vehicles provided through enterprise sales compensation packages is deemed to be de minimis and therefore excluded from Scope 1 emissions.

Emissions factors used

- US EPA 2016 Revisions to the Greenhouse Gas Reporting Rule: 40 CFR Part 98 Subpart C (released November 29, 2013, amended December 9, 2016)
- WRI GHG Protocol Emission Factor from Cross Sector Tools (March 2017) Stationary Combustion

Scope 2 GHG emissions

Scope 2 emissions reported on the location-based and market-based method[i] include indirect emissions from the following sources and are calculated on the basis of actual (e.g., metered) and estimated data. The effect of renewable energy certificates purchased by Verizon through virtual power purchase agreements are accounted for in the market-based method.

- Electricity
- Steam

Emissions from chilled water are excluded.

Emissions factors used[ii]

- US EPA eGRID emissions factors are obtained from 2020 eGRID (released January 2022)
- International Energy Agency (IEA) 2020 CO_2 Emissions from Fuel Combustion Highlights Report, "CO_2 emissions per kWh from electricity generation" Table (released 2022)
- US Energy Information Agency (EIA) Voluntary Reporting of Greenhouse Gases Form EIA-1605(b), Appendix N: Emission Factors for Steam and Chilled/Hot Water (2010)

Scope 3 GHG emissions

Category	Methodology	Emissions factors	Exclusions
1 – Purchased goods & services 2 – Capital goods	Spend-based and supplier-specific: • Approximately 75% of emissions were calculated using an economic input-output (EIO) model, which accounts for the average GHG emissions per US dollar of economic value generated by major sectors of the US economy. Emissions are calculated by collecting Verizon's spend data with suppliers on a cash basis (i.e., the economic value received by the reporting company), associating spend with product categories defined as of year-end and matching them against sectors covered by the EIO model. • Approximately 16% of emissions were calculated using a lifecycle assessment approach (LCA) which applies a product specific emissions factor, including the embodied	• This EIO model uses emissions factors adapted by Carbon Trust (environmentally extended input out (EEIO) emissions factors).[iii] • LCA factors obtained from IVL[iv] or suppliers based on representative devices. • CDP supplier-specific emissions factors were calculated by using the supplier's scope 1, 2 (location-based) and relevant scope 3 emissions, obtained from CDP	None

[i] Verizon's Scope 2 electricity emissions and contractual instruments are primarily in the US market.
[ii] Residual mix emissions factors adjusted to account for voluntary purchases are not available for electricity consumption outside of Europe.
[iii] The analysis is based on financial spend and GHG emission factors, calculated per USD of economic value. The Carbon Trust database has a collection of economic input-output emission factors for 430 sectors of the economy. These factors are in units of kg CO2e per USD, allowing the conversion of spend in a given sector to carbon emissions. They are further broken down into emissions from Scope 1&2, purchased goods and services, and upstream transportation and adjusted for applicability to category 1 boundaries. To account for the changes in emissions efficiency (for example, grid decarbonization) and inflation since the database was created, the EEIO emission factors are updated accordingly, using changes in efficiency and inflation based on third-party data as of February 2022. This value is the kg CO2e improvement per purchasing power parity (PPP) of GDP. Therefore, it accounts for both changes in emissions efficiency and PPP.
[iv] IVL Swedish Environmental Research Institute from www.ivl.se/vart-erbjudande/forskning.html

