Second-Party Opinion

VMED O2 Green Bond Framework

Evaluation Summary

Sustainalytics is of the opinion that the VMED O2 Green Bond Framework is credible and impactful and aligns to the four core components of the Green Bond Principles 2021. This assessment is based on the following:

USE OF PROCEEDS The eligible categories for the use of proceeds — Energy Efficiency, Renewable Energy, Clean Transportation, Eco-efficient and/or Circular Economy Adapted Products, Production Technologies and Processes — are aligned with those recognized by the Green Bond Principles 2021. Sustainalytics considers that activities in the eligible categories will lead to the decarbonisation of Virgin Media's operations and advance the UN Sustainable Development Goals, specifically SDG 7, 9, 11, and 12.

PROJECT EVALUATION / SELECTION Virgin Media O2's internal process in evaluating and selecting projects is overseen by the Virgin Media 'Better for the planet' steering committee ("the Committee") comprised of representatives from relevant operational teams and supported by the Sustainability and Finance teams. Sustainalytics considers the project selection process in line with market practice.

MANAGEMENT OF PROCEEDS Virgin Media O2 will track the net use of proceeds through a Green Bond Register. This process will be overseen by the Virgin Media O2 Finance team. Virgin Media O2 intends to reach full allocation within 36 months of issuance. Pending allocation, unallocated proceeds will be held in line with the Joint Venture's standard liquidity management practices. This is in line with market practice.

REPORTING Virgin Media O2 intends to report on the allocation and impact of proceeds on its website on an annual basis until full allocation. Allocation reporting will include the amount of proceeds allocated by eligible category, the share of financing vs refinancing, and the balance of unallocated proceeds. In addition, Virgin Media O2 is committed to reporting on relevant impact metrics. Sustainalytics views Virgin Media O2's allocation and impact reporting as aligned with market practice.

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Issuer Location	Hammersmith United Kingdom

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Introduction

Virgin Media O2 ("VMED O2" or the "Joint Venture") is a 50:50 joint venture between Liberty Global and Telefónica SA. Since 2013, Virgin Media had been a subsidiary of Liberty Global plc, an international television and telecommunications company. In May 2020, Liberty Global and Telefonica announced the merger of their UK operations through a 50-50 joint venture that brings together Virgin Media and O2, the largest mobile network operator in the UK. The transactions to form VMED O2 closed on June 1st, 2021.

VMED O2 has developed the VMED O2 Green Bond Framework (the "Framework") under which it intends to issue green bonds and use the proceeds to finance and/or refinance, in whole or in part, existing and/or future projects that are expected to contribute to the decarbonisation of Virgin Media's operations. The Framework defines eligibility criteria in four green areas:

1. Energy Efficiency
2. Renewable Energy
3. Clean Transportation
4. Eco-efficient and/or Circular Economy Adapted Products, Production Technologies and Processes

VMED O2 UK Financing I PLC (the "Issuer") engaged Sustainalytics to review the Framework, dated June 2021, and provide a Second-Party Opinion on the Framework's environmental credentials and its alignment with the Green Bond Principles 2021 (GBP).[1] This Framework has been published in a separate document.[2]

Scope of work and limitations of Sustainalytics' Second-Party Opinion

Sustainalytics' Second-Party Opinion reflects Sustainalytics' independent[3] opinion on the alignment of the reviewed Framework with the current market standards and the extent to which the eligible project categories are credible and impactful.

As part of the Second-Party Opinion, Sustainalytics assessed the following:

- The Framework's alignment with the Green Bond Principles 2021, as administered by ICMA;
- The credibility and anticipated positive impacts of the use of proceeds; and
- The alignment of the issuer's sustainability strategy and performance and sustainability risk management in relation to the use of proceeds.

For the use of proceeds assessment, Sustainalytics relied on its internal taxonomy, version 1.8.1, which is informed by market practice and Sustainalytics' expertise as an ESG[4] research provider.

As part of this engagement, Sustainalytics held conversations with various members of VMED O2's management team to understand the sustainability impact of their business processes and planned use of proceeds, as well as management of proceeds and reporting aspects of the Framework. VMED O2 representatives have confirmed (1) they understand it is the sole responsibility of VMED O2 to ensure that the information provided is complete, accurate or up to date; (2) that they have provided Sustainalytics with all relevant information and (3) that any provided material information has been duly disclosed in a timely manner. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics' opinion of the Framework and should be read in conjunction with that Framework.

Any update of the present Second-Party Opinion will be conducted according to the agreed engagement conditions between Sustainalytics and the Issuer.

