AvalonBay Communities - Climate Change 2020

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

As of December 31, 2019, the Company owned or held a direct or indirect ownership interest in 297 apartment communities containing 86,846 apartment homes in 11 states and the District of Columbia, of which 22 communities were under development and two communities were under redevelopment. The Company is an equity REIT in the business of developing, redeveloping, acquiring and managing apartment communities in leading metropolitan areas primarily in New England, the New York/New Jersey Metro area, the Mid-Atlantic, the Pacific Northwest, and the Northern and Southern California regions of the United States. More information may be found on the Company's website at http://www.avalonbay.com. More information on our sustainability and corporate responsibility initiatives, including our 2020 goals, can be found here: https://www.avaloncommunities.com/about-us/corporate-responsibility.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2019	December 31 2019	No	<Not Applicable>

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-CN0.7/C-RE0.7

(C-CN0.7/C-RE0.7) Which real estate and/or construction activities does your organization engage in?

New construction or major renovation of buildings
Buildings management

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Financial Officer (CFO)	The Corporate Responsibility function reports into our Chief Financial Officer (CFO), who reports directly to the CEO, and includes our environmental and social performance and programs, including the strategy and programs related to climate change issues, climate mitigation, decarbonization, and Scope 1, 2 and 3 emissions reductions. Our CFO also works directly with another sponsor of the program, our Chief Investment Officer (CIO) who holds responsibility for climate and sustainability-related issues relative to the investments made in our 300 property portfolio. Both the CFO and CIO are responsible for future company direction and strategy, and oversee and ensure that sustainability and climate issues are integrated into the Company's operations and strategy. Our recent decision to set approved science-based targets and to enact our renewable energy strategy are a good example of a decision made in concert with the CFO/CIO and our Corporate Responsibility Committee.
Board-level committee	The Vice President of Corporate Responsibility and Energy Management, in concert with the CFO and CIO, reports annually on CR progress and strategy to the Nominating and Corporate Governance (NCG) Committee of the AvalonBay Board of Directors. The NCG Charter specifically states that the NCG will: “Review Matters Pertaining to Corporate Social Responsibility, Charitable Giving, and Political Policy and Spending. At least annually, the Committee shall perform a review and evaluation of (i) the Company’s policy and reporting on corporate social responsibility, including charitable giving policies and activities, and (ii) the Company’s Policy on Political Contributions and Government Relations, including the contributions and expenditures made by the Company in accordance with such policy.” Under the Corporate Social Responsibility component lies all of our environmental sustainability progress/efforts/policies and our climate-related issues.

C1.1b

(C1.1b) Provide further details on the board’s oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy	<Not Applicable>	The Vice President of Corporate Responsibility, Chief Investment Officer and Chief Financial Officer meet, at a minimum, annually with the Nominating and Corporate Governance Committee of the AvalonBay Board and periodically with the full AvalonBay Board to discuss the Corporate Responsibility program, including climate-related issues. The most recent meeting, for example, included the following agenda items: 2020 CR Goals Progress and new 2025 Goals Our Science-Based Targets Building Strong Communities Climate Change and Mitigation Plans for 2020 The Board Committee offers input, critique and clarifying questions on the function's strategy and the items on the agenda. When needed we will meet more frequently than the once yearly meeting.
Scheduled – some meetings	Monitoring implementation and performance of objectives	<Not Applicable>	The Vice President of Corporate Responsibility, Chief Investment Officer and Chief Financial Officer meet, at a minimum, annually with the Nominating and Corporate Governance Committee of the AvalonBay Board and periodically with the full AvalonBay Board to discuss the Corporate Responsibility program, including climate-related issues. The most recent meeting, for example, included the following agenda items: 2020 CR Goals Progress and new 2025 Goals Our Science-Based Targets Building Strong Communities Climate Change and Mitigation Plans for 2020 This Board Committee offers input, critique and clarifying questions on the function's strategy and the items on the agenda. When needed we will meet more frequently than the once yearly meeting.
Scheduled – some meetings	Reviewing and guiding risk management policies	<Not Applicable>	The Vice President of Corporate Responsibility, Chief Investment Officer and Chief Financial Officer meet, at a minimum, annually with the Nominating and Corporate Governance Committee of the AvalonBay Board and periodically with the full AvalonBay Board to discuss the Corporate Responsibility program, including climate-related issues. The most recent meeting, for example, included the following agenda items: 2020 CR Goals Progress and new 2025 Goals Our Science-Based Targets Building Strong Communities Climate Change and Mitigation Plans for 2020 This Board Committee offers input, critique and clarifying questions on the function's strategy and the items on the agenda. When needed we will meet more frequently than the once yearly meeting.
Scheduled – some meetings	Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	The Vice President of Corporate Responsibility, Chief Investment Officer and Chief Financial Officer meet, at a minimum, annually with the Nominating and Corporate Governance Committee of the AvalonBay Board and periodically with the full AvalonBay Board to discuss the Corporate Responsibility program, including climate-related issues. The most recent meeting, for example, included the following agenda items: 2020 CR Goals Progress and new 2025 Goals Our Science-Based Targets Building Strong Communities Climate Change and Mitigation Plans for 2020 This Board Committee offers input, critique and clarifying questions on the function's strategy and the items on the agenda. When needed we will meet more frequently than the once yearly meeting.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Financial Officer (CFO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly
Chief Executive Officer (CEO)	<Not Applicable>	Assessing climate-related risks and opportunities	<Not Applicable>	Half-yearly
Corporate responsibility committee	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Description of highest management-level positions and committees with responsibility for climate-related issues, their responsibilities and where they sit:

CFO – Executive sponsor of the function
CFO - RESPONSIBILITIES: Overall executive sponsor and sponsors all CR- and Climate-related activities
CFO - WHERE HE SITS: Reports to the CEO

Chief Investment Officer (CIO) – The VPCR reports in a dotted line fashion into the Chief Investment Officer due to his responsibility for our 300 building portfolio.
CIO - RESPONSIBILITIES: Interfaces with the CFO and VPCR on issues related to the portfolio, including, but not limited to, climate change risk, portfolio investments relative to resiliency, and acquisitions and dispositions.
CIO - WHERE HE SITS: Reports to the CEO

Vice President of Corporate Responsibility (VPCR) – leads the CR function and manages it day-to-day.
VPCR – RESPONSIBILITIES:
• Establish Company ESG Goals, including our approved Science-Based Targets, and reporting transparently on these goals annually in our CR Report.
• Implementing CR programming and report on progress and issues related to climate risk and opportunity. This includes the over $13M investment made in LED lighting (now saving the Company over $3M annually) and the renewable energy strategy which has installed solar at 26 AvalonBay Communities in 2019, including Eaves Warner Center (72kW), Studio City II (69kW), AVA Pasadena (69kW), Walnut Creek (30kW), Cahill Park (213kW), and Willow Glen (129kW), among others.
In addition, we will begin scoping another 26 AvalonBay communities in California, New Jersey, New York and Massachusetts in 2020.
• Regularly reviewing CR objectives and potential impacts of climate change on our business with the company's CFO.
• Keeping an active log of business-related CR risks and opportunities.
• Updating our Board of Directors and other senior officers on climate-related issues, including progress on our Science-Based Targets.
• Chairing the CR Governance structure.
VPCR - WHERE HE SITS: Reports to the CFO

CR Committee – Chaired by the VPCR this cross-functional management committee meets every-other month and collaborates to achieve CR-related goals, including our climate-related goals and Science-Based Targets.
CR Committee – RESPONSIBILITIES:
• Ensures all strategic climate-related initiatives are tracked, made operational and measured
• Provides cross-functional input and collaboration to complex implementation issues
CR Committee – WHERE IT SITS: Chaired by VPCR, this cross-functional group meets in our Corporate Headquarters.

Rationale of Why Responsibilities for Climate-Related Issues Have Been Assigned to this/these position(s) or committee(s):

The VPCR has full-time responsibility for the CR function and climate-related issues, and reports directly to the Chief Financial Officer (CFO), who, in-turn, reports to the Chief Executive Officer (CEO). Responsibility lies in this line of reporting for two reasons: 1) the CEO initialized the function in the company and has responsibility for reporting to the Company's full Board of Directors, and 2) the CFO took over management of the function due to its increasing importance to our stakeholders and to the Company as a whole. Placing the function in his organization ensures it tied to our investor relations, finance and highest management functions. Continued engagement with the Chief Investment Officer is ongoing because of the importance of integrating climate-related issues into how we manage the portfolio.

How Climate-Related Issues are Monitored

The process for identifying and monitoring climate-related issues includes annual strategic planning, industry participation and surveys of customers, associates, suppliers and board members. Issues are then placed on the agenda for the CR Committee and discussed in monthly (or more frequent) meetings with the CFO. In addition, the CFO and VPCR report climate-related issues to, and engage in an annual or more frequent dialogue with, the Nominating and Corporate Governance Committee of the Board of Directors. Progress against our goals is reviewed, and the board provides input on strategic direction and issues related to climate change risks and opportunities.

For example, in 2017 the VPCR conducted a comprehensive review of our real-estate portfolio for risks related to climate change, stronger storms and other natural disasters. The report was presented the CEO and other executive officers and to the full AvalonBay Board of Directors. The analysis spawned a series of actions, including the effort to set and have approved Science-Based Targets (SBTs), pilot programs to study asset-level climate-risks in order to inform new developments, acquisition strategy and disposition strategy, and the execution of significant onsite solar investment program. The SBT's were approved in 2019, and we are now planning for their implementation in 2020 and beyond, which will push us further on renewables and emissions reductions.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	In 2019 the AvalonBay Board approved a new incentive compensation program for all associates. Included among the metrics of that program is an item related to ESG performance of the Company - a threshold related to our Global Real Estate Sustainability Benchmark (GRESB) score. Both AVB Management and the Board recognize the fundamental importance of ESG performance to the Company, and so have determined that one important touch-point for driving this performance is the integration of an ESG measure into incentive compensation. The GRESB score is based on a series of metrics related to Environmental, Social and Governance performance. Included in those metrics are a series of ratings related to the management of climate-related issues and includes the attainment of and third-party verification of targets. This change to our incentive compensation system complements the additional measures outlined in the answers to this question in C1.3a.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity inventivized	Comment
Executive officer	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target	The Vice President of Corporate Responsibility is responsible for all programs related to climate (including energy and water reduction targets and our approach to climate change, stronger/more frequent storms and other risks and opportunities) as well as the Company's ESG goals (targets), including our approved Science-Based Targets. A meaningful portion of the VPCR's incentive compensation package is related to achievement of a variety of climate-related initiatives and our Goals.
All employees	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Behavior change related indicator	Our monetary Sustainability award is given twice a year to those individual employees or teams who advance AvalonBay's sustainability objectives and support achievement of our energy and water reduction targets and our Science-Based Targets.
All employees	Monetary reward	Other (please specify) (Water Reduction on Target)	Our monetary Sustainability award is given twice a year to those individual employees or teams who advance AvalonBay's sustainability objectives and support achievement of our energy and water reduction targets and our Science-Based Targets.
Executive officer	Monetary reward	Supply chain engagement	The Vice President of Corporate Responsibility leads our responsible supply chain program, which is based on our principles, located here: https://www.avaloncommunities.com/~/media/Files/CorporateResponsibility/SupplyChainPolicy.pdf?la=en. A meaningful portion of the VPCR's incentive compensation package is related to achievement of a variety of climate-related initiatives.
Other C-Suite Officer	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target	Our Chief Investment Officer provided important sponsorship to the Corporate Responsibility function and is rewarded and evaluated in-part on how well the function achieves its goals during the year and the progress against the targets defined by the function.
Chief Financial Officer (CFO)	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target	Our Chief Financial Officer oversees the the Corporate Responsibility function (it reports directly into him) and is rewarded and evaluated in-part on how well the function achieves its goals during the year and the progress against the targets defined by the function, including those related to our approved Science-Based emissions targets.
Corporate executive team	Monetary reward	Company performance against a climate-related sustainability index	In 2019 the AvalonBay Board approved a new incentive compensation program for all associates. Included among the metrics of that program is an item related to ESG performance of the Company - a threshold related to our Global Real Estate Sustainability Benchmark (GRESB) score. Both AVB Management and the Board recognize the fundamental importance of ESG performance to the Company, and so have determined that one important touch-point for driving this performance is the integration of an ESG measure into incentive compensation. The GRESB score is based on a series of metrics related to Environmental, Social and Governance performance. Included in those metrics are a series of ratings related to the management of climate-related issues and includes the attainment of and third-party verification of targets.
Management group	Monetary reward	Company performance against a climate-related sustainability index	In 2019 the AvalonBay Board approved a new incentive compensation program for all associates. Included among the metrics of that program is an item related to ESG performance of the Company - a threshold related to our Global Real Estate Sustainability Benchmark (GRESB) score. Both AVB Management and the Board recognize the fundamental importance of ESG performance to the Company, and so have determined that one important touch-point for driving this performance is the integration of an ESG measure into incentive compensation. The GRESB score is based on a series of metrics related to Environmental, Social and Governance performance. Included in those metrics are a series of ratings related to the management of climate-related issues and includes the attainment of and third-party verification of targets.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	Anything up to 3 years is considered short term for planning related to climate-related risks. Generally the Company's internal planning processes align with this definition for all types of departmental and strategic planning.
Medium-term	3	8	Anything between 3 years or more and up to 8 years is considered Medium-Term for planning related to climate-related risks. Generally the Company's internal planning processes align with this definition for all types of departmental and strategic planning.
Long-term	8	20	Anything more than 8 years is considered long-term for planning related to climate-related risks. Generally the Company's internal planning processes align with this definition for all types of departmental and strategic planning.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

AvalonBay identifies and assesses climate-related risks in concert with a definition of "substantive financial or strategic impact" to the business with the following characteristics:
1) The risk, if not mitigated, may affect more than one market in which we do business, or
2) The risk, if not mitigated, may cause a reduction in operating income greater than 2%, or
3) The risk, if not mitigated, may jeopardize our customer loyalty score (Net Promoter Score) by more than 5%, or
4) While the risk, if not mitigated, may only affect one market, it may be so detrimental to either operating income (greater than 10%) or Net Promoter Score (greater than 15%) that we will consider it substantive within that market and require action.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered
Direct operations

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Medium-term

Description of process
The process used to determine which risks and opportunities could have a substantive financial or strategic impact on the organization: The VP of Corporate Responsibility leads a risk identification process for climate-related risks that is based on three main sources of information: 1) Our climate-risk portfolio analysis 2) Individual building climate-risk analyses 3) Wide-ranging and ongoing discussions with local and state government leaders of sustainability, industry experts, non-governmental organizations, and various internal stakeholders Risk are then identified and categorized based on their financial or strategic impact to the organization. They are grouped into immediate or short-term risks, medium-term risks and long-term risks. The magnitude of the impact either financially or strategically is identified. Larger magnitude impact risks are then integrated into AvalonBay's enterprise risk management (ERM) process, led by our Vice President of Risk Management. Each year, the VP-Risk Management reviews and discusses enterprise risk management matters with the Board of Directors, including the climate-related risks. Opportunities are similarly identified, and integrated into the annual capital plan for the CR Function which is led by the VP of CR. How your organization makes decisions to mitigate, transfer, accept or control the identified climate-related risks and to capitalize on opportunities. If risks fall into a high financial or organizational impact, they are mitigated. If high-value opportunities are identified, they are put on the plan for investment. If the risks/opportunities fall outside the thresholds we have set (proprietary) for high financial/organizational impact, they are monitored ongoing to determine if they would cross over that threshold. Opportunities and even risk mitigation often requires capital funding to achieve/mitigate, therefore annually the Vice President of CR develops a strategic plan for the CR function and outlines the various initiatives that will be conducted in the coming year. Consequent to this plan is a Capital Expenditure (Capex) plan which outlines the investments to be made on each initiative. As part of this process the VP of CR engages the Corporate Responsibility Committee, and a review is conducted of the various high-impact (and to be mitigated) climate-related risks and high value opportunities. Over the course of several meetings, these risks and opportunities are aligned to the strategies outlined in the annual strategic plan, and initiatives are developed for consideration of near and medium-term funding. Example Transitional - Technology: An excellent example of how this risk/opportunity process has been employed is our LED lighting retrofit, identified as both and opportunity and a risk mitigation strategy relative to emissions reductions designed to limit climate change. Once identified funding was allocated to comprehensively retrofit our existing portfolio to LED. To date we have invested $12.7M on 175 LED retrofits, reaching over 60% of our portfolio. Our LED retrofits completed to-date now provide $3.1 million and 17.4 million kWh in annual energy savings, significantly contributing to our emissions reductions. This investment in more efficient operational equipment will continue to be a key part of how we achieve our approved science-based targets. Example Physical – Frequency and Intensity of Storms In 2018 the VP of Corporate Responsibility, in conjunction with our Chief Investment Officer, analyzed our portfolio for risks associated with chronic climate-change-related events. These included sea-level rise modeling and longer and more intense wildfire seasons in the West. In addition we looked at earthquake potential and liquefaction in our Western markets. As a result of this analysis, we set in motion plans to do enhanced asset-level planning for mitigation investments in relation to climate change. In 2019 we engaged an outside expert vendor to develop a report for a densification project at one of our NJ properties, for example. Our plans in 2020 include piloting additional property-specific climate risk reports, with the eventual intent to settle on a standard report and analysis that can be used in our new developments and acquisitions, as well as a wider portfolio analysis in applicable regions to determine a type of climate-risk “heat map.” This improved analysis will help us better understand

and assess climate-related risks when making capital investment decisions.