Category	Methodology	Emissions factors	Exclusions
	emissions for specific devices, to the number of units purchased. • Approximately 9% of emissions were calculated by applying a supplier-specific emission factor (reported for fiscal year 2021 and using location-based method) to Verizon's 2022 spend data with suppliers on a cash basis.	data, and dividing it by total revenue.	
3 – Fuel and energy related activities	Emissions from fuel and energy related activities not included in Scope 1 or 2 are calculated by using the fuel and electricity consumption figures reported for Scope 1 and 2, with the relevant scope 3 well-to-tank and transmission and distribution emissions factors applied to each of those energy sources.	• US EPA eGRID[v] • IEA CO_2 Emissions from Fuel Combustion Highlights Report[vi] • UK Department for Business, Energy & Industrial Strategy (BEIS) GHG conversion factors for company reporting[vii]	None
4 & 9 – Upstream and downstream transportation and distribution	Upstream transport and distribution emissions are calculated using individual shipment routes to the US. The data for each route includes the transport mode, number of shipments, total weight of shipments, and distance. Where shipment data is not available, the number of shipments was estimated based on average shipments per tonne for similar transport modes.	• UK BEIS GHG conversion factors for company reporting[vii]	• Vendor managed transportation is excluded. • Domestic inter-office shipping is excluded.
5 – Waste in operations	Emissions from waste generated in Verizon's operations are calculated using weight of waste for lead acid batteries, other batteries, paper/cardboard, telecom equipment, municipal recycling, chemicals and landfill. Emissions factors used account for the end-of-life treatment of the waste, as well as the waste category.	• UK BEIS GHG conversion factors for company reporting[vii]	None
6 – Business travel	Emissions from business travel are calculated as follows: • Air and rail travel emissions are calculated using miles traveled based on reports from third -party travel agencies. • Ground transportation, hotel and lodging emissions are calculated based on car rental and car service spend using the EIO model.	• UK BEIS GHG conversion factors for company reporting[vii] • EEIO emissions factors[iii]	• Air and rail transactions classified as "unknown" by the travel agency are excluded from the reported figure. • Emissions related to ride sharing or use of employee vehicles are excluded. • Travel booked outside of approved vendors is excluded.
7 – Employee commuting	For 2022, emissions from employee commuting are estimated using company employee information. A staff survey was	• UK BEIS GHG conversion factors for company reporting[vii]	None

[v] US EPA eGRID emissions factors are obtained from 2021 eGRID (released January 2023).
[vi] IEA CO2 Emissions from Fuel Combustion Highlights Report, "CO2 emissions per kWh from electricity generation" Table emissions factors are obtained from 2020 IEA (released 2022).
[vii] UK BEIS GHG conversion factors for company reporting are obtained from 2022 BEIS (released September 2022)

Category	Methodology	Emissions factors	Exclusions
	conducted in 2016, which collected information on commuting transport modes, distance, and frequency, for a non-statistical sample of Verizon employees. The emissions from these routes were calculated and averaged for each location (country and state). These average emissions were then applied to the employee numbers as of fiscal year end. For 2022, teleworking emissions were estimated based on the results of third-party surveys applied to Verizon's employee headcount.	• IEA CO_2 Emissions from Fuel Combustion Highlights Report[vi] • "Carbon Trust: Homeworking Report" (released June 2021) • Anthesis "Estimating Energy Consumption & GHG Emissions for Remote Workers" White Paper (released February 2021)	
8 – Upstream leased assets	Verizon has no upstream leased assets. All material emissions associated with leased assets within our business are accounted for within our Scope 1 and 2 emissions.		
10 – Processing of sold products	Verizon purchases finished goods for use within our operations and sales to customers. No further processing of products is routinely required throughout or operations.		
11 – Use of sold products	Emissions from use of sold products are calculated for Verizon's wireless and network products sold to customers. Products are grouped into categories and the lifetime energy consumption of each category was calculated based on one of two methodologies: 1. The energy consumption was calculated using the battery capacity for a representative device and lifetime. 2. Power consumption per day, which is based on information available or assumptions about the average usage profile of devices throughout a day and energy consumption figures for different modes, as well as lifetime. For the top three emitting product categories (approximately 75%), power consumption was obtained from product specifications. The choice of applicable methodology is based on available information.	• US EPA eGRID[v] and adjusted eGRID factors over the lifetime of the product	None
12 – End of life of sold products	End-of-life emissions from sold products are calculated for all of Verizon's wireless and network products sold to customers. Products were grouped into categories and a representative weight per product is identified, which is multiplied by the total number of products sold to give a total weight per product type. The total weight was then multiplied by an end-of-life emissions factor for all devices, which was based on an average breakdown of waste type and waste disposal method for Verizon's products.	• UK BEIS GHG conversion factors for company reporting[vii]	None
13 – Downstream leased assets	Verizon has no downstream leased assets. All leased assets within our business are accounted for within our Scope 1 and 2 emissions.		
14 – Franchises	Franchises are not part of Verizon's business model and therefore this category is not relevant.		
15 – Investments	Any owned properties/assets are tracked as part of our overall portfolio and emissions activities are tracked directly.		