Sustainalytics' Second-Party Opinion, while reflecting on the alignment of the Framework with market standards, is no guarantee of alignment nor warrants any alignment with future versions of relevant market standards. Furthermore, Sustainalytics' Second-Party Opinion addresses the anticipated impacts of eligible

[1] The Green Bond Principles are administered by the International Capital Market Association and are available at https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/.
[2] The VMED O2 Green Bond Framework is available on Virgin MediaO2's website at: www.virginmediao2.co.uk
[3] When operating multiple lines of business that serve a variety of client types, objective research is a cornerstone of Sustainalytics and ensuring analyst independence is paramount to producing objective, actionable research. Sustainalytics has therefore put in place a robust conflict management framework that specifically addresses the need for analyst independence, consistency of process, structural separation of commercial and research (and engagement) teams, data protection and systems separation. Last but not the least, analyst compensation is not directly tied to specific commercial outcomes. One of Sustainalytics' hallmarks is integrity, another is transparency.
[4] Environmental Social Governance.

projects expected to be financed with bond proceeds but does not measure the actual impact. The measurement and reporting of the impact achieved through projects financed under the Framework is the responsibility of the Framework owner.

In addition, the Second-Party Opinion opines on the potential allocation of proceeds but does not guarantee the realised allocation of the bond proceeds towards eligible activities.

No information provided by Sustainalytics under the present Second-Party Opinion shall be considered as being a statement, representation, warrant or argument, either in favour or against, the truthfulness, reliability or completeness of any facts or statements and related surrounding circumstances that VMED O2 has made available to Sustainalytics for the purpose of this Second-Party Opinion.

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the VMED O2 Green Bond Framework

Sustainalytics is of the opinion that the Framework is credible and impactful and aligns to the four core components of the GBP. Sustainalytics highlights the following elements of the Framework:

- Use of Proceeds:
  - The eligible categories — Energy Efficiency, Renewable Energy, Clean Transportation, Eco-efficient and/or Circular Economy Adapted Products, Production Technologies and Processes — are aligned with those recognized by the GBP. Sustainalytics views the expenditures as contributing to a low-carbon economy and potentially reducing the environmental impacts of Virgin Media's operations.
  - Virgin Media O2 has defined a look-back period of 36 months, which Sustainalytics considers to be aligned with market practice.
  - Under the Energy Efficiency category, VMED O2 may finance Virgin Media's activities aimed at reducing the energy consumption of its operations, as well as products and solutions that improve the energy efficiency and reduce the GHG emissions of Virgin Media's products.
    - Virgin Media has indicated that the PUE values of existing data centers vary and that cooling improvements intend to push the PUE below 1.5, while any investment going into a new data center is planned with a PUE below 1.5. Sustainalytics considers data centres with a <1.5 PUE as aligned with market practice and notes positively that Virgin Media (i) procures renewable energy to power the data centres (and its whole network) through renewables and (ii) uses free cooling technology that takes advantage of cool ambient conditions and reduces the need for mechanical cooling and associated power.
    - VMED O2 intends to finance Virgin Media's purchase of power-efficient Customer Premises Equipment (CPE), including Wi-Fi routers[5] and TV boxes.[6] Virgin Media has confirmed to Sustainalytics that investments in CPE under the Framework are aimed at gradually upgrading legacy equipment and making it more energy efficient.
    - Network development projects may include the modernization and expansion of Virgin Media's broadband and fixed line telephony network through fiber optics. To modernize and improve the energy efficiency of the telephony network, the Joint Venture intends to finance Virgin Media's transition from copper-based network to VOIP. In addition, VMED O2 may finance the expansion of its broadband network through fiber optics. Fixed lined telephony, data, and TV will therefore be transmitted through fiber optics over a single network. Sustainalytics considers that upgrading and transitioning to fiber optics networks can lead to energy efficiency gains compared to copper-based networks as a baseline.
    - The Joint Venture intends to finance Virgin Media's network virtualization i.e. combining hardware and software network resources and functionality into a single,

[5] Wi-Fi routers are expected to be 15% more energy efficient during use compared to previous models.
[6] TV boxes are expected to be 50% more energy efficient during use compared to previous models.

software-based network. Network virtualization's expenditures may include replacing the use of multiple servers in data centers, and more broadly, separating hardware and software to centralize functions into larger, more scalable, and energy-efficient facilities. Given the wide range of potential activities that can fall under network virtualization, such investments may not always generate energy efficiency benefits. Sustainalytics notes that VMED O2 has committed to allocate proceeds to specific activities expected to provide energy efficiency gains. Sustainalytics further encourages the Joint Venture to report on estimated or achieved energy efficiency gains.