Value chain stage(s) covered
Upstream

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Short-term

Description of process
The process used to determine which risks and opportunities could have a substantive financial or strategic impact on the organization: The VP of Corporate Responsibility leads a risk identification process for climate-related risks that is based on three main sources of information: 1) Our climate-risk portfolio analysis 2) Individual building climate-risk analyses 3) Wide-ranging and ongoing discussions with local and state government leaders of sustainability, industry experts, non-governmental organizations, and various internal stakeholders Risk are then identified and categorized based on their financial or strategic impact to the organization. They are grouped into immediate or short-term risks, medium-term risks and long-term risks. The magnitude of the impact either financially or strategically is identified. Larger magnitude impact risks are then integrated into AvalonBay's enterprise risk management (ERM) process, led by our Vice President of Risk Management. Each year, the VP-Risk Management reviews and discusses enterprise risk management matters with the Board of Directors, including the climate-related risks. Opportunities are similarly identified, and integrated into the annual capital plan for the CR Function which is led by the VP of CR. How your organization makes decisions to mitigate, transfer, accept or control the identified climate-related risks and to capitalize on opportunities. If risks fall into a high financial or organizational impact, they are mitigated. If high-value opportunities are identified, they are put on the plan for investment. If the risks/opportunities fall outside the thresholds we have set (proprietary) for high financial/organizational impact, they are monitored ongoing to determine if they would cross over that threshold. Opportunities and even risk mitigation often requires capital funding to achieve/mitigate, therefore annually the Vice President of CR develops a strategic plan for the CR function and outlines the various initiatives that will be conducted in the coming year. Consequent to this plan is a Capital Expenditure (Capex) plan which outlines the investments to be made on each initiative. As part of this process the VP of CR engages the Corporate Responsibility Committee, and a review is conducted of the various high-impact (and to be mitigated) climate-related risks and high value opportunities. Over the course of several meetings, these risks and opportunities are aligned to the strategies outlined in the annual strategic plan, and initiatives are developed for consideration of near and medium-term funding. Example Transitional - Policies An excellent example of this in terms of upstream risks/opportunities relates to New York's Local Law 97, which sets increasingly stringent limits on carbon emissions per square foot in 2024. As noted in the preceding section on how we identify risks/opportunities, we regularly have conversations with localities and participate in their programs as a means to identify upcoming risks/opportunities. Therefore, through part of our ongoing participation in the NYC Carbon Challenge and Retrofit Accelerator, we were able to begin planning for the new law ahead of its passing, thereby developing a scenario analysis of this law that allowed us to see the impact it could have on our NY portfolio. This planning has served us well in tying our planning together for the emissions reductions of the affected properties and coordinating our response across departments, leveraging what we are already doing to reduce consumption, improve equipment efficiency, and achieve our approved science-based targets. Example Physical – Frequency and Intensity of Storms Led by the Vice President of Corporate Responsibility, we now have a market-by-market analysis of our portfolio with respect to climate change and issues of sea-level rise, stronger storms and more frequent storms. Using various sources, including local city studies such as the New York City Panel on Climate Change's 2015 Report and the City of Boston's "Climate Ready Boston" report, we now better understand climate-related issues in our markets. This analysis is undergoing review at the senior management level, and will help inform decisions being made on where and how to build going into the future, with design and construction standards changes anticipated to ensure greater resiliency. As our cities and the markets in which we do business continue to move in the direction of better climate mitigation, we know we have a significant role to play in making our buildings responsive to potential regulation or policies relative to climate mitigation. We therefore are looking at a variety of measures, including: Sump pumps, Storm blockers and rapidly deployable flood barriers, window upgrades, temporary door protective barriers, emergency generators (often already on-site), and potable water equipment. In this example our analysis can help us mitigate potential future market requirements and take advantage of opportunities to make our properties more resilient.

Value chain stage(s) covered
Downstream

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Long-term

Description of process
The process used to determine which risks and opportunities could have a substantive financial or strategic impact on the organization: The VP of Corporate Responsibility leads a risk identification process for climate-related risks that is based on three main sources of information: 1) Our climate-risk portfolio analysis 2) Individual building climate-risk analyses 3) Wide-ranging and ongoing discussions with local and state government leaders of sustainability, industry experts, non-governmental organizations, and various internal stakeholders Risk are then identified and categorized based on their financial or strategic impact to the organization. They are grouped into immediate or short-term risks, medium-term risks and long-term risks. The magnitude of the impact either financially or strategically is identified. Larger magnitude impact risks are then integrated into AvalonBay's enterprise risk management (ERM) process, led by our Vice President of Risk Management. Each year, the VP-Risk Management reviews and discusses enterprise risk management matters with the Board of Directors, including the climate-related risks. Opportunities are similarly identified, and integrated into the annual capital plan for the CR Function which is led by the VP of CR. How your organization makes decisions to mitigate, transfer, accept or control the identified climate-related risks and to capitalize on opportunities. If risks fall into a high financial or organizational impact, they are mitigated. If high-value opportunities are identified, they are put on the plan for investment. If the risks/opportunities fall outside the thresholds we have set (proprietary) for high financial/organizational impact, they are monitored ongoing to determine if they would cross over that threshold. Opportunities and even risk mitigation often requires capital funding to achieve/mitigate, therefore annually the Vice President of CR develops a strategic plan for the CR function and outlines the various initiatives that will be conducted in the coming year. Consequent to this plan is a Capital Expenditure (Capex) plan which outlines the investments to be made on each initiative. As part of this process the VP of CR engages the Corporate Responsibility Committee, and a review is conducted of the various high-impact (and to be mitigated) climate-related risks and high value opportunities. Over the course of several meetings, these risks and opportunities are aligned to the strategies outlined in the annual strategic plan, and initiatives are developed for consideration of near and medium-term funding. Example Transitional - Markets And excellent example of this on the opportunity side relates to our residents (our clients) moving toward electric vehicles and less vehicle use. As we saw this trend in our markets through market research, we conducted a major internal study of our parking footprint relative to advances in driverless cars. AvalonBay has a large parking footprint across the portfolio and we are looking at this from multiple angles, including increasing car-charging spaces, re-purposing parking structures as driverless cars become more ubiquitous and opening parking beyond the Company's resident population. In addition we are working to provide better electric car charging infrastructure in our properties and the possibility of tying those charging stations into our solar and battery technologies. In 2019 we significantly advanced the charging infrastructure while working with a major battery vendor to expand installations across our portfolio. This planning will culminate in a significant increase in charging infrastructure in our communities across 2020-22. Example Physical – Frequency and Intensity of Storms Stronger storm activity akin to Hurricane Sandy would have deleterious effects on our communities through flooding and disruption of power and water service. These events are requiring us to think through our design for new construction (e.g., moving critical building infrastructure up several floors, installing flood barriers, raising the overall elevation of the

building). And for our residents, we also know that storm disruption is a wider issue that often affects their lives beyond the walls of our communities. That's why our four-year, $1M commitment to the American Red Cross is a partnership designed to leverage their disaster planning resources and to better prepare existing communities in the event of these emergencies. This partnership was renewed for another four years in 2018 and in 2019 continues to form a cornerstone for preparedness and planning of both our associates and our residents. Their resources provide our residents with both advanced planning tools, as well as the ability to connect with friends and family after a disaster has occurred, providing often life-saving communications and connecting our residents in need with the resources, such as prescription medications, they require.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Example of Risk: An example of this relates to New York's Local Law 97, which sets increasingly stringent limits on carbon emissions per square foot in 2024. As part of our ongoing participation in the NYC Carbon Challenge and Retrofit Accelerator, we were able to begin planning for the new law ahead of its passing, thereby developing a scenario analysis of this law that allowed us to see the impact it could have on our NY portfolio. This planning has served us well in tying our planning together for the emissions reductions of the affected properties and coordinate our response across departments, leveraging what we are already doing to reduce consumption, improve equipment efficiency, and achieve our approved science-based targets.
Emerging regulation	Relevant, always included	Example of Risk An example of this relates to the current conversations the VP of CR is having with Boston's Green Ribbon Commission relative to new climate change and building resiliency statutes that the city is considering to improve resiliency related to sea level rise and stronger, more frequent storms. We anticipate that this will affect a number of our Boston properties, including the most recent, Avalon North Point. In 2019 we created a task force to address these Boston regulations, comprised of a cross-functional group from CR, Engineering, Residential Services' maintenance teams and our development teams. This Task Force is a good example of how the climate-related risk analysis related to emerging regulations translates into business planning to address them.
Technology	Relevant, sometimes included	Example of Risk: And example, currently, is our major internal study of our parking footprint relative to advances in driverless cars. AvalonBay has a large parking footprint across the portfolio and we are looking at this from multiple angles, including increasing car-charging spaces, re-purposing parking structures as driverless cars become more ubiquitous and opening parking beyond the Company's resident population. In addition we are working to provide better electric car charging infrastructure in our properties and the possibility of tying those charging stations into our solar and battery technologies. In 2019 we significantly advanced the charging infrastructure while working with a major battery vendor to expand installations across our portfolio. This planning will culminate in a significant increase in charging infrastructure in our communities across 2020-22.
Legal	Relevant, sometimes included	Example of Risk: An example here includes legislation enacted in NYC, Washington, DC, San Francisco and other markets to move to a low-no carbon building infrastructure and assess compliance related to building efficiency and emissions. While we do not anticipate being out of compliance with the new legislation and, in fact, plan to lead in this space, we have to be prepared for it from a legal standpoint. Our move to set approved Science-Based Emissions Reductions Targets and our significant progress in 2019 on our renewable energy strategy both support this effort to comply.
Market	Relevant, always included	Example of Risk: An example here includes the ongoing conversations the VP of CR has with each AvalonBay Market's sustainability leaders during 2019 to better understand their plans for climate change, emissions reductions, environmental risks and stronger storm cycles, and to offer support to innovative ideas regarding the build environment's contribution to solutions. These ongoing conversations happen periodically with the heads of sustainability in Boston, NYC, Washington, DC, San Diego, Los Angeles, San Francisco and Seattle.
Reputation	Relevant, sometimes included	Example of Risk: An example of this includes the recent drought in the West which led to some residents "water shaming" AvalonBay, particularly in our Los Angeles portfolio, for alleged wasting of water. These reputational "dings" were quickly addressed as a result of our Water Savings Task Force which outlined a set of operational and policy changes related to water savings and efficiency, including shutting down fountains, eliminating power washing, and retrofitting all of our common area fixtures with low-flow devices. We also anticipate some there could be come impact associated with emissions reductions and low carbon buildings, hence why we have set approved Science-Based Targets and are shifting our focus to Scope 1, 2 and 3 emissions reductions and reporting.
Acute physical	Relevant, always included	Example of Risk In 2017 the VPCR conducted a comprehensive review of our real-estate portfolio for risks related to climate change, stronger storms and other natural disasters in each region where we operate. The report from this review has been presented to the CEO and is now informing resiliency planning for the Company. In 2018 it was presented to other senior officers and the AvalonBay Board and a result of these conversations was the move to set approved Science-Based emissions reduction targets in 2019. Further in 2019 we paid an expert vendor to produce a comprehensive physical climate-related risks into our planning for a densification project at Avalon Cove. We are now exploring ways to include this type of analysis more broadly in our investment decisions related to new developments, redevelopments and acquisitions and divestitures.
Chronic physical	Relevant, always included	Example of Risk In 2017 the VPCR conducted a comprehensive review of our real-estate portfolio for risks related to climate change, stronger storms and other natural disasters in each region where we operate. The report from this review has been presented to the CEO and is now informing resiliency planning for the Company. In 2018 it was presented to other senior officers and the AvalonBay Board and a result of these conversations was the move to set approved Science-Based emissions reduction targets in 2019. Further in 2019 we paid an expert vendor to produce one of their comprehensive reports on physical climate-related risks into our planning for a densification project at Avalon Cove. We are now exploring ways to include this type of analysis more broadly in our investment decisions related to new developments, redevelopments and acquisitions and divestitures.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Increased severity and frequency of extreme weather events such as cyclones and floods

Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description
Stronger storm activity akin to Hurricane Sandy could have deleterious effects on our communities through flooding and disruption of power and water service. These events are requiring us to think through our design for new construction (e.g., moving critical building infrastructure up several floors, installing flood barriers, raising the overall elevation of the building). In addition, our four-year, $1M commitment to the American Red Cross is a partnership designed to leverage their disaster planning resources and to better prepare existing communities in the event of these emergencies. This partnership was renewed for another four years in 2018 and in 2019 continues to form a cornerstone for preparedness and planning of both our associates and our residents.

Time horizon
Short-term

Likelihood
More likely than not

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
2000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Construction expense increases for disaster preparedness and resiliency are a function of the building type, location where it is constructed and overall design. Therefore as a % of the cost of a new building's construction the costs to improve resiliency through activities like improving storm water runoff, raising the building and designing equipment to reside on higher floors as part of the design/construction process can vary widely. Generally we estimate them to run anywhere from 0.5% to 3% of the total construction cost, depending, again, on the factors outlined above. A recent development in the northeast required just such measures, costing approximately $2.5 - 3.0M in cost against a total cost of 117M, or 2-2.5%. In addition, we know from the experience of Hurricane Sandy that the cost to repair storm damage can be variable depending on the location of the property and the amount of resiliency built into the property. In one example, a property we own that was hit by Hurricane Sandy required over $2M in renovations done as a result of the storm. Part of this was in repair to the building itself, but other components including moving equipment and better preparing the building for future storms. Hence we estimate the financial impact to run at up to $2M per property. Thankfully, however, we have only a handful of properties at this level of potential risk in the portfolio. The cost to mitigate/respond to the risk is anticipated to be $325,000 for building resilience into that subset of properties where we are most at risk.

Cost of response to risk
325000

Description of response and explanation of cost calculation
We are managing this on two fronts: 1) The Vice President of CR, in coordination with our risk management team and Chief Investment Officer are analyzing our buildings for exposure to increasing storm and flooding activity. 2) Our Vice President of CR has established a team of regional liaisons that he meets with monthly to coordinate disaster preparedness activities in coordination with the American Red Cross in each region. In 2019 this process was put into full effect with a series of local disasters, including a coordinated response to the recent California wildfires and consequential grid shutdowns. Coordination between AVB and the Red Cross began as soon as we knew disaster had happened, and we began communication with our onsite associates and our residents early, ensuring they the necessary life-safety resources. This early preparation and coordination with the Red Cross and our team ensured a number of very positive outcomes: 1) all our residents and associates were ultimately safe, 2) we sustained minimal property damage, and 3) our properties were able to continue to operate with minimal deleterious effect. We have budgeted a $250,000 annual donation to the American Red Cross which supports the preparedness activities. The climate change and sea level rise analysis which we currently are integrating into our new development, redevelopment and disposition and acquisition activity is estimated to cost about $50,000 -75,000 depending on how many communities/projects we analyze annually.

Comment

Identifier
Risk 2

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Chronic physical	Rising sea levels

Primary potential financial impact
Increased capital expenditures

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
In 2018 the VP of Corporate Responsibility, in conjunction with our Chief Investment Officer, analyzed our portfolio for risks associated with chronic climate-change-related events. These included sea-level rise modeling and longer and more intense wildfire seasons in the West. In addition we looked at earthquake potential and liquefaction in our Western markets. We determined that changes in sea level and strong storms associated with climate change could likely negatively impact only 5 properties on the East Coast related to sea-level rise and 5 properties on the West Coast primarily related to liquefaction and seismic activity. These properties represent less than 5% of our gross asset valuation. And the analysis was presented to the AvalonBay Board of Directors in 2018 and we now are establishing further business processes to integrate these types of climate-related risk analyses into our management investment reviews. In 2019 we engaged 427 to develop a report for a densification project at one of our NJ properties, for example. Our plans in 2020 include piloting additional property-specific climate risk reports, with the eventual intent to settle on a standard report and analysis that can be used in our new developments and acquisitions, as well as a wider portfolio analysis in applicable regions to determine a type of climate-risk “heat map.”

Time horizon
Long-term

Likelihood
About as likely as not

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
100000

Potential financial impact figure – maximum (currency)
200000

Explanation of financial impact figure
This risk could affect which sub-markets we build in and have moderate financial implications for our development and redevelopment budgets. Based on our calculations of how other weather-related events have affected insurance costs on various properties (e.g., earthquake coverage in CA), we estimate that it may also impact our insurance costs, raising them in the long-term by 1-3% or $100,000 to $200,000. In addition, the costs associated with making a new property more resilient by raising elevations and moving equipment locations is too site and property specific to calculate generically.