Emissions Reporting Standards

Verizon calculates Scope 1, 2 and 3 GHG based on the following standards:

- The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard Revised Edition by the World Resources Institute (WRI)/World Business Council for Sustainable Development (WBCSD)
- GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard by WRI
- The Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting Standard, by the WRI/WBCSD
- The Greenhouse Gas Protocol Scope 3 Technical Guidance
- Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (2007)
- The Climate Registry General Reporting Protocol, Version 3.0, May 2019

Network traffic

Network traffic is calculated with respect to SASB TC-TL-000.D in petabytes and the estimation methodologies in Table 1. Where possible, Verizon uses actual network data throughput; in the event that actual data is unavailable, some network data might be extrapolated based on historical data, seasonality, expected growth or other business changes.

Table 1 - Terabytes of data traffic estimation methodologies by network

Network segment	Methodology[viii]
Customer Wave Services – Trunk Inventory Record Keeping System (TIRKS): These are dedicated, private line, high capacity point to point customer circuits. TIRKS is the legacy inventory and provisioning platform was used to create a virtual record for fiber path within the In-Franchise Verizon Telecom (VZT) footprint.	Total circuits are multiplied by capacity per circuit to arrive at total capacity. A 10% usage estimate is applied to calculate estimated usage on the circuit inventory.
Customer Wave Services – Broadband Gateway BGW: These are dedicated, private, high-capacity point to point customer circuits. BGW is the legacy inventory and provisioning platform was used to create a virtual record for fiber path within the Out-of-Franchise Verizon Business (VZB) footprint.	Total circuits are multiplied by capacity per circuit to arrive at total capacity. A 10% usage estimate is applied to calculate estimated usage on the circuit inventory.

[viii] Traffic data is converted from the source data units of measure to petabytes (PB) using the binary conversion 1 PB = 1,024^5 bytes.

Network segment	Methodology[viii]
Customer Wave Services – Nautilus Intelligent Edge Network (Nautilus): These are dedicated, private, high-capacity point to point customer circuits. Nautilus is Verizon's unified inventory and provisioning platform used to create a virtual record for fiber circuit path.	Total circuits are multiplied by capacity per circuit to arrive at total capacity. A 10% usage estimate is applied to calculate estimated usage on the circuit inventory.
Public IP: This network supports FiOS, DSL, Verizon Wireless, Peering, Enterprise, and other services that require internet connectivity. Includes international and domestic traffic.	Data traffic is measured as the daily average of ingress and egress from backbone to edge routers domestically (US) and internationally (Latin America, Asia, Europe, Canada and Mexico). Data traffic is collected daily by sample polling the interface from backbone to edge routers every five minutes. Daily usage average for a month is multiplied by the number of days in the month to calculate monthly usage. Verizon Wireless (VZW) Public IP download traffic is subtracted from this amount as it is reported in the RAN segment.
Wireless Radio Access Network (RAN): This network transmits Data, Voice, SMS, and MMS services.	Data traffic is measured for downlink (forward) and uplink (reverse) data traffic across Verizon's 4G LTE, 5G mmW, 5G C-Band, and 5G Nationwide RAN technologies.
Switched Ethernet Service (SES): This network provides business services for connectivity between customer offices.	Data traffic is measured for all egress (output) data transferred from aggregation switches (AS) to edge switches (ES), aggregation switches to OLT-SNI (Optical line termination – service node interface) ports and aggregation switches to customer circuits (CC). Data traffic is collected daily.
Private Internet Protocol (PIP): This network provides voice, data and video applications over an integrated network infrastructure. It offers ecommerce, voice over IP (VoIP), converged solutions, shared intranets and extranets to private businesses that require site-to-site connectivity without crossing the public internet.	Data traffic is measured for the average of ingress and egress data transferred between PIP edge and PIP Core routers. Data traffic is collected daily by polling the network every 15 minutes. Data traffic is the daily average traffic for the month multiplied by the number of days in the month.
Converged Packet Access (CPA): This network converges multiple services, IP, Ethernet, private line data and voice, over a single Ethernet interface. This network can deliver Ethernet access in bandwidth speeds ranging from 1 Mbps to 10 Gbps in various bandwidth increments.	Data traffic is measured as the average of ingress and egress data transferred across all CPA edge routers to PIP Core routers interface points. Data traffic is collected daily by polling every edge router every 15 minutes. Data traffic is added for the day and averaged for the month.