    - As part of the effective life cycle management of networks, technical sites, and IT assets, VMED O2 may finance Virgin Media's replacement of electrically powered equipment by more energy-efficient alternatives. Other projects financed under this category include the installation of LED lights, network power monitoring systems, and the implementation of software designed to improve fuel efficiency and enable emissions reduction within Virgin Media's vehicles fleet.
    - Sustainalytics recognizes that, by enabling high-speed network connectivity, Virgin Media's solutions and products have the potential to support significant energy savings by end users across many sectors. Sustainalytics also acknowledges that the expansion of full-fibre networks and increasing data flows from smart solutions and products may result in additional overall energy demands on telecommunications networks. Overall, Sustainalytics believes that the enabled savings outweigh the potential adverse effects of additional network demands (see Section 3 for additional detail).
  - Within the Renewable Energy category, VMED O2 may finance Virgin Media's installation of on-site renewable energy such as solar PV, and the purchase or procurement of renewable energy. Regarding the purchase of electricity from renewable sources, Virgin Media currently sources 100% of its electricity under supply agreements for typically three years, tied to specific generating assets.[7] Virgin Media is looking at longer terms Power Purchase Agreements (PPAs), and while there are no current negotiations, VMED 02 may finance their purchase by Virgin Media in the future. Sustainalytics considers market practice to favor the purchase of medium and/or long-term PPAs (> 5 years) directly tied to specific and identifiable renewable energy projects. However, given Virgin Media's commitment to renewing PPAs and current sourcing of 100% renewable power, Sustainalytics considers the projects impactful while encouraging Virgin Media to establish longer-term agreements.
  - As part of the Clean Transportation category, VMED O2 may finance Virgin Media's sourcing of electric or hybrid vehicles with emissions below 75 gCO_2/km and associated infrastructure, including electric vehicle charging stations.
    - Sustainalytics notes that expenditures under this category may include the leasing costs of hybrid and electric vehicles.[8] Sustainalytics considers market practice to be the financing of capital/finance leases that result in ownership (i.e. CAPEX). Sustainalytics notes that operating leases, as contemplated by Virgin Media, do not necessarily result in the purchase of an asset (i.e. OPEX). Virgin Media has indicated that short-term operating leases allow quicker fleet turnover to bring more sustainable vehicle models into Virgin Media's fleet over the years. While the types of vehicles financed are well-placed for inclusion in green bonds and could reduce the emissions associated with the operation of Virgin Media's fleet, Sustainalytics notes that operating leases represent a deviation from market practice.
  - Under the Circular Economy Adapted Products, Production Technologies and Processes category, VMED O2 may finance Virgin Media's initiatives to increase the reuse of electrical products such as Wi-Fi routers and TV boxes, including product take-back, refurbishment, and repair.
- Project Evaluation and Selection:

[7] Depending on the supplier Virgin Media receives Renewable Energy Guarantee of Origin (REGO) certificate that can trace the renewable energy asset or seeks an assurance statement to confirm that all energy supplied is from renewable sources.
[8] Virgin Media has indicated that it will allocate a minor part of the proceeds to the leasing costs of hybrid and electric vehicles (< 10%).

  - Virgin Media has established the 'Better for the planet' steering committee ("the Committee") comprised of representatives from relevant operational teams, supported by the Sustainability and Finance teams, and chaired by the Chief Technology Officer. The Committee will be responsible to evaluate and select projects in line with the Framework's eligibility criteria.
  - Based on the establishment of a formal committee, Sustainalytics considers this process to be in line with market practice.
- Management of Proceeds:
  - The Joint Venture's Finance Team will be responsible for overseeing the allocation process. The Joint Venture will manage the proceeds on a portfolio basis and track allocation through a Green Bond Register. Virgin Media O2 intends to fully allocate bond proceeds within 36 months after issuance. Pending allocation, unallocated proceeds will be held in line with the Joint Venture's liquidity management practices.
  - Based on these elements, Sustainalytics considers this process to be in line with market practice.
- Reporting:
  - Virgin Media intends to report on the allocation of proceeds on its website on an annual basis until full allocation. Allocation reporting will include the amount of proceeds allocated by eligible category, the share of financing vs refinancing, and the balance of unallocated proceeds.
  - In addition, Virgin Media is committed to reporting on relevant impact metrics including tons of CO_2e (scope 1 and 2) per Terabyte data, tons of CO_2e (scope 1 and 2) per Revenue Generating Unit (RGU), tons of CO_2e (scope 1 and 2), electricity use (kWh) per Terabyte data, number of CPE (Set top boxes & modems) returned, re-used or re-cycled per annum, and percentage of electric vehicles out of total owned and leased vehicle fleet at most recent year end.
  - Based on the commitment to both allocation and impact reporting, Sustainalytics considers this process to be in line with market practice.

Alignment with Green Bond Principles 2021

Sustainalytics has determined that the Framework aligns to the four core components of the GBP. For detailed information please refer to Appendix 1: Green Bond/Green Bond Programme External Review Form.

Section 2: Sustainability Performance of Virgin Media

Contribution of framework to Virgin Media's sustainability strategy

As part of its sustainability strategy prior to the Joint Venture formation, Virgin Media committed to creating a positive impact for its (i) people and customers, (ii) communities and (iii) the environment.[9] Virgin Media is committed to achieving net-zero GHG emissions in its operations by the end of 2025. Virgin Media intends to achieve this target by implementing energy efficiency solutions and sourcing renewable power. Regarding energy efficiency, Virgin Media aims to reduce its operational consumption by 25% by the end of 2025, compared to a 2019 baseline. As for renewable power, the Company has set a target of sourcing 100% renewable electricity to power its network, which Virgin Media has achieved in 2018. The transition of Virgin Media's fleet to electric vehicles will also support the operational emissions reduction target.