Cost of response to risk

Description of response and explanation of cost calculation
Led by the Vice President of Corporate Responsibility, we now have a market-by-market analysis of our portfolio with respect to climate change and issues of sea-level rise, stronger storms and more frequent storms. Using various sources, including local city studies such as the New York City Panel on Climate Change's 2015 Report and the City of Boston's "Climate Ready Boston" report, we now understand where we have the greatest chronic physical risk vulnerability within our current portfolio. This analysis is undergoing review at the senior management level, and will inform decisions being made on where and how to build going into the future, with design and construction standards changes anticipated to ensure greater resiliency. The costs associated with making a property more resilient is very building and location specific. And so for the purposes of this calculation ($100,000) we looked at the variety of measures that could be employed on the properties where we are at risk (currently 5 on the East Coast) and estimated potential per-property investments depending on the solutions chosen. These solutions include a variety of measures, including: Sump pumps (roughly $750 each), Storm blockers and rapidly deployable flood barriers (Can run from $400 each for the blockers to a whole-building solution of $12,000 per building), window upgrades, temporary door protective barriers ($6,500 each), emergency generators (often already on-site), and potable water equipment. We calculate that the costs related to making the five current properties more resilient would run approximately $20,000 per property using pumps, flood blockers and temporary protective barriers. Hence the calculation of 5 properties x $20,000 = 100,000.

Comment

Identifier
Risk 3

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Current regulation	Mandates on and regulation of existing products and services

Primary potential financial impact
Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
In 2019 New York City passed Local Law 97 (LL97) which sets increasingly stringent limits on carbon emissions per square foot in 2024 and ramps those up in 2030 for buildings larger than 25,000 square feet. The law is separate from Local Law 84, to which AvalonBay adheres, requiring annual energy reporting of its properties, although at some point these may be merged as the reporting is similar. LL97 requires buildings larger than 25,000 square feet to meet these emissions limits or risk being fined each year they do not meet them. Since the passage of the law, AvalonBay has done an in-depth study of the portfolio and determined that two properties are potentially at-risk to being fined if the emissions reductions required are not met by 2024. These buildings are already participating as part of our adherence to Local Law 87, requiring building audits and retrofits that outline a roadmap to achieve the carbon emissions targets in Local Law 97. In addition, and as part of the plan to achieve our approved science-based targets, we are reviewing additional measures and investments that will enable AVB to comply with the law and reduce emissions. These could include: energy conservation measures, renewable energy, and/or operational changes similar to what we already enact as part of our building automation and demand response program. As other jurisdictions and markets where we operate expand similar laws related to building carbon emissions, including Washington, DC and Boston, we plan to do similar planning, investment and risk mitigation.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
316000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
If we do nothing the penalties for the two properties where these fines could occur are estimated to be $23,366 annually for Avalon Clinton North and $29,240 for Avalon Clinton South. This aggregates to a total penalty for 2024 when the penalties start through to 2029 of (6 years x $52,606) = $315,636 (rounded to $316,00 in the single figure)

Cost of response to risk
150000

Description of response and explanation of cost calculation
We anticipate the costs required to comply with the law and bring down Avalon Clinton North and Avalon Clinton South emissions run in a range of a one-time cost of approximately $150,000 -that would be offset by annual operating savings of approximately $75,000 - $95,000 depending on the energy conservation measures employed. These do not include costs related to onsite solar generation or renewable energy procurement, which are additional options being considered.

Comment

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?
Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Opp1

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Other, please specify (Development and/or expansion of low emission goods and services)

Primary potential financial impact
Reduced indirect (operating) costs

Company-specific description
In the course of developing our communities we continually look for ways to build more efficient units, lower building energy and water costs and reduce our emissions. Improving product efficiency regulations and standards as well as energy codes and standards could support our efficiency efforts by improving the products we use to build the building and the apartment homes, as well as influence how we procure energy. For example, we completed construction of 7 apartment communities in 2019, representing 2,027 apartment homes. Thanks to our sustainability standards for new construction, these new communities will generate 311,245 kWh in electricity savings per year, a 30% reduction in heating and cooling costs, and 18.8M gallons of water savings per year compared to minimum code requirements. These savings translate into thousands of dollars saved across our portfolio in utility costs. In addition, regulation changes that require more efficient buildings could create a broader market for more efficient building products, thereby resulting in better pricing and performance of our buildings.

Time horizon
Short-term

Likelihood
Likely

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
250000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Product efficiency would potentially lower operating costs 250,000 a year and be attractive to our residents. There is potential savings in their utility bills of 3-5% (e.g., by using EnergyStar rated appliances, for example, as well as the efficiencies which result from a new building) and potential brand-uplift to AvalonBay as we attract residents who care about environmental sustainability. In addition, we may see more favorable pricing and building performance as we attract residents who care about living in a greener apartment home. These calculations are based on calculations made for our green labeling program, which calculates the efficiency and utility savings of an individual apartment home we build new vs. existing stock in the neighborhood that surrounds our community. Those calculations are based on energy modeling of our building systems and their performance as well as building envelope inputs (how tight is the building) to determine the potential future savings.

Cost to realize opportunity
50000

Strategy to realize opportunity and explanation of cost calculation
Our design and construction teams in conjunction with our Corporate Responsibility team communicate regularly with internal and external stakeholders (construction/design teams and partners) on changes in product efficiency regulations and standards. A good example of this is our new solar construction standard, which was written in the light of standards being developed in several key markets, including California, as well as code requirements. This standard has now been promulgated as part of our official construction standards, which are used in all new and redevelopment construction projects. Management costs are calculated by estimating employee time in the design and sustainability functions. It could also be impacted by changes in, for example, the size of appliances. A good example of this relates to the new regulations around water heater efficiency. This is causing the water heaters themselves to be larger in size, and we are having to scope utility rooms in our apartments that are larger as a consequence. This is potentially adding costs to our construction and retrofit/redevelopment budgets.

Comment

Identifier
Opp2

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Reduced water usage and consumption

Primary potential financial impact
Reduced indirect (operating) costs

Company-specific description
In areas where our communities are experiencing extreme droughts we are finding good return on investment in implementing more efficient weather-based irrigation controls. This is enabling us to implement more efficient watering systems, thereby reducing our overall watering costs significantly. It is also a potential attraction point for prospective residents as we move to increase water efficiency in our apartment homes and lower their costs. Beyond irrigation systems, the California drought is an opportunity for us to look at water consumption and use in all of our communities. in 2019 we reconstituted our California Water Reduction Task Force to more broadly work on water efficiency across the portfolio, where we are looking to continue to drive improvements in efficient fixtures and toilets, improve construction standards, and change operational procedures that could potentially benefit AvalonBay in all of our regions. The testing and implementation of retrofit projects that is being driven by the drought in CA will ultimately benefit the entire AvalonBay portfolio as we move to reduce our water expenses and meet our 2020 Water Use Intensity goal of a 15% drop. In 2019 alone our annual savings from our 29 existing weather-based irrigation installations were $513,671 and over 66 Million gallons of water. That type of return is indicative of what this opportunity represents from a financial perspective.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
500000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
We are seeing significant savings in water bills associated with community landscaping irrigation. For example, we are achieving $513,671 in annual savings from the implementation of our 29 existing weather-based irrigation installations and over 66 Million gallons of water, and are using these figures to model potential future water-based retrofit savings. The annual savings are calculated by comparing the irrigation consumption from a one month to that month's consumption from one year ago, and then multiplying it by the water rate of that given year, and adding all 12 months for an annual number. This number is significant when multiplied across the total number of communities where we could implement a more efficient solution. In addition, the implementation of water task force recommendations on additional water saving measures will continue to drop our water consumption. Through these efforts we reduced our CA water consumption by 12%+ in 2015 (the last year we had implemented a concentrated water savings task force). The new task force anticipates similar results, which will extend to the entire portfolio vs. only the West Coast.

Cost to realize opportunity
100000

Strategy to realize opportunity and explanation of cost calculation
Our design, engineering and sustainability team manages the implementation of weather-based irrigation controls, and we have now installed 21 of these systems in communities in our southern and northern California markets. These installations are now saving 27 million gallons of water and annually save us $150,000 in operating costs. The water and dollar annual savings are calculated by comparing the irrigation consumption from a one month to that month's consumption from one year ago, and then multiplying it by the water rate of that given year and adding all 12 months for an annual number. A multi-disciplinary task force is being led by the Vice President of Corporate Responsibility to drive further water efficiency in California and beyond. The task force includes members of Marketing, Residential Services, Energy & Utilities Management, Engineering and Development. The VP of CR and our energy analyst each receive a weekly report on how the weather-based irrigation systems are performing, including any alerts and outliers that may show leakage. The VP of CR is using the report data to influence other activities to reduce water consumption across the portfolio. We have budgeted almost $1M to make capital improvements to our irrigation systems and to retrofit communities and apartment homes with low flow fixtures and toilets. We estimate annual staff time dedicated to the task force and all water-reduction related activities to be $50-$100k.

Comment

Identifier
Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type
Energy source

Primary climate-related opportunity driver
Use of lower-emission sources of energy

Primary potential financial impact
Reduced indirect (operating) costs

Company-specific description
As the cities in which we do business set targets to move their city to a low carbon, low emission future, we have significant opportunity to move our own sources of energy to a more renewable, lower carbon generation and emissions energy source. In 2018 we installed 777 Kilowatts of renewable power in seven communities, and plan to scale these with 30 more in 2019 and 2020, producing an additional 4.73 MW of power. The installed communities include Avalon at Foxhall Avalon at Gallery Place AVA H Street Avalon The Albemarle The Statesman AVA Van Ness Avalon First and M Avalon Princeton In 2019 we expanded this effort and began installation of solar at 26 AvalonBay Communities, including Eaves Warner Center (72kW), Studio City II (69kW), AVA Pasadena (69kW), Walnut Creek (30kW), Cahill Park (213kW), Willow Glen (129kW), Creekside (64kW), Vista (59kW), Rancho Penasquitos (91kW), Old Town Pasadena (60kW), Dublin Station I (171kW), Dublin Station III (139kW), Pacific Beach (222kW), Toluca Hills (344kW), Morrison Park (127kW), Studio City (130kW), Woodland Hills (497kW), West Valley (209kW), Burbank (231kW), Pleasanton (75kW), San Jose (39kW), Mountain View (658 kW), Campbell (75kW), Foster City (54kW), Burbank (345kW), Studio City III (301kW) In addition, we will begin scoping another 26 AvalonBay communities in California, New Jersey, New York and Massachusetts in 2020. Further, with the approved Science-Based Target in place, we are developing a strategic plan in later 2019 to achieve the goals outlined in our SBT. That plan will include lower emissions sources of energy, as we look to expand our solar, look at new ways of engaging our residents on renewable procurement and additional opportunities related to renewable energy. This opportunity supports our ability to respond to legislation like that enacted recently in our NYC market, the new Emissions Bill "Int. 1253-C" which will limit carbon emissions per square foot for NYC buildings greater than 25,000 square feet (all of our properties).

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
4100000

Potential financial impact figure – maximum (currency)
4500000

Explanation of financial impact figure
The financial impact of solar on the company is now estimated to be a return of $4.1 - 4.5M annually. This is a figure which represents the U.S. Federal Tax Credit, Depreciation, and the savings in utilities from the solar itself. We expect this figure to continue to rise as we start to combine solar and battery technologies, increase our participation in demand response programs (which themselves are on the rise with utilities in our markets), and install more renewable energy across the portfolio.

Cost to realize opportunity
32000000

Strategy to realize opportunity and explanation of cost calculation
In 2016 we established renewable energy strategy for the Company, and have been executing on that strategy in the prior three years. Let by the Vice President of Corporate Responsibility, this involves participation of key vendors, who support the financial analysis, design, contracting and installation of the 30+ solar projects to date. The cost to realize this opportunity, alone, in both hard and soft costs is over $29M In addition, we are integrating efforts related to battery technology (a pilot at Avalon White Plains is providing key learnings here), and our demand response and building automation/data program in the NY, Boston, DC and California markets. Taken together, the strategy will ultimately be in support of and tied to our approved Science-Based Targets to form a cohesive whole, with the Target being the "NorthStar" and the integrated solar-battery-demand response-data programs being the means for achieving decarbonization and a shift to renewable energy sources. These costs add an additional $3M to the solar costs, hence our figure of $32M to realize this opportunity. In parallel we are working on an overall Company renewable energy sourcing strategy as well, to complement and integrate with the onsite solar. As noted we are estimating initial annual savings of $4.1 - 4.5M, which continues to grow. These translate into an IRR of over 14% comprised of utility savings, depreciation and tax credits

Comment

Identifier
Opp4

Where in the value chain does the opportunity occur?
Downstream

Opportunity type
Products and services

Primary climate-related opportunity driver
Shift in consumer preferences

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
AvalonBay has an opportunity to lead in the multi-family space when it comes to the sustainable design, development, construction and operation of our 280 communities. In taking a position of leadership we have an opportunity to improve our reputation with key stakeholders, including those looking to reduce their energy costs by renting with a more efficient and greener multi-family builder. Our internal green labeling system, for example, shows the operational savings and green features prospective residents can expect when renting an AvalonBay apartment home. In addition, in markets like San Francisco, we are trying new innovations like solar pre-heated water

heating and food waste composting, all of which attract prospective residents who care about greener buildings and apartment homes.

Time horizon
Short-term

Likelihood
More likely than not

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
2

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Improving the preference of both prospects and existing residents for the AvalonBay brand has, in certain markets, the potential to increase resident retention 1-2% and has an impact on our some impact on our ability to lease-up new communities more quickly and to retain existing residents at lease-end. This calculation is based on data regarding resident retention which shows the correlation between our net promoter score and retention rates. We know that our positive brand impressions lead to net promoter scores which are higher, and hence we conservatively estimate the 1-2% retention impact as a result. Also, a recent survey of our residents showed that they are more likely to recommend AvalonBay based on our ESG intiatives and performance. Another component of how we calculated this percentage.

Cost to realize opportunity
6500000

Strategy to realize opportunity and explanation of cost calculation
Our Corporate Responsibility (CR) team in coordination with our brand, marketing, communications and PR team manages how sustainability initiatives could support brand uplift. A representative from Marketing/Communications/PR serves on the Corporate Responsibility Committee and ensure that our activities are consistently evaluated from the angle of marketing and branding. For example, a cross-functional team currently being led by the VP of CR currently is installing solar across our portfolio. This initiative has great brand uplift potential, too, as residents can see a sustainability initiative in plain view. Therefore we are working with our marketing and local community management teams to ensure that when solar is installed we are communicating our sustainability commitments effectively to our residents. Already we are seeing significant increases in our Net Promoter Score, a measure of customer loyalty, which increased 93% due to customer engagement efforts, including our sustainability initiatives. With an overall Capex budget in the millions we are putting significant resources behind initiatives that will support environmental improvements and reduce GHG. Our 2018 Capex budget was over $10 million to make these improvements. In 2019 that budget was increased to over $15 million primarily to execute on our renewables strategy and finish installing solar at 7 Washington, D.C. communities and begin installation of 26 CA onsite solar generating systems in 2019.

Comment

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?
Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform its strategy?
Yes, quantitative

C3.1b

(C3.1b) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
Other, please specify (Financial impact of 2 regulatory carbon tax scenarios: 1) The Business Climate Leaders $15/ton CO2e carbon tax, increasing at $10/year; 2) The Climate Leadership Council's $40/ton CO2e carbon tax, increasing at 2% above inflation/year.)	As part of the implementation planning for our approved science-based targets, AvalonBay and the VP of Corporate Responsibility and Energy Management recently conducted a scenario analysis to develop a high-level assessment of the financial impact on AvalonBay Communities of two regulatory scenarios: Scenario 1: The Business Climate Leaders (an action team of Citizens' Climate Lobby) which proposes a $15 per ton of CO2 equivalent carbon tax, covering all principal greenhouse gases, and result in equal charges for each ton of CO2 equivalent emissions potential in each type of fuel or greenhouse gas. This tax would increase at $10 per year and the "entry point" would be at the point where GHGs first enter the economy. Scenario 2: The conservative Climate Leadership Council's proposal is for a $40 carbon tax per ton of CO2 emissions covering only emissions from fossil fuel combustion. This tax is proposed to increase each year, and for the purposes of this scenario we modeled it increasing at 2% per year. The "entry point" would be at the refinery or first point fossil fuels enter the economy. The tax in these two scenarios was modeled over a five-year period using the AvalonBay GHG emissions from a 2019 baseline. Our science-based targets modeling was used for input on emissions. We found that the tax would have a negligible affect on AvalonBay in either scenario. In Scenario 1 the Scope 1 and Scope 2 modeling (most likely scenario to affect AvalonBay) would see the tax go from $1.2M to $4.35M from 2021 to 2025. However, the revenue needed to offset that tax would only be 0.07% in 2021, 0.12% in 2022, 0.17% in 2023, 0.22% in 2024 and 0.27% in 2025. In Scenario 2 the Scope 1 and Scope 2 modeling (most likely scenario to affect AvalonBay) would see the tax go from $3.17M to $3.43M from 2021 to 2025. However, the revenue needed to offset that tax would only be 0.2% in 2021, 0.2% in 2022, 0.2% in 2023, 0.21% in 2024 and 0.21% in 2025. We therefore think that should a climate-related GHG tax come to pass it would be of negligible impact to AvalonBay, while possibly providing a good deal of benefit overall to the industry and other industries.