Network segment	Methodology[viii]
Video On-Demand (VOD): This network provides video streaming services (pay per view, subscription or free) available only to FiOS Video subscribers in the US.	Data traffic is measured for average egress (output) data from the Video Aggregation routers to VFTTP routers. Data traffic is collected daily by sample polling each interface on all VAR devices connected to a VDR every five minutes.
XO: Former XO network elements acquired by Verizon in April 2017. Integration of XO's backbone with the Public IP network is ongoing.	Data traffic is measured as ingress and egress data. Data traffic is collected daily by polling the network every 15 minutes. Data traffic is the ingress and egress daily average traffic for the month.
Verizon Global Management Network (VGMN) - Engineering Data Network (EDN): This network serves the Radio Access Network. The EDN is used for OAM&P (Operations, Administration, Maintenance, and Provisioning) of network elements supporting the RAN.	**January - July 2022:** An average of August - November 2022 actuals was applied to these months in 2022 as actual data was not available. **August - December 2022:** Higher of ingress or egress weekly utilization average factor is multiplied by total bandwidth of the router to calculate weekly usage.
Administrative/Data Center Global Technology Services (GTS) Traffic: These networks support connectivity between Verizon's administrative buildings and data centers.	**January - October 2022:** Daily average from November 2022 was applied to these months in 2022 as actual data was not available. **November - December 2022:** Data traffic reporting is measured as egress traffic.
Voice Time Division Multiplexing (TDM) for VZT Long Distance and Local Calls: This network consists of the VZT In-Franchise footprint's Public Switched Telephone Networks (PSTN) used for voice calls using a Plain Old Telephone (POTS).	Traffic is measured in minutes of usage (MOUs) for calls originating in Verizon's Telecom network (VZT), transit calls that do not originate or terminate on the VZT network, and calls terminating on the VZT network that originated outside the VZT network. MOUs are captured hourly through all US class 5 and 4/5 access switches. **January - November 2022:** Daily average traffic of December 2022 was applied to these months as actual data was not available. **December 2022:** Voice traffic is measured in weekly average incoming call trunks, which are then converted to centum call seconds (CCS) (CCS = Trunk multiplied by 36). CCSs are then converted to minutes of use (MOUs) per day. MOU per day is then multiplied by 20 or 25 depending on how many weekdays were in the month.
Blue Jeans: Blue Jeans is a meeting platform that allows users to join or host a meeting online. This service supports web meetings, audio meetings, and video meetings.	Traffic is measured as ingress and egress from the BlueJeans edge networks to the data centers.