In addition, Virgin Media intends to reduce its supply chain emissions by focusing on the lifecycle impact of its products. This supports Liberty Global's target to reduce scope 3 emissions by 50% by 2030 below a 2019 baseline. Furthermore, acknowledging its responsibility in managing and reducing electronic waste, Virgin Media intends to reduce its operational waste to zero by the end of 2025. Virgin Media's commitment to a circular economy includes 95% of all potential waste created by its business being reused or recycled by the end of 2025. In addition, Virgin Media commits to 100% of returned broadband and TV products to be reused or recycled, and 100% of customer packaging to be recycled, and no single-use plastic. Virgin Media expects to save over 5,000 tonnes of materials by reducing the amount of material needed in its products, using recycled content, and refurbishing and reusing its customer products. Sustainalytics further notes that Virgin Media achieved the following sustainability goals in the past:

- In 2020, Virgin Media achieved a 42% reduction of its scope 1 and 2 emissions against a 2014 baseline. Between 2019 and 2020, Virgin Media's operational emissions decreased by 7%, while scope 3 emissions dropped by 14%.

[9] Virgin Media, Sustainability Performance Report, (2020), at: https://www.virginmedia.com/content/dam/virginmedia/dotcom/documents/corporate/2019_Sustainability_Report_FINAL_110820.pdf

- In 2020, Virgin Media was able to refurbish and reuse over 1.3 million items of Customer Premises Equipment, highlighting its commitment to a circular economy. Virgin Media reduced its amount of operational waste by 20%, compared to previous year. In addition, Virgin Media has launched a product scorecard methodology to compare the sustainability performance of its products.

Given Liberty Global's and Telefonica's formation of the Joint Venture to combine the Virgin Media and O2 businesses, Sustainalytics notes that the projects funded under the Framework may also contribute to the sustainability strategy of O2. O2 has committed to reaching net-zero scope 1 and 2 emissions and reducing scope 3 emissions by at least 30% by 2025, compared to a 2019 baseline.[10] Between 2015 and 2019, O2 reduced the carbon intensity of its network by 78% and purchased 100% renewable power for the sites that O2 controls. In addition, the O2 recycle initiative helped to recycle over 1.3 million devices between 2016 and 2019.[11]

Sustainalytics is of the opinion that the Framework is aligned with Virgin Media's overall sustainability strategy and initiatives and, following the formation of the Joint Venture will assist VMED O2's combined operations in meeting their emissions and sustainability targets.

Well-positioned to address common environmental and social risks associated with the projects

While Sustainalytics recognizes that the net proceeds from the instruments issued under the Framework will be directed towards eligible projects that are expected to have positive environmental impact, Sustainalytics is aware that such eligible projects could also lead to negative environmental and social outcomes. Some key environmental and social risks associated with the eligible projects could include end of life management (including e-waste), supply chain environmental impact, exposure to data privacy, as well as worker health and safety.

Sustainalytics is of the opinion that Virgin Media O2 is able to manage and/or mitigate potential risks through implementation of the following:

- Virgin Media has an environmental management system ("EMS") certified by ISO 140001.[12] Virgin Media follows an environmental policy that focuses on reducing the environmental impact of its business operations and products' lifecycle.[13] Virgin Media complies as a "producer" and "distributor" under the Waste from Electrical and Electronic Equipment Directive that notably aims to prevent the creation of electronic waste and contribute to the efficient use of resources and retrieval of secondary raw materials through re-use, recycling, and other forms of recovery.[14]
- Virgin Media and O2 manage their supply chain risks through the Virgin Media Supplier Code of Conduct[15] and the Supply Chain Sustainability Policy of Telefonica Group.[16] The policies set out requirements to ensure that the companies' suppliers comply with the applicable regulations and ethical, social, and responsible criteria. Virgin Media expects suppliers to try and minimize adverse impacts on the environment when supplying goods and services to them. Virgin Media also expects suppliers to have waste management programs. For both Virgin Media and O2, the codes of conduct aim to ensure that suppliers comply with international conventions and standards, such as ILO conventions, OECD guidelines, or ISO criteria.[15,16]
- To address data privacy and security, Virgin Media implemented a Data Protection Policy in adherence to the laws to General Data Protection Regulation Act, 2018, Sarbanes Oxley Act, and ISO 27001.[17,18] O2 follows Telefonica's Data protection policy[19] that abides by all current global and