C3.1d

(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	How our strategy has been influenced by climate-related risks and opportunities and time horizon: As the cities and markets in which we do business push to mitigate climate change and move to a low carbon economy, they are changing codes and existing building emissions reductions. These requirements have had the biggest impact on our products and services (the apartment communities we build and operate) as they have required greater investment in more efficient and lower carbon building materials and systems. Concurrently, however, this has supported an opportunity identified (building more efficiently) which has had a direct effect on our operational costs. More efficient properties lead to higher Net Operating Income (NOI) and lower operational costs. The best example of this interplay between this risk and opportunity has been our investment in LED lighting, which has led to annual savings of over $3.5 Million operationally on an investment that will payback in just under 4 years. And it is now meeting code requirements like Title 24 in CA and in other jurisdictions. Climate Change Adaptation/Mitigation and Most Substantial Strategic Decisions Influenced by these risks/opportunities. As a result of these code and lower emissions requirements, we have made the most strategic decision to date to set approved science-based targets which will set us on a course to reduce our Scope 1, 2 and 3 emissions substantially. In addition, we are making investments to better integrate climate science into our investment decisions through climate risk reports on a per-property basis. Finally, we are working to utilize these risk reports to develop mitigation and adaptation plans for the communities that are most at-risk.
Supply chain and/or value chain	Yes	How our strategy has been influenced by climate-related risks and opportunities and time horizon: As we mitigate the risks associated with increased code and local legislative requirements, we have found that there is an opportunity to engage our supply chain and suppliers. That is why we created our Responsible Supply Chain program and the principles associated with this program (found here: https://www.avaloncommunities.com/~/media/Files/CorporateResponsibility/SupplyChainPolicy.pdf?la=en). Through annual auditing and an integration of these principles into supplier on-boarding, we have created a strategy to drive efficiency and lower our scope 3 emissions through stronger supply chain engagement, ensuring greater risk mitigation to the Company. Climate Change Adaptation/Mitigation and Most Substantial Strategic Decisions Influenced by these risks/opportunities. There is a direct correlation between climate change mitigation and lowering our carbon emissions through supplier engagement in the construction of our apartment communities. Our most important strategic decision here is to implement an analysis of the top 5 embedded carbon emitting materials in the construction of our communities, and look for alternative materials that require less carbon in their creation and supply. This analysis is one of the workstreams we have kicked off the implement and achieve our approved science-based emissions reduction targets for our scope 3 emissions.
Investment in R&D	Yes	How our strategy has been influenced by climate-related risks and opportunities and time horizon: As we take advantage of opportunities to build and operate our communities more efficiently and to lower our scope 1, 2 and 3 emissions, we have significant opportunity to innovate and invest in our properties and in our construction processes. As such we have launched an internal innovation platform, titled AVB Labs. AVB Labs provides support for sustainability-related innovation that changes how we build, redevelop and operate our communities, and supports an enhanced investment in R&D. In addition, our strategy has been significantly influenced here to investment more R&D in our construction materials in an attempt to reduce high embedded carbon materials (for example, concrete) with lower emissions materials. Climate Change Adaptation/Mitigation and Most Substantial Strategic Decisions Influenced by these risks/opportunities. As noted in the section on our supply chain, we are working to reduce embedded carbon in construction materials we use to construct our apartment communities. This has led to our most strategic decision to invest in the R&D necessary to achieve this and find alternate materials and alternate suppliers. In addition, we continue to make strategic decisions on the scope 1 and 2 emissions front to reduce load, invest in onsite renewable energy generation and renewable power purchase agreements, all of which require some investment in the R&D necessary to change to more efficient equipment and energy sourcing strategies to move our electrical load to renewable sources.
Operations	Yes	How our strategy has been influenced by climate-related risks and opportunities and time horizon: In a certain sense every risk and opportunity outlined has had some impact on our operational strategies. We have invested heavily in efficiency measures to reduce our carbon emissions and energy and water operational costs. Since 2014 we have invested over $25M in these efficiency and carbon emission reduction measures, whith significant returns to the company. In addition, we have invested in programs to improve our operational approach, integrating efficiency considerations into how we manage, operate and even clean our communities. On the construction and development side we have integrated a set of Green Construction standards and Operational Principles into how we design and build our properties, again in response to many of the risks and opportunities outlined in our CDP response. Climate Change Adaptation/Mitigation and Most Substantial Strategic Decisions Influenced by these risks/opportunities. Operationally the biggest strategic decisions influenced by our risks and opportunities include reviewing our properties for exposure to physical climate risks and developing climate mitigation and adaptation plans for the properties most at risk. In addition, we continue to look at ways to operate our buildings on a more "electrified" platform to reduce dependence on natural gas and reduce emissions. We are installing significant onsite solar generation, and moving our procurable electric load to renewable sources.

C3.1e

(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Capital expenditures Acquisitions and divestments	Capital Expenditures Details on how climate-related risks and opportunities have influenced this element of our financial planning and the time-horizon. Our time horizon for this planning is short and medium-term, as annually the Vice President of CR develops a strategic plan, partly based on climate-related risks and opportunities and outlines initiatives and the near and medium-term capital expenditures required to achieve the plan. We want to be a leader in the building sector of the low carbon city of the future. Therefore, with our markets and the cities in which we do business moving more and more to a low/no carbon economy and requiring the buildings in their cities to significantly reduce emissions, our capital expenditures and the planning related to them described in the previous paragraph are increasing in the following areas – designed to mitigate these risks and take advantage of the opportunities: building and equipment efficiency, low-carbon emissions technology (building electrification), and onsite renewable energy generation. Case Study A good case study of this shift in capital expenditure is our recent solar strategy created in 2016, and now in execution across 2017-2020 to install solar on 63 properties in our portfolio. This particular program evolved (per the above process) as follows: • A risk was identified regarding cities and states moving toward a low carbon future and enacting more stringent legislation (CA primarily at first, but NY, DC and Boston quickly on its heels) regarding installation of renewable energy as well as rising energy costs. We also identified an opportunity regarding solar due to costs dropping and the fact that our markets are very favorable to solar. • The VP of CR engaged the CR Committee to discuss this risk/opportunity, and it was determined that we should engage a consultant to establish a solar strategy and begin to install solar on our properties, which we did in 2016 • When the strategy was complete, it was presented to senior management, who gave the green light to fund phase I of solar (8 communities). As we proved out this first phase we began to incrementally shift and increase capital expenditures to implement phase II of the plan (26 communities). In 2019-20 we again increased capital funding for an additional 29 communities. Acquisitions and divestments Details on how climate-related risks and opportunities have influenced this element of our financial planning and the time-horizon. As climate risk and the need for climate mitigation becomes more pronounced, we have made a significant change to our acquisition due-diligence to take into account climate-related risk in new acquisitions. In addition, as we look to divest properties, we are taking into account their carbon footprint and looking for ways to remove older, less efficient and higher-emitting buildings from our portfolio. The time horizon for this shift is medium-term, as the acquisition and divestment activity varies depending on the year. Case Study An excellent case study of how climate-related risks and opportunities are influencing our acquisitions is the recent climate risk report we completed on a potential acquisition in Florida. We conducted this report as part of our due diligence on the acquisition, which was an entirely new data point in our normal due diligence process. While the report showed minimal risk to the asset related to climate-change and stronger storms, it did factor into the overall decision to proceed.

C3.1f

(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

AvalonBay's business objectives and strategy have been influenced by climate-related issues in the following ways:

1) Our move to renewable energy is a direct result of strategic planning to mitigate risks associated with carbon-centric energy procurement and equipment and to take advantage of the benefits of renewable energy.
2) Low carbon goals in each of our markets has led to more intentional alignment with the heads of sustainability in these markets and our current study of how climate change will affect our portfolio in the future.
3) Efficiency investments (totaling over $20M to date) are designed to lower demand of carbon-based fuels and electricity sources, and reduce GHG emissions.

Explanation of how business strategy is linked to an emissions/energy reductions target:

The VP of CR, in conjunction with the Chief Financial Officer and the Chief Investment Officer as well as our CR Committee, established 2020 targets to reduce our energy and water consumption. In 2019 we further set approved science-based emissions targets. These form a "north start" to our strategy, and the annual CR strategic planning sets sub-strategies and tactics which are directly tied to the achievement of these goals, with a requirement that each strategy must explicitly support achievement of these goals. The progress toward these goals is reported monthly to the Chief Investment Officer and Chief Financial Officer, quarterly to the CEO, and bi-annually to the AvalonBay Board of Directors. More frequent reporting may happen on an as-needed basis.
Example of the three most substantial business decisions made as a result of the integration of climate-issues:

1) We analyzed our portfolio for exposure to climate change, sea-level rise, and stronger, more frequent storms and presented this analysis to the AvalonBay Board of Directors. This analysis is informing a detailed mitigation strategy for the Company for both our operations and construction of new communities.
2) We announced our commitment to set Science-Based Targets in 2018 and had those targets approved in 2019.
2) We began execution of our solar strategy in 2017 to move the Company to a renewable source of low-carbon energy, and will invest over $30M to install and operate solar systems on our buildings. This strategy continues to be executed in 2019, with 9 properties now generating on-site solar, and another 26 properties currently being installed for operation by end of 2020. Phase 3 of our solar program was just approved, and will be in design and bid in 2020, with execution and turn on of an additional 29 properties in 2021. Total generating capacity once all three phases are operational is expected to be almost 9MW of solar.
3) We engaged our local cities in the light of the U.S. pulling out of the Paris Agreement, to open dialogues on how AvalonBay can lead the way on resiliency planning and in support of a low carbon future. In Boston we joined the Mayor’s Carbon Cup, committing 1M sqft to a 35% reduction in energy use intensity by 2020. In New York, we committed to cut greenhouse gas emissions by 30% at select buildings as part of the Carbon challenge and committed two buildings to the Retrofit Accelerator program to help the city cut emissions 80% by 2050.

Additionally, and in recognition of the growing strategic importance to the Company and our financial planning, the Corporate Responsibility function was moved in 2019 to report into the Chief Financial Officer.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?
Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number
Int 1

Year target was set
2019

Target coverage
Company-wide

Scope(s) (or Scope 3 category)
Scope 1+2 (location-based)

Intensity metric
Metric tons CO2e per square foot

Base year
2017

Intensity figure in base year (metric tons CO2e per unit of activity)
4.61

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure
100

Target year
2030

Targeted reduction from base year (%)
53

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]
2.1667

% change anticipated in absolute Scope 1+2 emissions
12

% change anticipated in absolute Scope 3 emissions
0

Intensity figure in reporting year (metric tons CO2e per unit of activity)
4.54

% of target achieved [auto-calculated]
2.86497769410225

Target status in reporting year
New

Is this a science-based target?
Yes, this target has been approved as science-based by the Science Based Targets initiative

Please explain (including target coverage)
AvalonBay commits to reduce scope 1 and 2 GHG emissions by 53% per square foot and scope 3 emissions by 47% per square foot by 2030 from a 2017 base-year.

Target reference number
Int 2

Year target was set
2019

Target coverage
Company-wide

Scope(s) (or Scope 3 category)
Scope 3 (upstream & downstream)

Intensity metric
Please select

Base year
2017

Intensity figure in base year (metric tons CO2e per unit of activity)
5.52

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure
91

Target year
2030

Targeted reduction from base year (%)
47

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]
2.9256

% change anticipated in absolute Scope 1+2 emissions
0

% change anticipated in absolute Scope 3 emissions
0.4

Intensity figure in reporting year (metric tons CO2e per unit of activity)
5.1

% of target achieved [auto-calculated]
16.1887141535615

Target status in reporting year
New

Is this a science-based target?
Yes, this target has been approved as science-based by the Science Based Targets initiative

Please explain (including target coverage)
AvalonBay commits to reduce scope 1 and 2 GHG emissions by 53% per square foot and scope 3 emissions by 47% per square foot by 2030 from a 2017 base-year.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?
Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number
Oth 1

Year target was set
2018

Target coverage
Company-wide

Target type: absolute or intensity
Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Waste management	Other, please specify (Pounds)

Target denominator (intensity targets only)
Other, please specify (Per Apartment Home)

Base year
2017

Figure or percentage in base year
1671

Target year
2023

Figure or percentage in target year
1631

Figure or percentage in reporting year
1837

% of target achieved [auto-calculated]
-415

Target status in reporting year
Underway

Is this target part of an emissions target?
Our waste goal is also being integrated into the plan and progress reporting for our approved science-based emissions target.

Is this target part of an overarching initiative?
Science Based Targets initiative

Please explain (including target coverage)
in 2019 we set approved science-based emissions targets, which included waste as part of the baseline calculation and our overall 2030 goal. Since we established our waste goal in 2018, baselined to 2017 data, the landscape for recycling has changed significantly. With countries accepting less “dirty” recycled materials, we are finding certain jurisdictions where we do business dramatically reducing and, in some cases, eliminating recycling altogether. While our waste totals have gone up since then, our diversion rate has improved each year and in certain regions we are seeing dramatic improvements in diversion. In the Pacific Northwest, for example, diversion went from 26.8% to over 45% from 2018 to 2019. And in California we have enacted a number of innovative solutions to improve diversion from 15% to almost 23%. We are committed to our waste goal, and will continue to find solutions to improve waste diversion from landfill and educate our residents on clean recycling techniques. For example, in 2019 we expanded our partnership with GreenDrop and collected 89,619 pounds of used household donations, which included a large amount of waste that may have otherwise gone into a landfill.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.
Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	50	
To be implemented*	65	4800
Implementation commenced*	45	3300
Implemented*	55	4063
Not to be implemented		

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in buildings	Heating, Ventilation and Air Conditioning (HVAC)

Estimated annual CO2e savings (metric tonnes CO2e)
14.03

Scope(s)
Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
40599

Investment required (unit currency – as specified in C0.4)
195078

Payback period
4-10 years

Estimated lifetime of the initiative
11-15 years

Comment
These totals are for a set of projects completed across the portfolio in this category.

Initiative category & Initiative type

Energy efficiency in buildings	Insulation

Estimated annual CO2e savings (metric tonnes CO2e)
1532

Scope(s)
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
1282200

Investment required (unit currency – as specified in C0.4)
9755773

Payback period
4-10 years

Estimated lifetime of the initiative
11-15 years

Comment
These totals are for a set of projects completed across the portfolio in this category.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting

Estimated annual CO2e savings (metric tonnes CO2e)
2320.04

Scope(s)
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
605853

Investment required (unit currency – as specified in C0.4)
2216866

Payback period
4-10 years

Estimated lifetime of the initiative
6-10 years

Comment
These totals are for a set of projects completed across the portfolio in this category.

Initiative category & Initiative type

Energy efficiency in buildings	Other, please specify (Boiler System)

Estimated annual CO2e savings (metric tonnes CO2e)
181.49

Scope(s)
Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
236359

Investment required (unit currency – as specified in C0.4)
1445135

Payback period
11-15 years

Estimated lifetime of the initiative
11-15 years

Comment
These totals are for a set of projects completed across the portfolio in this category.