Network segment	Methodology[viii]
Voice Time Division Multiplexing (TDM) for VZB Long Distance Calls: This network consists of Option 1 (fWorldcomm), 2 (fMCI), and G (Bel Atlantic) Public Switched Telephone Networks (PSTN) used for voice calls using a Plain Old Telephone (POTS).	Long distance voice traffic pulled monthly for ingress voice traffic only. CCSs are converted to terabytes using conversion factors based on circuit types (i.e. 56K or 64K circuit types).
Layer 2 iEN – Customer Circuits: Ultra Long Haul Wave Circuits that provide connectivity for customer equipment.	Total circuits are multiplied by capacity per circuit to arrive at total capacity. A 10% usage estimate is applied to calculate estimated usage per circuit.
VGMN – IDN: Verizon Global Management Network (VGMN) - Internal Data Network (IDN): This network serves the Verizon Network Operation Centers (NOC), and or Network Management Centers (NMC) Providing access from and to Verizon landline central offices and the Data Centers. The IDN is used for OAM&P (Operations, Administration, Maintenance, and Provisioning).	**January - August 2022:** Estimated based on averages from September 2022 - October 2022. Average was calculated and applied retroactively for periods that did not have actuals. **September – December 2022:** Data traffic is actual inbound and outbound traffic from core and data center Networks. This excludes international data traffic as this is reported in PIP.
Voice Time Division Multiplexing (TDM) for VZB Local Calls: This network consists of fMCI and 911 CLEC.	Local voice traffic pulled monthly, for ingress voice traffic only. CCSs converted to terabytes binary format using conversion factors based on circuit types (i.e., 56K or 64K circuit types).
Verizon Connect: Verizon Connect provides fleet management services and analytics insights through the use of Internet of Things (IoT) modems that provide wireless connectivity to vehicles, control system controllers, sensors, utility meters, and other connected smart devices.	**January - October 2022:** Daily average from November 2022 was applied to these months as actual data was not available. **November - December 2022:** Total Byte traffic is captured at edge firewall sites. Traffic captured is traffic egressing from the edge firewall to the core. Verizon circuits are not included, as these would be picked up in other segments.
Voice Time Division Multiplexing (TDM) for former XO Calls: This network consists of former XO Public Switched Telephone Networks (PSTN) used for voice calls using a Plain Old Telephone (POTS).	2022 incoming voice traffic was estimated based on 2021 actuals available. CCSs converted to terabytes binary format using conversion factors based on circuit type.

Network segment	Methodology[viii]
FiOS Broadcast Video: This network includes video broadcasts through FiOS cable services in the US.	Data traffic is measured for all egress data transferred across all broadband multiplex routers. Data traffic is collected daily. On a monthly basis, average monthly data traffic per device is estimated by adding daily traffic captured for the entire month and dividing it by the number of days for which data was collected in that given month. Then the averages for each device are summed at month-end and multiplied by total number of days in that given month to obtain total traffic.

Water withdrawal

Water withdrawal (in billions of gallons) is based on custom criteria developed using metric definitions established by the Global Reporting Initiative (GRI) Standard 303-3a[ix]. Water withdrawal represents total volume of water withdrawn from municipal water utilities for all sites that use municipal water within Verizon's operational control. Below is significant contextual information necessary to understand how the data has been compiled. The amounts have been prepared based on:

- Pro-rated monthly domestic and international billed consumption data for the fiscal year ended received from utility providers and property management companies as of January of the following year. Actual consumption data accounts for approximately 80% of total water withdrawal reported.
- Estimated usage calculated by applying Verizon's water usage intensity (WUI) factors (in kgal per square foot), by region (US state averages and US total average) and facility type, to sites[x] without billed data available. Estimated usage accounts for approximately 20% of total water withdrawal reported.

The WUI factors are derived from billed consumption and square footage data available from comparable US sites[xi]. WUI factors are then applied to sites to estimate water usage as follows:

- For US sites without billed consumption data, the state average WUI factors by facility type are applied when available. Otherwise, the US average WUI factors by facility type are used.
- For non-US sites without billed consumption data, the US average WUI factor by facility type is applied.
- For sites without billed consumption data and unknown square footage, estimated square footage is calculated based on known square footage from similar facility types. The WUI factors are then applied as described above.

Note on Non-Financial Reporting

Non-financial information is subject to measurement uncertainties resulting from limitations inherent in the nature and the methods used for determining such data. The selection of different but acceptable measurement techniques can result in materially different measurements. The precision of different measurement techniques may also vary.

[ix] Equivalent to 7,505 megaliters. Verizon only withdraws an immaterial amount of surface water and does not withdraw groundwater, seawater or produced water, and as a result those sources are excluded. Other criteria included in GRI 303-3b and c (e.g., total water withdrawal from all areas with water stress and water withdrawal by dissolved solid content) are excluded.
[x] Sites that use water (e.g., administrative offices, retail stores, data centers, central offices, equipment, garage and warehouses and motor vehicle maintenance centers) are included. Sites that do not routinely use water (e.g., network cabinets and huts, microwave equipment, towers and antennas) are excluded from the estimate due to immateriality.
[xi] Sites with billed consumption but unknown square footage data are excluded from the WUI calculation.