[10] O2, "Climate Change and the environment", (2020), at: https://www.o2.co.uk/our-blueprint/environment
[11] O2, "Our Blueprint, Our Progress at the end of 2019", at: https://static-www.o2.co.uk/sites/default/files/2020-03/O2-Our-Blueprint-Report.pdf?_gl=1*176j9jq*_ga*MjI3MTI2NTExLjE2MjE0OTEyMjQ.*_ga_9VM189BE9M*MTYyMTg1MTE5My41LjEuMTYyMTg1MjUxOC4w
[12] ISO, ISO 14001, at: https://www.iso.org/iso-14001-environmental-management.html
[13] Virgin Media, "Environment Policy Statement", (2017), at: https://www.virginmedia.com/content/dam/virginmedia/dotcom/documents/corporate/environment-policy-statement-2017.pdf
[14] EU Commission, "Waste from Electrical and Electronic Equipment (WEEE)", at: https://ec.europa.eu/environment/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee_en
[15] Virgin Media, "Virgin Media Supplier Code of Conduct", (2015), at: https://www.virginmedia.com/content/dam/virginmedia/dotcom/documents/corporate/Supplier-Code-of-Conduct.pdf
[16] Telefonica Group, "Supply Chain Sustainability Policy Telefónica Group", (2020), at: https://www.telefonica.com/documents/153952/122213931/PolicySustainabilitySupplyChain.pdf/43dfc62e-c368-41d5-8480-d50fad013048
[17] Virgin Media, "Corporate Social Responsibility Report 2019", (2020) at: https://www.libertyglobal.com/wp-content/uploads/2020/08/LG_CR19_Report.pdf
[18] ISO, "ISO 27001 Information Security Management", at: https://www.iso.org/isoiec-27001-information-security.html
[19] Telefonica Group, "Data Protection Policy", at: https://www.telefonica.com/en/data-protection-policy

national legislation regarding the protection of personal data, the privacy of users, and the confidentiality and security of personal data.

- O2 and Virgin Media have implemented health and safety policies[20] to address health and safety risks for their employees and contractors. Virgin Media has a dedicated Health and Safety Governance Committee in place entrusted with the responsibility to monitor the implementation of health and safety measures, review progress and update the Executive Committee on health and safety Issues.[21] In addition, Virgin Media requires its suppliers to provide their employees with a safe and healthy workplace, and that appropriate policies and procedures are in place to ensure worker health and safety.[15] O2 reviews its health and safety policy regularly and amend it according to current legislation, codes of practice and changing working conditions. It requires O2 to ensure healthy and safe working conditions for its employees and contractors, avoiding future harms by reporting, investigating, and reviewing the incidents.

Based on these policies, standards and assessments, Sustainalytics is of the opinion that Virgin Media has implemented adequate measures and is well-positioned to manage and mitigate environmental and social risks commonly associated with the eligible categories.

Section 3: Impact of Use of Proceeds

All four use of proceeds categories are aligned with those recognized by the GBP 2021. Sustainalytics has focused on two below where the impact is specifically relevant in the local context.

Importance of energy-efficient telecommunications network infrastructure

Between 2005 and 2019, the global number of internet users quadrupled, reaching four billion.[22] However, the increase in data traffic is responsible for increasing networks' energy consumption.[23] Between 2010 and 2015, the energy consumption of global network operators increased by 30%, while associated GHG emissions increased by 17% during the same period.[24] As such the ICT sector accounted for 2 to 3% of global energy demand and for around 1.5% of total GHG emissions in 2019. [23,25] The share of the ICT sector in global GHG emissions is expected to grow to 14% by 2040. While most emissions for the telecom sector comes from energy consumption, energy efficiency measures may reduce energy related GHG emissions by 40% over the next two decades.[26]

In 2020, 29 operator groups representing 30% of global mobile connections committed to science-based targets.[27] With the release of sectoral science-based pathway, the telecom sector committed to achieving net zero carbon emissions by 2050.[27] This sectoral pathway will increase the need for digitalization and implementation of energy efficiency measures, requiring significant investment to develop energy-efficient solutions, automation of systems, remote energy monitoring systems, amongst others. A study shows that fiber is currently the most energy efficient technology for broadband access networks – when performing at 50 Mbps, fibre networks consume 56 kWh compared to 88 kWh for Data Over Cable Service Interface Specification (DOCSIS).[28] This translates to a carbon emission equivalent of 1.7 tons for fiber relative to 2.7 tons for DOCSIS.[28]

To accelerate the low carbon transition, the UK Government committed to a net-zero target by 2050.[29] To reach carbon neutrality by 2050, the UK introduced a mid-term climate target to reduce emissions by 78% by 2035, compared to 1990 levels.[29] In addition, in 2018, the UK Government set out a target for full-fiber broadband to reach 15 million premises by 2025, with nationwide coverage by 2033.[30] Given the positive