Initiative category & Initiative type

Energy efficiency in buildings	Other, please specify (High-efficiency Appliances)

Estimated annual CO2e savings (metric tonnes CO2e)
15.38

Scope(s)
Scope 2 (location-based)
Scope 2 (market-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
2439

Investment required (unit currency – as specified in C0.4)
26968

Payback period
11-15 years

Estimated lifetime of the initiative
6-10 years

Comment
These totals are for a set of projects completed across the portfolio in this category.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	Our dedicated sustainability capex budget funded over $15M in energy efficiency projects in 2019, including 32 LED retrofit projects and solar systems at the following properties: Eaves Warner Center (72kW), Studio City II (69kW), AVA Pasadena (69kW), Walnut Creek (30kW), Cahill Park (213kW), Willow Glen (129kW), Creekside (64kW), Vista (59kW), Rancho Penasquitos (91kW), Old Town Pasadena (60kW), Dublin Station I (171kW), Dublin Station III (139kW), Pacific Beach (222kW), Toluca Hills (344kW), Morrison Park (127kW), Studio City (130kW), Woodland Hills (497kW), West Valley (209kW), Burbank (231kW), Pleasanton (75kW), San Jose (39kW), Mountain View (658 kW), Campbell (75kW), Foster City (54kW), Burbank (345kW), Studio City III (301kW) Our LED retrofits completed since 2015 are now saving $3M in energy costs and have reduced GHG emissions equivalent to taking over 2,520 cars off the road. We will be increasing this budget again in 2020-21 as we execute on our renewable energy strategy. Currently we are installing 26 additional solar on-site generation systems with targeted turn-on by the end of 2020, and have approval to go to bid for an additional 29 systems with installation targeted to span late 2020 and 2021.
Employee engagement	Our Vice President of Corporate Responsibility engages our employees in a variety of sustainability initiatives throughout the year designed to lower energy consumption and reduce emissions. A good example of this is our data-driven demand response and operational program which expanded in 2019 and now runs in the following AVB markets; Boston, NYC, Washington DC (and region), California and Seattle. This program aligns operational behaviors to demand response programs and reduces carbon emissions in these portfolios.
Partnering with governments on technology development	We are working with New York City's Retrofit Accelerator Program with two buildings enrolled in the program. We will work with the city over the coming years to test and implement technologies to deeply cut emissions in these buildings and help the city achieve its goal of an 80% emissions reduction by 2050. Our participation in the program will help the city better understand how buildings can be retrofitted to dramatically reduce carbon emissions. In addition, in late 2019 we offered two properties to be studied by Boston's Green Ribbon commission in support of the city's goal of carbon neutrality by 2050. These buildings will serve as pilot projects to advance the understanding of the challenges and advantages of performing deep carbon emissions retrofits in a multi-family context.
Lower return on investment (ROI) specification	Our dedicated sustainability capex budget has an internal threshold of 6.5 years simple return on investment on our sustainability-related initiatives.
Internal incentives/recognition programs	Our bi-annual sustainability awards support and encourage employee innovation and action relative to emissions reductions in our portfolio.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?
Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation
Company-wide

Description of product/Group of products
By providing high density housing frequently located in close proximity to transit we enable our customers to minimize their carbon footprint and facilitate ride sharing, biking and other alternatives to single occupancy vehicle (SOV) transportation, thereby reducing their energy use and carbon emissions. We also provide highly efficient multifamily housing options which tend to generate fewer emissions per resident than larger, less efficient single family housing in lower density formats. In addition, we are driving energy and water efficiency in our apartment homes, thereby reducing our residents' scope 2 emissions by reducing their energy and water consumption.

Are these low-carbon product(s) or do they enable avoided emissions?
Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions
Other, please specify (Internal Company measurement)

% revenue from low carbon product(s) in the reporting year
80

% of total portfolio value
<Not Applicable>

Asset classes/ product types
<Not Applicable>

Comment
We know that the energy efficiency built into our new construction and redevelopment projects produce the equivalent of 100 KWH in savings compared to older apartment homes. Therefore we assumed that value for a subset of our properties (built just prior or during the time period 2010-2014) and calculated the equivalent CO2E.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
22145.68

Comment

Scope 2 (location-based)

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
58531.37

Comment

Scope 2 (market-based)

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
58531.37

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
22145.68

Start date
<Not Applicable>

End date
<Not Applicable>

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We are reporting a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based
58531.37

Scope 2, market-based (if applicable)
58531.37

Start date
<Not Applicable>

End date
<Not Applicable>

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?
Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source
There are two sources excluded: fugitive release of refrigerant gas and combustion emissions from burning diesel fuel in emergency generators.

Relevance of Scope 1 emissions from this source
Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source
No emissions excluded

Relevance of market-based Scope 2 emissions from this source (if applicable)
No emissions excluded

Explain why this source is excluded
Fugitive refrigerant emissions have been estimated, are not significant, and therefore excluded. Combustion emissions from burning diesel fuel in emergency generators is negligible and therefore excluded. For most sites, diesel fuel is used as a secondary backup (fuel oil, included, is primary backup) and therefore diesel is seldom used. We estimate that emissions from these sources represent well less than 5% of our emissions in total, and they are excluded because we have no means to measure them.

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, calculated

Metric tonnes CO2e
154427

Emissions calculation methodology
includes upstream emissions from construction materials and activity as well as maintenance materials and services. Both are estimated using spend and DEFRA's input-output factors.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Downstream leased assets are calculated on our real estate portfolio. For leased space in the portfolio, energy bills were collected by a third party data provider. The leased space energy consumption was then evaluated using the same methodology as Scope 1 and 2 calculations to provide emissions for the leased space.

Capital goods

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Any capital goods purchased are reported as Purchased Goods when we are able to collect and report on this information.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status
Relevant, calculated

Metric tonnes CO2e
1109

Emissions calculation methodology
Calculated based on electricity and fuel use activity data with emissions upstream well-to-tank/T&D emissions factors from DEFRA, 2011 (adjusted for inflation and converted to USD).

Percentage of emissions calculated using data obtained from suppliers or value chain partners
25

Please explain
We are in the initial phase of identifying, collecting, and reporting on our Scope 3 emissions. We have identified Fuel-and-energy-related activities (not included in Scope 1 and 2) as a category for future reporting but do not have the necessary data to estimate or calculate these emissions at this time.

Upstream transportation and distribution

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
We do not produce physical products. We do not receive any significant amount of supplies from upstream transportation and distribution.

Waste generated in operations

Evaluation status
Relevant, calculated

Metric tonnes CO2e
38176

Emissions calculation methodology
Emissions are calculated using total solid waste and water use data and the appropriate solid waste/wastewater treatment emission factors from DEFRA, 2018.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Emissions related to leased assets (e.g. computing equipment) are already accounted for in our Scope 2 emissions.

Business travel

Evaluation status
Relevant, calculated

Metric tonnes CO2e
202

Emissions calculation methodology
We use the distance methodology to calculate flights and rental car emissions. Hotel use is calculated per night stay. Business travel breakdown: Flights 159 MTCO2e Rental car 8.13 MTCO2e Hotel 34.96 MTCO2e

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Reporting is limited to travel booked through AvalonBay Communities' travel vendor

Employee commuting

Evaluation status
Relevant, calculated

Metric tonnes CO2e
5667

Emissions calculation methodology
We estimate that the average distance travelled for a commute for each employee is 10.9 miles (one-way), which results in a total commuting distance of 21.8 miles per day. Note that we calculate the average distance as follows: 1) We source our employee headcount from the Peoplesoft system using a “data cube” built in Excel to pull that data into a readable format. 2) The average distance is calculated by: • Computing, for each employee, the distance from their home address to their location of employment (either AVB office or AVB community). • Removing 49 “outliers” whereby an associate lives remotely, and their home office is greater than 100 miles away. These represent 1.6% of the total population as of 12/31/2019 (3131 associates). • Averaging the associate distances by dividing by the associate headcount left after the outliers are removed (3131-49 = 3082) In addition, we estimate that our employees work a total of 240 days per year, which assumes a five-day work week, excludes weekends, and includes an average of 2 weeks off and 10 paid holidays. Based on these estimates, we calculate that each employee commutes a total of 5,232 miles per year (i.e., 21.8 miles per day x 240 days per year). We estimate the average fuel economy of our employee cars to be 25.5 miles per gallon. (Fuel economy numbers are based on the “Real-World Fuel Economy” calculations in this report (see table 2.1 on page 11 of the following: https://www.epa.gov/sites/production/files/2020-03/documents/420r20006.pdf). Consequently, to calculate the CO2e emissions based on the annual distance travelled by employees during their commute, AvalonBay utilizes the Carbon Offsets to Alleviate Poverty (COTAP) Carbon Emissions Calculator (http://cotap.org/carbon-footprint-calculator/) The calculation results in 1.81 metric tonnes CO2e per employee annually. 2019: Therefore, the total Scope 3 emissions for employee commuting in 2019 for our 3131 employees equals 5,667 metric tonnes CO2 (vs. 2018 number of 5,938 metric tonnes CO2). This total likely overestimates AvalonBay’s Scope 3 emissions for employee commuting given that it assumes that each employee commutes by car and always commutes alone to work.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Response provided - no additional explanation needed.

Upstream leased assets

Evaluation status
Relevant, calculated

Metric tonnes CO2e
388834

Emissions calculation methodology
(i) Energy utility provider data for the buildings was used to calculate emissions. (ii) The reported data comes from the buildings' energy utility provider bills via a third party data collector or was estimated for properties where this data was unavailable. (iii) Data was evaluated using the same methodology as Scope 1 and 2.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
25

Please explain
Response provided, no additional explanation needed.

Downstream transportation and distribution

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
AvalonBay Communities is part of the real estate industry and does not process a significant amount of physical products for sale.

Processing of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
AvalonBay Communities is part of the real estate industry and does not process a significant amount of physical products for sale.

Use of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
AvalonBay Communities is part of the real estate industry and does not produce a significant amount of physical products for sale for customer use.

End of life treatment of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
AvalonBay Communities is part of the real estate industry and does not produce a significant amount of physical products for sale.

Downstream leased assets

Evaluation status
Relevant, calculated

Metric tonnes CO2e
179481.94

Emissions calculation methodology
(i) Energy utility provider data for the buildings was used to calculate emissions. For emissions factors see Scope 1 and 2 factors Q7.4. GWP values (IPCC 5th assessment) (ii) The reported data comes from the buildings' energy utility provider bills via a third party data collector. (iii) Data was evaluated using the same methodology as Scope 1 and 2.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Please explain
Downstream leased assets are calculated on our real estate portfolio. For leased space in the portfolio, energy bills were collected by a third party data provider. The leased space energy consumption was then evaluated using the same methodology as Scope 1 and 2 calculations to provide emissions for the leased space.

Franchises

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
AvalonBay does not have franchises.

Investments

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
We have included Investments as part of our Scope 3 downstream leased assets. We do not have additional significant amounts of Investments.

Other (upstream)

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Not relevant as there are no "other" upstream items.

Other (downstream)

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Not relevant as there are no "other" downstream items.

C-CN6.6/C-RE6.6

(C-CN6.6/C-RE6.6) Does your organization assess the life cycle emissions of new construction or major renovation projects?

	Assessment of life cycle emissions	Comment
Row 1	Yes, quantitative assessment	Our new construction projects are governed by a set of comprehensive construction standards which outline everything from building system equipment to fit and finish for all three product types, mid-rise, high-rise and garden-style walk-up apartment communities. In 2019 we fundamentally revamped the construction standards review and promulgation process and included quantitative life-cycle analyses into the process. This includes the long-term operational costs of a given change as well as the impact to our emissions. While in its nascent stage, this change is a significant enhancement to the process designed, in-part, to tie into our science-based target acheivement.

C-CN6.6a/C-RE6.6a

(C-CN6.6a/C-RE6.6a) Provide details of how your organization assesses the life cycle emissions of new construction or major renovation projects.

	Projects assessed	Earliest project phase that most commonly includes an assessment	Life cycle stage(s) most commonly covered	Methodologies/standards/tools applied	Comment
Row 1	All new construction and major renovation projects	Design phase	Whole life	Embodied Carbon in Construction Calculator (EC3) Tool	As we have improved our construction standards process to include whole life cycle analysis we are looking at tools to support this process, including the Embodied Carbon in Construction Calculator tool. We are also, as part of our science-based emissions achievement plan, kicking off a workstream to look more deeply at our top 3-5 construction materials for avenues to significantly reduce their emissions.

C-CN6.6b/C-RE6.6b

(C-CN6.6b/C-RE6.6b) Can you provide embodied carbon emissions data for any of your organization's new construction or major renovation projects completed in the last three years?

	Ability to disclose embodied carbon emissions	Comment
Row 1	No	

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?
No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure
0.000034

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
80677

Metric denominator
unit total revenue

Metric denominator: Unit total
2324626000

Scope 2 figure used
Market-based

% change from previous year
2.9

Direction of change
Decreased

Reason for change
In 2019 we continued to invest significantly in emissions reduction activities and saw additional solar projects under our renewable strategy come online. These contributed to our 2.9% Scope 1 and Scope 2 emissions/$ reduction this year.

Intensity figure
25.68

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

Metric denominator
full time equivalent (FTE) employee

Metric denominator: Unit total
3131

Scope 2 figure used
Please select

% change from previous year
1.6

Direction of change
Decreased

Reason for change
In 2019 we invested significantly in emissions reduction activities, including additional LED installations. We also saw the 9 solar projects under construction and part of our renewable strategy come online. These contributed to our overall emissions reduction this year and contributed to the 1.6% reduction in emissions intensity per Full Time Equivalent employee.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?
Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	17821	IPCC Fifth Assessment Report (AR5 – 20 year)
CH4	11.82	IPCC Fifth Assessment Report (AR5 – 20 year)
N2O	10.98	IPCC Fifth Assessment Report (AR5 – 20 year)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
United States of America	22145.68

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By facility
By activity

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
CA101_Avalon Del Rey	12.328	33.980166	-118.41498
CA800_Avalon at Mission Bay North II	235.251	37.775844	-122.393868
CAC50_Avalon Studio 4041	17.213	34.146266	-118.39252
CAC54_Avalon Venice on Rose	5.634	33.997981	-118.47331
CAC52_Avalon Marina Bay	35.555	33.973902	-118.454049
DC509_eaves Tunlaw Gardens	71.138	38.923797	-77.077873
DC504_Avalon The Albemarle	168.706	38.948461	-77.065232
DC511_eaves Glover Park	109.058	38.925003	-77.077064
VA035_Avalon Dunn Loring	0	38.878721	-77.228116
DC510_Avalon The Statesman	124.583	38.896852	-77.046068
DC519_Avalon First and M	75.847	38.905277	-77.006211
DC518_AVA Van Ness	2.778	38.942799	-77.061267
MA046_Avalon Burlington	20.113	42.503073	-71.17647
MA512_Avalon Bear Hill	29.107	42.377972	-71.272183
MAD01_Avalon North Point	245.057	42.370125	-71.073179
MAC67_Avalon Station 250	25.497	42.228866	-71.176284
MDC52_Avalon Grosvenor Tower	47.632	39.026086	-77.106704
MD542_Avalon Russett	15.266	39.106497	-76.794469
NY501_Avalon Westbury	34.919	33.020681	-97.029407
NY036_Avalon Huntington Station	4.479	40.852324	-73.401813
NY533_Avalon Clinton North	234.01	40.766498	-73.991614
NY525_Avalon Midtown West	259.026	40.761985	-73.985676
NY534_Avalon Clinton South	157.445	40.766498	-73.991614
NY043_Avalon Rockville Centre II	86.506	40.659583	-73.650401
TX539_Archstone Toscano	0.202	29.698108	-95.42255
TX527_Archstone Lexington	2.862	33.008539	-97.04664
TX540_Memorial Heights Villages	0.917	29.767807	-95.396451
VA559_Avalon Ballston Square	156.983	38.880389	-77.109258
VA556_eavesTysons Corner	0	38.920504	-77.238056
CA573_Toluca Hills Apartments by Avalon	194.89	34.141727	-118.340664
VA563_Avalon Arlington North	3.779	38.896149	-77.12237
VA561_Avalon Courthouse Place	8.47	38.888809	-77.085463
VA565_Avalon Reston Landing	35.825	38.966963	-77.360577
WA509_eaves Redmond Campus	33.145	47.647698	-122.130119
WA025_Avalon Alderwood Phase I	50.17	47.849876	-122.269368
WA539_Archstone Redmond Lakeview	0	47.648959	-122.108326
MA052_Avalon Easton	25.348	42.025606	-71.14398
VA566_Avalon Falls Church	38.53	38.874946	-77.169061
CA117_Avalon Dogpatch	296.397	37.759206	-122.391605
CA110_Avalon Dublin Station II	43.304	37.704591	-121.899851
NY823_Avalon Morningside Park	165.366	40.802311	-73.961303
NY026_Avalon Fort Greene	353.128	40.694099	-73.982858
NY018_Avalon Riverview North	328.409	40.744902	-73.956843
NY021_Avalon Bowery Place II	66.794	40.724641	-73.991246
NY009_The Avalon	6.928	40.940277	-73.836088
NY022_Avalon White Plains	175.794	41.035781	-73.769236
Construction Data	2645.367	38.878781	-77.111395
NY006_Avalon Willow	27.829	40.956533	-73.739413
NY007_Avalon Court	48.493	40.76191	-73.413801
NY012_Avalon at Glen Cove	66.841	40.862606	-73.630172