[20] O2, "Safety is everyone's Business", at: https://static.o2.co.uk/www/docs/health_and_safety_policy_notice_final.pdf
[21] Virgin Media, "Health and Safety Policy" (2020), provided by the Company.
[22] International Telecommunication Union (ITU), "Statistics", at: https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx
[23] GSMA website , "Energy Efficiency: An Overview", at: https://www.gsma.com/futurenetworks/wiki/energy-efficiency-2/
[24] Malmodin, J. et al. (2018), "The Energy and Carbon Footprint of the Global ICT and E&M Sectors 2010–2015", MDPI, at: https://www.mdpi.com/2071-1050/10/9/3027
[25] South Pole, "The low-carbon future is digital: Why it pays for ICT companies to reduce emissions and invest in renewables", at: https://www.southpole.com/blog/the-low-carbon-future-is-digital-why-it-pays-for-ict-companies-to-reduce-emissions-and-invest-in-renewables
[26] International Energy Association, "Energy Efficiency 2020", at: https://iea.blob.core.windows.net/assets/59268647-0b70-4e7b-9f78-269e5ee93f26/Energy_Efficiency_2020.pdf
[27] United Nations Climate Change, "Telecoms Sector Agrees Pathway to Net Zero Emissions", at: https://unfccc.int/news/telecoms-sector-agrees-pathway-to-net-zero-emissions
[28] European Commission, "Shaping Europe's digital future'', (2020), at: https://digital-strategy.ec.europa.eu/en/library/fibre-most-energy-efficient-broadband-technology#:~:text=A study launched in 2017,%2C xDSL%2C vectoring and DOCSIS.
[29] Climate Change Committee report, "The Sixth Carbon Budget", at: https://www.theccc.org.uk/publication/sixth-carbon-budget/
[30] UK Parliament website, "The Government's targets and funding for digital connectivity", at: https://publications.parliament.uk/pa/cm5801/cmselect/cmcumeds/153/15306.htm

environmental impacts of full-fiber broadband highlighted above, Sustainalytics notes that the projects funded under the Framework could assist the UK in meeting its climate targets, as well as nationwide coverage target.

Importance of circular economy towards responsible production

In 2019, 53.6M metric tons (Mt) of electronic waste was generated, increasing by 21% since 2014.[31] Global e-waste is expected to reach 74 Mt by 2030 due to higher consumption rates of electric and electronic equipment, short life cycles, and few options for repair.[31] In 2019, the UK generated 23.9 kg of e-waste per capita, the second most e-waste per capita worldwide.[32] In 2019, the UK was lagging in official e-waste collection in the European Economic Area, with a significant amount of e-waste uncollected or incorrectly disposed. [33] The number of large Approved Authorized Treatment Facility (AATF) for Waste Electrical and Electronic Equipment (WEEE) sites in the UK has fallen from 90 to 84 between 2013 and 2019.[34] In the same period, smaller sites have fallen from 182 to 103.[34] As fewer sites are available to treat WEEE, around 300 kilo tons of WEEE are lost each year to household and commercial mixed or residual waste.[34]

Packaging waste is also considered a material issue under waste management. In 2019, WEEE accounted for 9.5% of total dry waste from UK households, whereas packaging waste such as paper and plastic accounted for 44% of the total.[35] Plastic accounted for 20% of the UK's total packaging waste in 2017, with a 46.2% recycling rate for plastic. The highest recycling rate achieved was 79.0% for paper and cardboard, followed by 71.1% for metal and 67.6% for glass.[35] Plastic packaging recycling rates can be increased by strengthening the existing recycling system and innovating in the design of plastic packaging.

The UK Government released the Resource and Waste Strategy in 2018, containing several policies to reduce plastic waste. As per the waste management strategy, the government has the ambition to work towards all plastic packaging placed on the market being recyclable, reusable, or compostable by 2025.[36] For waste streams such as WEEE, UK-wide producer responsibility (PR) schemes are in place, putting the responsibility on producers for their goods at end-of-life.[36]

Given this context, Sustainalytics believes that Virgin Media's support to the collection, repair, and refurbishment of electrical products may support the UK Government's vision for waste management.

Alignment with/contribution to SDGs

The Sustainable Development Goals (SDGs) were set in September 2015 by the United Nations General Assembly and form an agenda for achieving sustainable development by the year 2030. The bond(s) issued under the Framework advances the following SDGs and targets:

Use of Proceeds Category	SDG	SDG target
Energy Efficiency	7. Affordable and Clean Energy 9. Industry, Innovation and Infrastructure	7.3 By 2030, double the global rate of improvement in energy efficiency 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

[31] Global E-waste Monitor website, "The Global E-waste Monitor 2020", at: http://ewastemonitor.info/
[32] Edie Newsroom website, "How big is the UK's waste mountain - and what are we recycling?", at: https://www.edie.net/library/In-charts--How-big-is-the-UK-s-waste-mountain---and-what-are-we-recycling-/7046
[33] Eunomia report, "Electrical and Electronic Equipment: Ingredients for Successful Extended Producer Responsibility", at: https://www.edie.net/library/In-charts--How-big-is-the-UK-s-waste-mountain---and-what-are-we-recycling-/7046
[34] Material Focus report, "Evaluating opportunities to establish an investment fund for WEEE infrastructure", at: https://www.recycleyourelectricals.org.uk/report-and-research/a-weee-infrastructure-fund/
[35] Department for Environment, Food and Rural Affairs report, "UK Statistics on Waste", at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918270/UK_Statistics_on_Waste_statistical_notice_March_2020_accessible_FINAL_updated_size_12.pdf
[36] The Government of the United Kingdom report, "Our Waste, Our Resources: A Strategy for England", at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf

Renewable Energy	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
Clean Transportation	11. Sustainable Cities and Communities	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
Eco-efficient and/or Circular Economy Adapted Products, Production Technologies and Processes	12. Responsible Consumption and Production	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Conclusion

The Joint Venture has developed the VMED O2 Green Bond Framework under which it may issue green bonds and use the proceeds to finance Virgin Media's energy efficiency, renewable energy, clean transportation, and eco-efficient and/or circular economy adapted products, production technologies and processes projects. Sustainalytics considers that the projects funded by the green bond proceeds are expected to contribute to the decarbonization of Virgin Media's operations.

The VMED O2 Green Bond Framework outlines a process by which proceeds will be tracked, allocated, and managed, and commitments have been made for reporting on the allocation and impact of the use of proceeds. Furthermore, Sustainalytics believes that the VMED O2 Green Bond Framework is aligned with the overall sustainability strategy of Virgin Media and that the green use of proceeds categories will contribute to the advancement of the UN Sustainable Development Goals 7, 9, 11, and 12. Additionally, Sustainalytics is of the opinion that Virgin Media has adequate measures to identify, manage and mitigate environmental and social risks commonly associated with the eligible projects funded by the use of proceeds.

Based on the above, Sustainalytics is confident that VMED O2 is well-positioned to issue green bonds and that the VMED O2 Green Bond Framework is robust, transparent, and in alignment with the four core components of the Green Bond Principles 2021.

Appendices

Appendix 1: Green Bond / Green Bond Programme - External Review Form

Section 1. Basic Information

Issuer name:	VMED O2 UK Financing I PLC
Green Bond ISIN or Issuer Green Bond Framework Name, if applicable:	VMED O2 Green Bond Framework
Review provider's name:	Sustainalytics
Completion date of this form:	June 14, 2021
Publication date of review publication:	

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBP:

☒	Use of Proceeds	☒	Process for Project Evaluation and Selection
☒	Management of Proceeds	☒	Reporting

ROLE(S) OF REVIEW PROVIDER

☒	Consultancy (incl. 2nd opinion)	☐	Certification
☐	Verification	☐	Rating
☐	Other *(please specify)*:		

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW *(if applicable)*

Please refer to Evaluation Summary above.

Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Overall comment on section *(if applicable)*:

The eligible categories for the use of proceeds — Energy Efficiency, Renewable Energy, Clean Transportation, Eco-efficient and/or Circular Economy Adapted Products, Production Technologies and Processes — are aligned with those recognized by the Green Bond Principles 2021. Sustainalytics considers that activities in the eligible categories will lead to the decarbonisation of Virgin Media's operations and advance the UN Sustainable Development Goals, specifically SDG 7, 9, 11, and 12.

Use of proceeds categories as per GBP:

☒	Renewable energy	☒	Energy efficiency
☐	Pollution prevention and control	☐	Environmentally sustainable management of living natural resources and land use
☐	Terrestrial and aquatic biodiversity conservation	☒	Clean transportation
☐	Sustainable water and wastewater management	☐	Climate change adaptation
☒	Eco-efficient and/or circular economy adapted products, production technologies and processes	☐	Green buildings
☐	Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBP	☐	Other *(please specify)*:

If applicable please specify the environmental taxonomy, if other than GBP:

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

Virgin Media O2's internal process in evaluating and selecting projects is overseen by the 'Better for the planet' steering committee ("the Committee") comprised of representatives from relevant operational teams and supported by the Sustainability and Finance teams. Sustainalytics considers the project selection process in line with market practice.

Evaluation and selection

☒	Credentials on the issuer's environmental sustainability objectives	☒	Documented process to determine that projects fit within defined categories
☒	Defined and transparent criteria for projects eligible for Green Bond proceeds	☒	Documented process to identify and manage potential ESG risks associated with the project
☒	Summary criteria for project evaluation and selection publicly available	☐	Other *(please specify)*:

Information on Responsibilities and Accountability

☒ Evaluation / Selection criteria subject to external advice or verification

☐ In-house assessment

☐ Other (please specify):

3. MANAGEMENT OF PROCEEDS

Overall comment on section *(if applicable)*:

Virgin Media O2 will track the net use of proceeds through a Green Bond Register. This process will be overseen by VMED O2's Finance team. Virgin Media O2 intends to reach full allocation within 36 months of issuance. Pending allocation, unallocated proceeds will be held in line with VMED O2's standard liquidity management practices. This is in line with market practice.