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
NY032_Avalon Green Phase II	32.41	41.05442	-73.831923
NY001_Avalon Commons	33.569	40.851142	-73.169068
NY031_Avalon Rockville Centre	31.422	40.660877	-73.65187
NY016_Avalon Glen Cove North	23.925	40.863581	-73.627837
NJ008_Avalon at Florham Park	21.747	40.783618	-74.373882
NY033_Avalon Garden City	7.96	40.734543	-73.594113
NJ002_Avalon Cove	54.249	40.722541	-74.035445
NJ017_Avalon Hackensack at Riverside	20.471	40.908358	-74.031581
NJ019_Avalon at Wesmont Station II	0	40.86163	-74.089565
NJ015_Avalon North Bergen	38.296	40.789622	-74.024073
NJ016_Avalon at Wesmont Station	16.745	40.86163	-74.089565
MD007_Eaves Washingtonian Center 2	0.365	39.113385	-77.197615
MD012_Eaves Columbia Town Center 2	0	39.206197	-76.870959
MD006_Eaves Washingtonian Center 1	11.179	39.113385	-77.197615
DC001_Avalon at Foxhall	56.448	38.934949	-77.081888
DC002_Avalon at Gallery Place I	39.327	38.89881	-77.019187
MD015_Avalon at Grosvenor Station	32.484	39.026069	-77.101988
MD016_Avalon at Traville	51.675	39.08993	-77.205521
VA004_AVA Ballston	29.94	38.884889	-77.118079
VA012_Eaves Fairfax City	0	38.838589	-77.314051
DC003_AVA H Street	1.198	38.901537	-77.000913
VA001_Eaves Fair Lakes	18.069	38.859205	-77.39894
WA001_Avalon Redmond Place	29.045	47.681315	-122.127824
WA003_Avalon at Bear Creek	51.732	47.701534	-122.095698
VA029_Avalon Park Crest	3.797	38.927661	-77.230144
VA030_Eaves Fairfax Towers	0	38.900633	-77.204398
WA010_Avalon ParcSquare	43.269	47.67889	-122.12617
WA006_Avalon Bellevue	72.128	47.619585	-122.192813
WA007_Avalon RockMeadow	37.411	47.817942	-122.206555
WA019_Avalon Towers Bellevue	89.12	47.619021	-122.202741
WA021_AVA Queen Anne	31.262	47.621387	-122.360576
WA014_AVA Belltown	0	47.616096	-122.352718
WA018_Avalon Meydenbauer	0	47.612025	-122.200901
CA005_Avalon Campbell	3.093	37.282009	-121.945817
CA010_Eaves San Jose	15.226	37.402323	-121.881228
WA023_AVA Ballard	24.535	47.669075	-122.373967
CA062_Avalon at Cahill Park	41.504	37.331587	-121.905141
CA064_Avalon Towers on the Peninsula	57.035	37.398588	-122.107473
CA029_Avalon on the Alameda	46.055	37.333674	-121.911249
CA049_Avalon Mountain View	2.745	37.397939	-122.087523
CA027_Eaves Union City	14.072	37.585784	-122.022284
CA053_Eaves Fremont	0.803	37.493384	-121.92674
CA001_Avalon Fremont	37.072	37.543396	-121.971798
CA019_Eaves Pleasanton	63.293	37.695776	-121.879919
CA007_Eaves Daly City	40.553	37.65461	-122.454348
CA009_AVA Nob Hill	19.839	37.788084	-122.416102
CA082_Avalon Union City	69.71	37.589402	-122.016267
CA085_Avalon Walnut Creek	53.082	37.927442	-122.05561
NJ031_Avalon Piscataway	42.639	40.563056	-74.455078
MA001_Avalon at Lexington	26.237	42.414925	-71.233536
MA010_Avalon Oaks West	29.692	42.575962	-71.18116
MA012_Avalon Orchards	30.316	42.349538	-71.527791
MA003_Eaves Quincy	123.116	42.247081	-71.017939
MA018_Eaves Peabody	90.028	42.54271	-70.949568
MA019_Avalon at Bedford Center	35.038	42.494485	-71.291172
MA014_Avalon at Newton Highlands	7.625	42.314319	-71.212749
MA016_Avalon at The Pinehills	25.749	41.879988	-70.603645
MA024_Avalon at Lexington Hills	96.322	42.408223	-71.212441
MA025_Avalon Acton	20.064	42.524288	-71.425015
MA020_Avalon Chestnut Hill	2.513	42.31958	-71.17373
MA030_Avalon Northborough	26.724	42.248747	-72.162014
MA027_Avalon at Hingham Shipyard	31.424	42.250269	-70.917924
MA029_Avalon Sharon	20.937	42.14682	-71.199348
MA041_Avalon Prudential Center 2	0	42.348156	-71.080817
MA042_Avalon Prudential Center 1	0	42.348051	-71.079622
MA034_Avalon Cohasset	27.747	42.235942	-70.826972
CT002_Eaves Stamford	54.43	41.057584	-73.529457
CT005_Avalon Wilton 1	6.012	41.188224	-73.431736
RI001_Avalon at Center Place	119.757	41.828515	-71.412587
CT017_Avalon Darien	2.948	41.069079	-73.501126
CT014_Avalon New Canaan	3.649	41.146305	-73.495626

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
CT015_AVA Stamford	44.206	41.057085	-73.53537
CT024_Avalon Wilton 2	13.841	41.176793	-73.415102
CT022_Avalon Norwalk	39.496	41.118527	-73.417102
NJ005_Avalon Run	83.108	40.301637	-74.736101
MA054_Avalon Sudbury	11.905	42.377177	-71.40055
NJ006_Avalon Princeton Junction	0	40.297755	-74.641077
NY011_Avalon Riverview I	401.468	40.740786	-73.943254
NY015_Avalon Bowery Place	157.177	40.724348	-73.991711
NJ013_Avalon at Tinton Falls	25.523	40.214198	-74.103
NJ014_Avalon at West Long Branch	22.348	40.292337	-74.025471
NY029_West Chelsea	109.507	40.752242	-74.004166
NY037_AVA DoBro	205.934	40.691899	-73.984613
NJ022_Avalon Bloomfield Station	9.17	40.79274	-74.198588
NJ023_Avalon Roseland	15.937	40.815281	-74.321873
WA026_AVA Capitol Hill	18.074	47.614304	-122.324138
CA002_Eaves Dublin	24.835	37.729027	-121.911734
NY038_Avalon Green III	4.445	41.05442	-73.831923
VA031_Avalon Mosaic District	22.128	38.869505	-77.231231
DC520_AVA NoMa	43.746	38.905386	-77.006906
MA040_AVA Back Bay	28.762	42.34811	-71.080427
NY003_Avalon Green	9.043	41.05442	-73.831923
CA025_AVA Pacific Beach	79.21	32.79077	-117.236924
CA047_Avalon Silicon Valley	127.66	37.388607	-121.993803
NY044_Avalon Somers	37.952	41.341617	-73.761029
NY004_Avalon Towers	367.013	40.584272	-73.664323
VA023_Avalon at Arlington Square	36.653	38.84562	-77.076347
VA034_Avalon Columbia Pike	59.565	38.861861	-77.087162
VA033_Avalon Clarendon	64.803	38.887522	-77.092072
WA028_Avalon Alderwood II	0	47.849876	-122.269368
WA027_Avalon Esterra Park	55.687	47.6338	-122.137323
WA029_Avalon Newcastle Commons I	61.386	47.543283	-122.161745
MD023_Avalon Hunt Valley	0	39.498566	-76.652176
MD017_AVA Wheaton	1.662	39.043039	-77.050906
NJ024_Avalon Princeton	27.092	40.356725	-74.661897
MD024_Avalon Laurel	4.567	39.080747	-76.88714
CA091_eaves Phillips Ranch	79.464	34.045594	-117.796743
NY039_Avalon Willoughby	130.063	40.69177	-73.984302
NJ027_Avalon Hoboken	185.202	40.747753	-74.037036
CA093_eaves San Dimas Canyon	41.394	34.103681	-117.794628
VA032_Avalon Potomac Yards	2.399	38.831276	-77.04852
CA092_eaves San Dimas	28.607	34.107044	-117.798945
CA095_eaves Rancho Penasquitos	16.258	32.951827	-117.109477
NY041_Avalon Brooklyn Bay	122.14	40.585908	-73.953789
CA094_eaves San Marcos	20.783	33.133503	-117.120685
CA504_eaves Walnut Creek	72.368	37.926952	-122.052031
CA096_eaves Lake Forest	47.512	33.632649	-117.711138
CA522_eaves La Mesa	23.334	32.785496	-117.003111
CA510_Avalon Simi Valley	92.908	34.285714	-118.767323
CA539_Avalon Studio City III	130.612	34.142351	-118.369855
CA524_Avalon Studio City II	91.011	34.142351	-118.369855
CA541_Avalon Calabasas	91.508	34.128349	-118.706814
CA540_Avalon Willow Glen	137.904	37.279081	-121.874752
CA554_Avalon Santa Monica on Main	18.84	34.006598	-118.488786
CA551_Avalon Oak Creek	87.235	34.14775	-118.758274
CA561_Avalon La Jolla Colony	31.634	32.862801	-117.2287
NY040_Avalon Great Neck	86.692	40.796571	-73.711237
CA556_Avalon Del Mar Station	44.397	34.141617	-118.147984
CA563_eaves Thousand Oaks	28.315	34.182699	
CA562_eaves Old Town Pasadena	21.791	34.140176	-118.14325
CA566_eaves Los Feliz	175.367	34.112801	-118.268472
CA564_Avalon Walnut Ridge I	36.479	37.930726	-122.051486
CA571_eaves Seal Beach	85.137	33.749275	-118.10785
CA569_eaves West Valley	77.459	37.313396	-121.976708
CO001_Denver West	46.058	39.743885	-105.161368
CA575_eaves Mt. View at Middlefield	74.658	37.398638	-122.071849
CA574_eaves Woodland Hills	203.881	34.185127	-118.608856
CA583_Avalon San Bruno	62.42	37.634544	-122.421311
CA581_Avalon Thousand Oaks Plaza	39.366	34.177466	-118.844117
CA585_Avalon San Bruno III	70.872	37.634544	-122.421311
CA584_Avalon San Bruno II	26.499	37.634544	-122.421311
CA588_Avalon Berkeley	19.451	37.865915	-122.301284

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
CA587_Avalon Walnut Ridge II	29.718	37.929888	-122.05216
CA591_Avalon Pasadena	21.278	34.145479	-118.135421
NJ028_Avalon Maplewood	11.469	40.723678	-74.252137
CA592_Avalon Studio City	65.265	34.142351	-118.369855
CA039_Eaves Pacifica	69.916	37.662856	-122.479248
CA043_Avalon Sunset Towers	150.388	37.759087	-122.462897
CA012_Eaves San Rafael	36.32	38.011733	-122.536575
CA033_Eaves Foster City	41.22	37.530548	-122.245657
CA084_Avalon at Mission Bay PhaseIII	37.617	37.774542	-122.395725
CA090_Avalon Ocean Avenue	26.566	37.723984	-122.455629
CA051_Eaves Diamond Heights	26.13	37.744171	-122.437675
CA067_Avalon at Mission Bay North	32.741	37.776454	-122.393294
CA074_Avalon Wilshire	14.223	34.062351	-118.341152
CA056_Eaves Warner Center	53.044	34.174563	-118.598367
CA068_Avalon at Glendale	45.504	34.162905	-118.256946
CA099_Eaves Cerritos	38.211	33.863128	-118.090254
CA048_Avalon Woodland Hills	111.397	34.166816	-118.579263
CA077_Avalon Encino	20.652	34.156913	-118.489289
MAD02_Avalon North Point Lofts	0	42.37032	-71.072863
CA078_Avalon Warner Place	35.595	34.193107	-118.592071
CA113_Avalon Mission Oaks	26.193	34.230345	-118.999968
CA069_Avalon Burbank	84.206	34.179858	-118.306103
NJ026_Avalon Union	24.4	40.70825	-74.278328
CA072_Avalon Camarillo	52.542	34.232217	-119.014072
NJ021_Avalon Wharton	24.97	40.905789	-74.579658
CA024_Eaves South Coast	60.051	33.681665	-117.880088
CA050_Eaves Santa Margarita	40.488	33.644552	-117.595879
CA021_AVA Newport	16.994	33.634677	-117.914153
CA023_Avalon Mission Viejo	51.03	33.599416	-117.655907
CA083_Avalon Irvine	116.52	33.689717	-117.832225
CA086_Avalon Irvine II	71.551	33.689717	-117.832225
CA059_Eaves Huntington Beach	35.682	33.714775	-118.012025
CA060_AVA Cortez Hill	34.022	32.719331	-117.156119
CA026_Eaves Mission Ridge	44.856	32.792376	-117.154315
CA108_Avalon Baker Ranch	116.266	33.677927	-117.676642
CA022_AVA Burbank	67.532	34.156465	-118.34656
CA109_Avalon Irvine III	59.034	33.690294	-117.833725
CA055_Eaves Creekside	39.873	37.390985	-122.071734
CA116_Avalon Chino Hills	76.426	33.95309	-117.682902
CA111_Avalon West Hollywood	348.092	34.09074	-118.349385
WA031_AVA Esterra Park	35.567	47.634075	-122.137386
CA102_Avalon Morrison Park	49.207	37.334256	-121.908434
CA590_Huntington Beach	65.753	33.732895	-117.998662
CA103_Avalon San Dimas	37.192	34.108102	-117.794459
CA097_AVA Pasadena	21.794	34.13924	-118.12958
MA050_Avalon Quincy	68.385	42.247134	-71.0174
CA100_AVA at 55 Ninth	23.435	37.777116	-122.415165
MA048_Avalon North Station	165.007	42.365741	-71.063542
CT027_Avalon at Stratford	15.183	41.239261	-73.131609
MA002_Avalon Oaks	21.751	42.580839	-71.158845
CT025_Avalon Shelton III	21.244	41.319404	-73.093328
CT026_Avalon East Norwalk	11.387	41.111487	-73.392965
MA043_Eaves Burlington	175.829	42.502194	-71.19137
NJ007_Avalon at Edgewater	6.48	40.820701	-73.97853
MA037_Avalon Natick	67.618	42.305457	-71.379255
MA038_Avalon at Assembly Row	41.088	42.395619	-71.08082
NY034_AVA High Line	234.511	40.751581	-74.003209
Avalon Yonkers	0	40.940161	-73.902357
NY035_Avalon Ossining	19.305	41.173946	-73.867508
NJ018_Avalon Somerset	43.504	40.524295	-74.497301
NJ020_Avalon Bloomingdale - Union Av	20.219	41.016854	-74.313689
CA087_AVA Little Tokyo	39.009	34.065317	-117.749141
CA098_Avalon Dublin Station	47.167	37.703887	-121.897897
VA014_Avalon Tysons Corner	21.07	38.927478	-77.228714
CA107_Avalon Vista	59.552	33.190475	-117.260613
MA036_Avalon Exeter	30.547	42.348686	-71.079643
CA104_Avalon Hayes Valley	28.391	37.774816	-122.42424
CA106_Avalon Glendora	49.01	34.129512	-117.862911
MA047_Avalon Marlborough	24.83	42.110696	-72.549979
MA049_Avalon Framingham	30.805	42.328329	-71.386448

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
MA039_AVA Somerville	23.484	42.39514	-71.079302
MA044_AVA Theater District	123.26	42.351071	-71.064032
11 West 61st Street	0	40.770259	-73.982768
WA030_Avalon Belltown Towers	12.823	47.615837	-122.348095
CA119_Avalon Public Market I	9.425	37.839453	-122.292863
NJ030_Avalon Teaneck	1.206	40.91152	-74.00133
CA120_AVA Hollywood	23.845	34.090915	-118.335188
NJ029_Avalon Boonton	27.303	40.909342	-74.399708
MD026_Avalon Fairway Hills - Meadows	0	39.232594	-76.846194
Vacant Data (2019)	3960.631	38.878781	-77.111395
MA053_Avalon Hingham Shipyard	47.224	42.249828	-70.915483
MD027_Avalon Fairway Hills - Woods	0	39.232594	-76.846194
MD029_Avalon Arundel Crossing	0	39.203317	-76.675861
NJ042_Avalon at Edgewater Phase II	86.641	40.820701	-73.97853
MA802_AVA North Point	11.796	42.370555	-71.074213
CO004_Avalon Southlands	78.13	39.592203	-104.69
MA055_Avalon Saugus	19.002	42.474429	-71.025023
CO002_Avalon Castle Rock	70.712	39.404782	-104.888492
CO003_Avalon Red Rocks	50.211	39.621259	-105.00852
CA124_Avalon Cerritos	17.269	33.873744	-118.062014
WA033_Avalon North Creek	35.055	47.819199	-122.2087
MA057_Avalon Norwood	10.089	42.190166	-71.198427
MD031_Portico at Silver Spring	22.121	38.995784	-77.030373
CA118_AVA North Hollywood	34.821	34.162882	-118.373421

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Natural Gas	22035.21
Propane	97.85
Fuel Oil	12.61

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
United States of America	58531.37	58531.37	198251.63	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By facility

By activity

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
CA101_Avalon Playa Vista	113.881	113.881
CA800_Avalon at Mission Bay North II	210.399	210.399
CAC50_Avalon Studio 4041	78.534	78.534
CAC54_Avalon Venice on Rose	62.862	62.862
CAC52_Avalon Marina Bay	58.219	58.219
DC509_eaves Tunlaw Gardens	34.486	34.486
DC504_Avalon The Albemarle	180.752	180.752
DC511_eaves Glover Park	58.465	58.465