Tracking of proceeds:

☒ Green Bond proceeds segregated or tracked by the issuer in an appropriate manner

☒ Disclosure of intended types of temporary investment instruments for unallocated proceeds

☐ Other *(please specify)*:

Additional disclosure:

☐ Allocations to future investments only

☒ Allocations to both existing and future investments

☐ Allocation to individual disbursements

☒ Allocation to a portfolio of disbursements

☒ Disclosure of portfolio balance of unallocated proceeds

☐ Other *(please specify)*:

4. REPORTING

Overall comment on section (if applicable):

Virgin Media O2 intends to report on the allocation and impact of proceeds on its website on an annual basis until full allocation. Allocation reporting will include the amount of proceeds allocated by eligible category, the share of financing vs refinancing, and the balance of unallocated proceeds. In addition, Virgin Media O2 is committed to reporting on relevant impact metrics. Sustainalytics views Virgin Media O2's allocation and impact reporting as aligned with market practice.

Use of proceeds reporting:

☐ Project-by-project

☒ On a project portfolio basis

☐ Linkage to individual bond(s)

☐ Other *(please specify):*

Information reported:

- ☒ Allocated amounts
- ☐ Green Bond financed share of total investment
- ☐ Other *(please specify):*

Frequency:

- ☒ Annual
- ☐ Semi-annual
- ☐ Other (please specify):

Impact reporting:

- ☐ Project-by-project
- ☒ On a project portfolio basis
- ☐ Linkage to individual bond(s)
- ☐ Other (please specify):

Information reported (expected or ex-post):

- ☒ GHG Emissions / Savings
- ☒ Energy Savings
- ☐ Decrease in water use
- ☐ Other ESG indicators (please specify):

Frequency

- ☐ Annual
- ☐ Semi-annual
- ☐ Other (please specify):

Means of Disclosure

- ☐ Information published in financial report
- ☐ Information published in sustainability report
- ☐ Information published in ad hoc documents
- ☒ Other (please specify): tons of CO2e (scope 1 and 2) per Terabyte data, tons of CO2e (scope 1 and 2) per Revenue Generating Unit (RGU) , tons of CO2e (scope 1 and 2), electricity use (kWh) per Terabyte data, number of CPE (Set top boxes & modems) returned, re-used or re-cycled per annum, and percentage of electric vehicles out of total owned and leased vehicle fleet at most recent year end.
- ☐ Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review):

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer's documentation, etc.)

www.virginmediao2.co.uk

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

- ☐ Consultancy (incl. 2nd opinion)
- ☐ Certification
- ☐ Verification / Audit
- ☐ Rating
- ☐ Other *(please specify):*

Review provider(s):

Date of publication:

ABOUT ROLE(S) OF INDEPENDENT REVIEW PROVIDERS AS DEFINED BY THE GBP

i. Second-Party Opinion: An institution with environmental expertise, that is independent from the issuer may issue a Second-Party Opinion. The institution should be independent from the issuer's adviser for its Green Bond framework, or appropriate procedures, such as information barriers, will have been implemented within the institution to ensure the independence of the Second-Party Opinion. It normally entails an assessment of the alignment with the Green Bond Principles. In particular, it can include an assessment of the issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability, and an evaluation of the environmental features of the type of projects intended for the Use of Proceeds.

ii. Verification: An issuer can obtain independent verification against a designated set of criteria, typically pertaining to business processes and/or environmental criteria. Verification may focus on alignment with internal or external standards or claims made by the issuer. Also, evaluation of the environmentally sustainable features of underlying assets may be termed verification and may reference external criteria. Assurance or attestation regarding an issuer's internal tracking method for use of proceeds, allocation of funds from Green Bond proceeds, statement of environmental impact or alignment of reporting with the GBP, may also be termed verification.

iii. Certification: An issuer can have its Green Bond or associated Green Bond framework or Use of Proceeds certified against a recognised external green standard or label. A standard or label defines specific criteria, and alignment with such criteria is normally tested by qualified, accredited third parties, which may verify consistency with the certification criteria.

iv. Green Bond Scoring/Rating: An issuer can have its Green Bond, associated Green Bond framework or a key feature such as Use of Proceeds evaluated or assessed by qualified third parties, such as specialised research providers or rating agencies, according to an established scoring/rating methodology. The output may include a focus on environmental performance data, the process relative to the GBP, or another benchmark, such as a 2-degree climate change scenario. Such scoring/rating is distinct from credit ratings, which may nonetheless reflect material environmental risks.

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Largest Verifier for Certified Climate Bonds in Deal volume in 2020 & Largest External Review Provider in 2020

Environmental Finance Bond Awards 2021 Winner
External assessment provider of the year

Named
2015: Best SRI or Green Bond Research or Rating Firm
2017, 2018, 2019: Most Impressive Second Opinion Provider