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
VA035_Avalon Dunn Loring	475.303	475.303
DC510_Avalon The Statesman	150.689	150.689
DC519_Avalon First and M	897.378	897.378
DC518_AVA Van Ness	251.805	251.805
MA046_Avalon Burlington	115.535	115.535
MA512_Avalon Bear Hill	76.37	76.37
MAD01_Avalon North Point	719.808	719.808
MAC67_Avalon Station 250	145.469	145.469
MDC52_Avalon Grosvenor Tower	319.464	319.464
MD542_Avalon Russett	46	46
NY501_Avalon Westbury	255.881	255.881
NY036_Avalon Huntington Station	244.061	244.061
NY533_Avalon Clinton North	281.352	281.352
NY525_Avalon Midtown West	472.746	472.746
NY534_Avalon Clinton South	250.588	250.588
NY043_Avalon Rockville Centre II	318.47	318.47
TX539_Archstone Toscano	135.898	135.898
TX527_Archstone Lexington	58.694	58.694
TX540_Memorial Heights Villages	227.499	227.499
VA559_Avalon Ballston Square	1499.673	1499.673
VA556_eavesTysons Corner	43.135	43.135
CA573_AVA Toluca Hills	324.502	324.502
VA563_Avalon Arlington North	321.857	321.857
VA561_Avalon Courthouse Place	483.836	483.836
VA565_Avalon Reston Landing	172.38	172.38
WA509_eaves Redmond Campus	105.974	105.974
WA025_Avalon Alderwood Phase I	176.307	176.307
WA539_Archstone Redmond Lakeview	41.596	41.596
MA052_Avalon Easton	146.939	146.939
MA053_Avalon Hingham Shipyard	139.67	139.67
VA566_Avalon Falls Church	239.869	239.869
CA119_Avalon Public Market I	45.764	45.764
CA117_Avalon Dogpatch	148.062	148.062
CO004_Avalon Southlands	85.993	85.993
MA055_Avalon Saugus	131.803	131.803
CO002_Avalon Castle Rock	48.356	48.356
CO003_Avalon Red Rocks	93.47	93.47
CA120_AVA Hollywood	64.331	64.331
Vacant Data (2019)	7966.313	7966.313
CA124_Avalon Cerritos	59.99	59.99
MD027_Avalon Fairway Hills - Woods	114.437	114.437
MD029_Avalon Arundel Crossing	192.244	192.244
NJ042_Avalon at Edgewater Phase II	341.601	341.601
CA110_Avalon Dublin Station II	89.286	89.286
WA030_Avalon Belltown Towers	348.82	348.82
WA033_Avalon North Creek	67.13	67.13
NJ029_Avalon Boonton	341.657	341.657
NJ030_Avalon Teaneck	169.75	169.75
MA057_Avalon Norwood	32.315	32.315
MD031_Portico at Silver Spring	85.582	85.582
NY823_Avalon Morningside Park	141.374	141.374
NY026_Avalon Fort Greene	387.916	387.916
NY018_Avalon Riverview North	379.139	379.139
NY821_Avalon Bowery Place II	236.934	236.934
NY009_The Avalon	145.925	145.925
NY022_Avalon White Plains	147.615	147.615
Construction Data	4436.239	4436.239
NY006_Avalon Willow	234.586	234.586
NY007_Avalon Court	175.512	175.512
NY012_Avalon at Glen Cove	876.452	876.452
NY032_Avalon Green Phase II	149.065	149.065
NY001_Avalon Commons	88.788	88.788
NY031_Avalon Rockville Centre	551.789	551.789
NY016_Avalon Glen Cove North	256.085	256.085
NJ008_Avalon at Florham Park	31.491	31.491
NY033_Avalon Garden City	187.835	187.835
NJ002_Avalon Cove	294.347	294.347
NJ017_Avalon Hackensack at Riverside	221.45	221.45
NJ019_Avalon at Wesmont Station II	81.923	81.923
NJ015_Avalon North Bergen	201.239	201.239
NJ016_Avalon at Wesmont Station	242.352	242.352

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
MD007_Eaves Washingtonian Center 2	40.812	40.812
MD012_Eaves Columbia Town Center 2	76.638	76.638
MD006_Eaves Washingtonian Center 1	44.354	44.354
DC001_Avalon at Foxhall	535.012	535.012
DC002_Avalon at Gallery Place I	289.15	289.15
MD015_Avalon at Grosvenor Station	295.529	295.529
MD016_Avalon at Traville	241.636	241.636
VA004_AVA Ballston	174.498	174.498
VA012_Eaves Fairfax City	63.34	63.34
DC003_AVA H Street	178.089	178.089
VA001_Eaves Fair Lakes	69.824	69.824
WA001_Avalon Redmond Place	46.082	46.082
WA003_Avalon at Bear Creek	73.104	73.104
VA029_Avalon Park Crest	250.986	250.986
VA030_Eaves Fairfax Towers	476.387	476.387
WA010_Avalon ParcSquare	83.335	83.335
WA006_Avalon Bellevue	166.44	166.44
WA007_Avalon RockMeadow	56.774	56.774
WA019_Avalon Towers Bellevue	367.039	367.039
WA021_AVA Queen Anne	124.405	124.405
WA014_AVA Belltown	88.173	88.173
WA018_Avalon Meydenbauer	207.034	207.034
CA005_Avalon Campbell	38.991	38.991
CA010_Eaves San Jose	68.728	68.728
WA023_AVA Ballard	129.881	129.881
CA062_Avalon at Cahill Park	97.711	97.711
CA064_Avalon Towers on the Peninsula	150.949	150.949
CA029_Avalon on the Alameda	74.915	74.915
CA049_Avalon Mountain View	12.758	12.758
CA027_Eaves Union City	25.1	25.1
CA053_Eaves Fremont	18.971	18.971
CA001_Avalon Fremont	71.044	71.044
CA019_Eaves Pleasanton	38.119	38.119
CA007_Eaves Daly City	22.27	22.27
CA009_AVA Nob Hill	73.459	73.459
CA082_Avalon Union City	117.61	117.61
CA085_Avalon Walnut Creek	191.653	191.653
NJ031_Avalon Piscataway	255.002	255.002
MA001_Avalon at Lexington	91.265	91.265
MA010_Avalon Oaks West	50.469	50.469
MA012_Avalon Orchards	23.089	23.089
MA003_Eaves Quincy	113.547	113.547
MA018_Eaves Peabody	73.081	73.081
MA019_Avalon at Bedford Center	44.743	44.743
MA014_Avalon at Newton Highlands	175.982	175.982
MA016_Avalon at The Pinehills	63.162	63.162
MA024_Avalon at Lexington Hills	222.567	222.567
MA025_Avalon Acton	155.777	155.777
MA020_Avalon Chestnut Hill	175.439	175.439
MA030_Avalon Northborough	94.588	94.588
MA027_Avalon at Hingham Shipyard	135.883	135.883
MA029_Avalon Sharon	70.01	70.01
MA041_Avalon Prudential Center 2	753.435	753.435
MA042_Avalon Prudential Center 1	545.98	545.98
MA802_AVA North Point	206.522	206.522
MA034_Avalon Cohasset	111.448	111.448
CT002_Eaves Stamford	131.839	131.839
CT005_Avalon Wilton 1	24.296	24.296
RI001_Avalon at Center Place	327.516	327.516
CT017_Avalon Darien	55.613	55.613
CT014_Avalon New Canaan	60.258	60.258
CT015_AVA Stamford	124.329	124.329
CT024_Avalon Wilton 2	45.941	45.941
CT022_Avalon Norwalk	234.092	234.092
NJ005_Avalon Run	207.573	207.573
MA054_Avalon Sudbury	63.794	63.794
NJ006_Avalon Princeton Junction	133.331	133.331
NY011_Avalon Riverview I	184.158	184.158
NY815_Avalon Bowery Place	266.304	266.304
NJ013_Avalon at Tinton Falls	134.025	134.025
NJ014_Avalon at West Long Branch	77.804	77.804

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
NY829_West Chelsea	136.73	136.73
NY037_AVA DoBro	245.04	245.04
NJ022_Avalon Bloomfield Station	233.786	233.786
NJ023_Avalon Roseland	73.681	73.681
WA026_AVA Capitol Hill	140.171	140.171
CA002_Eaves Dublin	34.717	34.717
NY038_Avalon Green III	18.404	18.404
VA031_Avalon Mosaic District	322.801	322.801
DC520_AVA NoMa	843.464	843.464
MA040_AVA Back Bay	457.145	457.145
NY003_Avalon Green	63.922	63.922
CA025_AVA Pacific Beach	170.55	170.55
CA047_Avalon Silicon Valley	270.568	270.568
NY044_Avalon Somers	54.824	54.824
NY004_Avalon Towers	243.532	243.532
VA023_Avalon at Arlington Square	328.313	328.313
MD026_Avalon Fairway Hills - Meadows	55.998	55.998
VA034_Avalon Columbia Pike	572.185	572.185
VA033_Avalon Clarendon	342.859	342.859
WA028_Avalon Alderwood II	24.848	24.848
WA027_Avalon Esterra Park	252.328	252.328
WA029_Avalon Newcastle Commons I	263.693	263.693
MD023_Avalon Hunt Valley	238.186	238.186
MD017_AVA Wheaton	243.871	243.871
NJ024_Avalon Princeton	279.879	279.879
MD024_Avalon Laurel	93.025	93.025
CA091_eaves Phillips Ranch	72.295	72.295
NY039_Avalon Willoughby	153.824	153.824
NJ027_Avalon Hoboken	193.968	193.968
CA093_eaves San Dimas Canyon	23.019	23.019
VA032_Avalon Potomac Yards	423.18	423.18
CA092_eaves San Dimas	18.429	18.429
CA095_eaves Rancho Penasquitos	42.619	42.619
NY041_Avalon Brooklyn Bay	239.06	239.06
CA094_eaves San Marcos	22.236	22.236
CA504_eaves Walnut Creek	44.377	44.377
CA096_eaves Lake Forest	56.156	56.156
CA522_eaves La Mesa	30.415	30.415
CA510_Avalon Simi Valley	101.046	101.046
CA539_Avalon Studio City III	126.882	126.882
CA524_Avalon Studio City II	50.934	50.934
CA541_Avalon Calabasas	76.485	76.485
CA540_Avalon Willow Glen	61.427	61.427
CA554_Avalon Santa Monica on Main	79.851	79.851
CA551_Avalon Oak Creek	111.813	111.813
CA561_Avalon La Jolla Colony	39.939	39.939
NY040_Avalon Great Neck	348.623	348.623
CA556_Avalon Del Mar Station	21.493	21.493
CA563_eaves Thousand Oaks	25.101	25.101
CA562_eaves Old Town Pasadena	23.43	23.43
CA566_eaves Los Feliz	65.143	65.143
CA564_Avalon Walnut Ridge I	29.724	29.724
CA571_eaves Seal Beach	93.083	93.083
CA569_eaves West Valley	174.286	174.286
CO001_Denver West	225.726	225.726
CA575_eaves Mt. View at Middlefield	83.307	83.307
CA574_eaves Woodland Hills	130.807	130.807
CA583_Avalon San Bruno	118.69	118.69
CA581_Avalon Thousand Oaks Plaza	43.907	43.907
CA585_Avalon San Bruno III	73.744	73.744
CA584_Avalon San Bruno II	46.381	46.381
CA588_Avalon Berkeley	35.915	35.915
CA587_Avalon Walnut Ridge II	66.711	66.711
CA591_Avalon Pasadena	77.116	77.116
NJ028_Avalon Maplewood	249.641	249.641
CA592_Avalon Studio City	141.939	141.939
CA039_Eaves Pacifica	20.054	20.054
CA043_Avalon Sunset Towers	47.439	47.439
CA012_Eaves San Rafael	24.277	24.277

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
CA033_Eaves Foster City	28.073	28.073
CA084_Avalon at Mission Bay PhaseIII	138.75	138.75
CA090_Avalon Ocean Avenue	74.742	74.742
CA051_Eaves Diamond Heights	50.816	50.816
CA067_Avalon at Mission Bay North	153.104	153.104
CA074_Avalon Wilshire	80.651	80.651
CA056_Eaves Warner Center	41.599	41.599
CA068_Avalon at Glendale	75.684	75.684
CA099_Eaves Cerritos	22.642	22.642
CA048_Avalon Woodland Hills	172.206	172.206
CA077_Avalon Encino	86.587	86.587
MAD02_Avalon North Point Lofts	68.573	68.573
CA078_Avalon Warner Place	87.083	87.083
CA113_Avalon Mission Oaks	13.461	13.461
CA069_Avalon Burbank	106.472	106.472
NJ026_Avalon Union	108.877	108.877
CA072_Avalon Camarillo	64.307	64.307
NJ021_Avalon Wharton	201.183	201.183
CA024_Eaves South Coast	44.212	44.212
CA050_Eaves Santa Margarita	52.596	52.596
CA021_AVA Newport	16.643	16.643
CA023_Avalon Mission Viejo	39.614	39.614
CA083_Avalon Irvine	118.573	118.573
CA086_Avalon Irvine II	80.688	80.688
CA059_Eaves Huntington Beach	23.122	23.122
CA060_AVA Cortez Hill	97.387	97.387
CA026_Eaves Mission Ridge	31.193	31.193
CA108_Avalon Baker Ranch	107.082	107.082
CA022_AVA Burbank	137.581	137.581
CA109_Avalon Irvine III	102.621	102.621
CA055_Eaves Creekside	37.446	37.446
CA116_Avalon Chino Hills	75.448	75.448
CA111_Avalon West Hollywood	293.397	293.397
WA031_AVA Esterra Park	138.369	138.369
CA102_Avalon Morrison Park	118.954	118.954
CA590_Huntington Beach	100.854	100.854
CA103_Avalon San Dimas	60.933	60.933
CA118_AVA North Hollywood	121.589	121.589
CA097_AVA Pasadena	27.599	27.599
MA050_Avalon Quincy	183.994	183.994
CA100_AVA at 55 Ninth	147.243	147.243
MA048_Avalon North Station	617.559	617.559
CT027_Avalon at Stratford	29.733	29.733
MA002_Avalon Oaks	82.898	82.898
CT025_Avalon Shelton III	196.017	196.017
CT026_Avalon East Norwalk	79.605	79.605
MA043_Eaves Burlington	48.984	48.984
NJ007_Avalon at Edgewater	182.99	182.99
MA037_Avalon Natick	154.913	154.913
MA038_Avalon at Assembly Row	224.789	224.789
NY834_AVA High Line	205.096	205.096
NY047_Avalon Yonkers	0	0
NY035_Avalon Ossining	65.691	65.691
NJ018_Avalon Somerset	214.053	214.053
NJ020_Avalon Bloomingdale - Union Av	64.17	64.17
CA087_AVA Little Tokyo	215.32	215.32
CA098_Avalon Dublin Station	89.416	89.416
VA014_Avalon Tysons Corner	128.074	128.074
CA107_Avalon Vista	40.34	40.34
MA036_Avalon Exeter	381.051	381.051
CA104_Avalon Hayes Valley	75.091	75.091
CA106_Avalon Glendora	172.749	172.749
MA047_Avalon Marlborough	155.925	155.925
MA049_Avalon Framingham	49.476	49.476
MA039_AVA Somerville	253.79	253.79
MA044_AVA Theater District	587.711	587.711
11 West 61st Street	0	0

C7.6c

(C7.6c) Break down your total gross global Scope 2 emissions by business activity.

Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Electricity	57945.42	57945.42
Steam	585.95	585.95

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	232	Decreased	0.3	Our dedicated sustainability capex budget funded over $15M in energy efficiency projects in 2019, including 32 LED retrofit projects and solar systems at the following properties: Eaves Warner Center (72kW), Studio City II (69kW), AVA Pasadena (69kW), Walnut Creek (30kW), Cahill Park (213kW), Willow Glen (129kW), Creekside (64kW), Vista (59kW), Rancho Penasquitos (91kW), Old Town Pasadena (60kW), Dublin Station I (171kW), Dublin Station III (139kW), Pacific Beach (222kW), Toluca Hills (344kW), Morrison Park (127kW), Studio City (130kW), Woodland Hills (497kW), West Valley (209kW), Burbank (231kW), Pleasanton (75kW), San Jose (39kW), Mountain View (658 kW), Campbell (75kW), Foster City (54kW), Burbank (345kW), Studio City III (301kW) Currently we are installing 26 additional solar on-site generation systems with targeted turn-on by the end of 2020, and have approval to go to bid for an additional 29 systems with installation targeted to span late 2020 and 2021. Further, with the approved Science-Based Targets in place, we are developing a strategic plan in later 2019 to achieve the goals outlined in our SBT. That plan will include lower emissions sources of energy, as we look to expand our solar, look at new ways of engaging our residents on renewable procurement and additional opportunities related to renewable energy. We calculated the emissions decrease due to renewable energy of 0.3% in 2019 as follows: Change in scope 1+2 attributable to Renewable Energy Production = 232 MTCO2e Previous Year (2018) Scope 1 and 2 emissions = 80,752 Metrics Tons CO2e. CALCULATION EQUATION: (Chang in scope 1+2 attributable to Renewable Energy Production)/(2018 Total Scope 1 and 2 Emissions) x 100 CALCULATION NUMBERS: 232 MTCO2e/80,752 MTCO2e x 100 = 0.3% reduction
Other emissions reduction activities	4063	Decreased	5	We completed 55 projects in 2019 to reduce emissions. These include LED Lighting, new, more efficient boilers, air handlers, and other equipment, and various activities designed to improve the building envelope insulation. With an investment of just under $4M US dollars, these activities together will reduce emissions by 4,063 MTCO2e We calculated the 2019 emissions reduction due to emissions reduction activities of 5% as follows: Change in scope 1+2 attributable to 2019 Emissions Reduction Activities: 4,063 MTCO2e 2018 Scope 1 and 2 emissions = 80,752 Metric Tons CO2e. CALCULATION EQUATION: (Change in scope 1+2 attributable to 2019 Emissions Reduction Activities)/(2018 Total Scope 1 and 2 Emissions) x 100 CALCULATION NUMBERS: 4,063 MTCO2e/80,752 MTCO2e x 100 = 5% reduction
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output		<Not Applicable>		
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)		121789.79	121789.79
Consumption of purchased or acquired electricity	<Not Applicable>		195664.67	195664.67
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>		2586.96	2586.96
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	112.37	<Not Applicable>	112.37
Total energy consumption	<Not Applicable>	112.37	320041.43	320153.8

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	No
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

121345.96

MWh fuel consumed for self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

<Not Applicable>

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
0.18159

Unit
metric tons CO2e per MWh

Emissions factor source
2017 The Climate Registry Default Emission Factors

Comment

Fuels (excluding feedstocks)
Propane Gas

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
58.38

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
<Not Applicable>

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
0.21602

Unit
metric tons CO2e per MWh

Emissions factor source
2017 The Climate Registry Default Emission Factors

Comment

Fuels (excluding feedstocks)
Fuel Oil Number 2

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
385.45

MWh fuel consumed for self-generation of electricity
<Not Applicable>

MWh fuel consumed for self-generation of heat
<Not Applicable>

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration
<Not Applicable>

Emission factor
0.25386

Unit
metric tons CO2e per MWh

Emissions factor source
2017 The Climate Registry Default Emission Factors

Comment

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	941.33	112.37	941.33	112.37
Heat				
Steam				
Cooling				

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method
None (no purchases of low-carbon electricity, heat, steam or cooling)

Low-carbon technology type
<Not Applicable>

Country/region of consumption of low-carbon electricity, heat, steam or cooling
<Not Applicable>

MWh consumed accounted for at a zero emission factor
<Not Applicable>

Comment

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description
Waste

Metric value
92258

Metric numerator
Metric Tons

Metric denominator (intensity metric only)
not intensity metric

% change from previous year
2.7

Direction of change
Increased

Please explain
We increased the coverage of our waste reported from 80% of our communities to over 90% of our communities. This was offset some by a reduction in construction waste, but contributed to the increase year-over-year.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	

C-CN9.6a/C-RE9.6a

(C-CN9.6a/C-RE9.6a) Provide details of your organization's investments in low-carbon R&D for real estate and construction activities over the last three years.

Technology area
Integration of renewable energy sources in buildings

Stage of development in the reporting year
Large scale commercial deployment

Average % of total R&D investment over the last 3 years
41 - 60%

R&D investment figure in the reporting year (optional)
17000000

Comment
In 2016 AvalonBay, through the direction and leadership of the Vice President of Corporate Responsibility began a study of renewable energy generation onsite at our multifamily properties. This analysis led to the development of and investment in a renewable energy strategy initially focused on solar production. Starting with 9 communities in Washington, Dc, New Jersey and California, we installed of 1.1MW of solar at our communities, offsetting our building electrical load. This $3M investment in both the research/design and execution of these projects led to an additional "Phase 2" set of properties, where we currently are installing 4.5MW of solar at a cost of $14M. Hence the 2019 investment of $17M. In 2020 Phase 3 was approved, which will install an additional 3.3MW of solar at a cost of $12M. This commercial deployment of solar is now being extended with our approved science-based targets to look at additional low-carbon options, including power-purchase agreements, community solar, and the extension of choice to our residents to provide them with low carbon electricity generation options on their bills. Further we are "greening" our energy procurement in the regions where we have choice, recently having signed two power purchase agreements buying green power and covering over 63 million KWH of electricity procurement in some of our largest markets, including Boston proper, Massachusetts and Washington, DC.

C-RE9.9

(C-RE9.9) Does your organization manage net zero carbon buildings?
No, but we plan to in the future

C-CN9.10/C-RE9.10

(C-CN9.10/C-RE9.10) Did your organization complete new construction or major renovations projects designed as net zero carbon in the last three years?
No, but we plan to in the future

C-CN9.11/C-RE9.11

(C-CN9.11/C-RE9.11) Explain your organization's plan to manage, develop or construct net zero carbon buildings, or explain why you do not plan to do so.

In 2016 AvalonBay, through the direction and leadership of the Vice President of Corporate Responsibility began a study of renewable energy generation onsite at our multifamily properties. This analysis led to the development of and investment in a renewable energy strategy initially focused on solar production. Starting with 9 communities in Washington, Dc, New Jersey and California, we installed of 1.1MW of solar at our communities, offsetting our building electrical load. This $3M investment in both the research/design and execution of these projects led to an additional "Phase 2" set of properties, where we currently are installing 4.5MW of solar at a cost of $14M. Hence the 2019 investment of $17M. In 2020 Phase 3 was approved, which will install an additional 3.3MW of solar at a cost of $12M. This commercial deployment of solar is now being extended with our approved science-based targets to look at additional low-carbon options, including power-purchase agreements, community solar, and the extension of choice to our residents to provide them with low carbon electricity generation options on their bills. Further we are "greening" our energy procurement in the regions where we have choice, recently having signed two power purchase agreements buying green power supported by energy-attribute certificates, and covering over 63 million KWH of electricity procurement in some of our largest markets, including Boston proper, Massachusetts and Washington, DC.

With all of this progress in renewable energy and with our approved science-based targets and concurrent plan to achieve them we are now close to being able to operationalize a net-zero building. That is a step in our journey that I anticipate us achieving in the next 2-5 years as part of the plan to achieve our SBTs.

And, in fact, we have a development in Boston that is being designed with this in mind, including full building electrification, solar and the potential for renewable power purchase agreements.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
AvalonBay CY 2019 - Assurance Statement.pdf

Page/ section reference
All

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
AvalonBay CY 2019 - Assurance Statement.pdf

Page/ section reference
All three pages are relevant as this is the assurance statement in full. Page 2 lists the specific values provided assurance.

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

Scope 2 approach
Scope 2 market-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
AvalonBay CY 2019 - Assurance Statement.pdf

Page/ section reference
All three pages are relevant as this is the assurance statement in full. Page 2 lists the specific values provided assurance.

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category
Scope 3: Business travel

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
AvalonBay CY 2019 - Assurance Statement.pdf

Page/section reference
All three pages are relevant as this is the assurance statement in full. Page 2 lists the specific values provided assurance.

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Employee commuting

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
AvalonBay CY 2019 - Assurance Statement.pdf

Page/section reference
All three pages are relevant as this is the assurance statement in full. Page 2 lists the specific values provided assurance.

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?
Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C9. Additional metrics	Other, please specify (Water)	ISO 14064-3	LRQA verifies both our construction and building (community) waste annually, in addition to emissions, energy and water. We will use the findings and process to improve our waste data collection processes with an aim toward setting waste reduction targets in the future. AvalonBay CY 2019 - Assurance Statement.pdf
C9. Additional metrics	Other, please specify (Waste)	ISO 14064-3	LRQA verifies our water consumption annually, in addition to emissions, energy and waste. We will use the findings and process to improve our water data collection processes with an aim toward achieving our 2020 water use intensity reduction target of 15%. AvalonBay CY 2019 - Assurance Statement.pdf

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?
No, and we do not anticipate being regulated in the next three years

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement
Compliance & onboarding

Details of engagement
Climate change is integrated into supplier evaluation processes

% of suppliers by number
100

% total procurement spend (direct and indirect)
50

% of supplier-related Scope 3 emissions as reported in C6.5
100

Rationale for the coverage of your engagement
These are our key suppliers with whom we spend the most and who represent our key national suppliers.

Impact of engagement, including measures of success
Impact of our Climate-Related Supplier Engagement From a sustainability standpoint related specifically to environmental measures, all vendors must agree to our public, responsible procurement principles and agree to be audited periodically against them. In 2019, we surveyed 28 AVB vendors of strategic importance against our principles and ensured compliance with their intent. This represented an increase of 8% over our 2018 survey. We also require vendors to sign the principles in all contract vehicles and in new vendor agreements. We require all vendors to sign the principles in all contract vehicles and in new vendor agreements. Since implementation of our climate-related supplier engagement strategy we have seen the following impacts: 1) It has raised the awareness of our key suppliers that AvalonBay not only cares about these issues, but it monitoring their compliance to them and auditing for compliance. 2) We have opened dialogues with these suppliers on the topic and increased engagement on issues related to climate change and of importance to our business going forward. An example of this is our relationship with Office Depot's head of sustainability. This vendor supplies us with all office and community supplies related to office operations. We have conducted an analysis of our purchase with them to determined how "green" the products we are purchasing actually are, and held a meeting with them in Q2, 2018 to set a path forward to move our % green products toward better than 75% of our purchases with them (from a current purchase rate of about 40%). 3) We have no data indicating that there are reported issues of suppliers not adhering to our principles. Measures of Success: We measure the success of our supplier engagement program across several metrics: 1) Reduce to zero known environmental non-compliance issues with our Responsible Supply Chain policy 2) Increase engagement with key suppliers (1 or 2 major ones each year) to move what we purchase from them to a more environmentally sound, low carbon set of options. Work with suppliers to source more locally to reduce travel emissions. 3) Report publicly on an annual basis the program progress and continually improve it as AvalonBay continues to move to a low-carbon future for sourcing/supplying, building and operating it's 280 properties.

Comment

Type of engagement
Innovation & collaboration (changing markets)

Details of engagement
Run a campaign to encourage innovation to reduce climate impacts on products and services

% of suppliers by number
20

% total procurement spend (direct and indirect)
30

% of supplier-related Scope 3 emissions as reported in C6.5
35

Rationale for the coverage of your engagement
We are beginning the implementation of our Science-Based Targets achievement plan, and construction emissions and embedded carbon is one track we are pursuing. Hence we have a small engagement started with key suppliers of construction materials to change what we use (e.g., concrete, wood, etc.) in our construction processes and move to a lower embedded carbon materials. The percentage of suppliers engaged and the percentage of spend will increase over time.

Impact of engagement, including measures of success
We are beginning the implementation of our Science-Based Targets achievement plan, and construction emissions and embedded carbon is one track we are pursuing. Hence we have a small engagement started with key suppliers of construction materials to change what we use (e.g., concrete, wood, etc.) in our construction processes and move to a lower embedded carbon materials. It is still too early to say the full impact yet, but the measures of success are moving our construction materials processes to a significantly lower embedded carbon material and achieving our Scope 3 Science-Based emissions reduction target.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement
Education/information sharing

Details of engagement
Share information about your products and relevant certification schemes (i.e. Energy STAR)

% of customers by number
100

% of customer - related Scope 3 emissions as reported in C6.5
75

Portfolio coverage (total or outstanding)
<Not Applicable>

Please explain the rationale for selecting this group of customers and scope of engagement
Our residents represent a size-able portion of our Scope 3 emissions. In the Multifamily sector they represent the largest portion of a building's potential emissions. Therefore, engaging them is critically important. And with the approved Science-Based Targets we are planning to engage them even further, with potential programs to offer residents renewable energy choices and with expansion of current programs to reduce apartment home energy and water consumption. in 2019 we began to scope the plans for achieving our 2030 approved science-based targets and have engaged a number of vendors who could provide our residents with choice relative to green energy procurement. More progress is anticipated on this front.

Impact of engagement, including measures of success
Impact of Engaging our Customers The fundamental impact we hope to achieve by engaging our customers is to lower their contribution to our scope 3 emissions. Further we look to impact our customers knowledge of climate risk/change and building emissions in particular by supplying them with a number of educational programs throughout the year. Finally, through our Green Label Program, which provides an analysis of what our new apartment homes do to reduce their consumption and save them money compared to other apartment home stock in the neighborhood, we are educating our customers on how buildings contribute to energy and water efficiency, with an impact of raising awareness. In summary, the IMPACT here is: Reduce Scope 3 Emissions, Increase Knowledge on climate risk/change, Increase their understanding of how the built environment contributes to energy and water efficiency. Success Measures Our success measures related to education are to reach 100% of our residents with our educational materials. Our success measures with the Green Label Program are to ensure that each new development has a Green Label and that our onsite teams are trained and having sustainability-related conversations with prospective and current residents. Regarding renewable energy and energy efficiency, we are anticipating that our engagement program will results in two major outcomes (success measures): 1) Support our achievement of our Scope 3 emissions reduction target of a 47% drop in Scope 3 emissions by 2030 2) Increase the number of residents who are choosing greener electricity supply by 5-10% per year in the markets where choice is available

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?
Direct engagement with policy makers
Trade associations
Funding research organizations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Other, please specify (Emissions)	Support	A number of our markets have legislated lower carbon emissions and AvalonBay has been engaged in supporting the execution of this legislation. For example: We are working with New York City's Retrofit Accelerator Program with two buildings enrolled in the program. We will work with the city over the coming years to test and implement technologies to deeply cut emissions in these buildings and help the city achieve it's goal of an 80% emissions reduction by 2050. Our participation in the program will help the city better understand how buildings can be retrofitted to dramatically reduce carbon emissions. In addition, in late 2019 we offered two properties to be studied by Boston's Green Ribbon commission in support of the city's goal of carbon neutrality by 2050. These buildings will serve as pilot projects to advance the understanding of the challenges and advantages of performing deep carbon emissions retrofits in a multi-family context.	The City of New York enacted Local Law 97 of 2019—the most ambitious climate legislation for buildings enacted by any city in the world. The new law places buildings on a path to meet the city's goal to reduce overall carbon emissions 80 percent by 2050. Boston is looking to pass a similar law affecting carbon emissions in its built environment.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?
Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position

How have you influenced, or are you attempting to influence their position?

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?
Yes

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

We have several processes in place to ensure that all of our direct and indirect activities that influence policy are consistent with our overall climate change strategy. Generally, all of our Company's procedures are governed by our corporate governance policies and principles, such as the Code of Business Conduct and Ethics and Corporate Governance Guidelines, which provide safeguards against practices that are inconsistent with the Company's objectives and govern direct and indirect activities external to the company (e.g., influencing policy). Additionally, our Chief Investment Officer (CIO) sits on our Corporate Responsibility Committee, which governs the day-to-day decision making and strategies related to environmental sustainability at AvalonBay. This Committee meets once a month, and our CIO ensures that through both our corporate governance policies and principles and his knowledge of and participation in our Environmental Sustainability practices his involvement in trade associations and advocacy is consistent with our overall climate change strategy.
Further, with our approved Science-Based Targets and the recent presentation of our climate change portfolio analysis to the AvalonBay Board of Directors, we are ensuring complete alignment at the top around the activities both internal and external (policy influence, for one) related to our climate change strategy.

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication
In voluntary sustainability report

Status
Complete

Attach the document
2019+CR+Report_FOR+CDP.pdf

Page/Section reference
Page 32, CR Governance Structure section

Content elements
Governance

Comment

Publication
In voluntary sustainability report

Status
Complete

Attach the document
2019+CR+Report_FOR+CDP.pdf

Page/Section reference
Various but see page 13 and following for our environmental strategy

Content elements
Strategy

Comment

Publication
In voluntary sustainability report

Status
Complete

Attach the document
2019+CR+Report_FOR+CDP.pdf

Page/Section reference
Pages 46 and 47

Content elements
Emissions figures

Comment

Publication
In voluntary sustainability report

Status
Complete

Attach the document
2019+CR+Report_FOR+CDP.pdf

Page/Section reference
Page 6

Content elements
Emission targets

Comment

Publication
In voluntary sustainability report

Status
Complete

Attach the document
2019+CR+Report_FOR+CDP.pdf

Page/Section reference
CR_FULL_DIGITAL_Final.pdf Various place in our CR Report but see goals on page 8 for waste goal, etc.

Content elements
Other metrics

Comment

Publication
In mainstream reports

Status
Complete

Attach the document
AvalonBay_2019AnnualReport.pdf

Page/Section reference
Page 1, "Corporate Responsibility" section

Content elements
Strategy

Comment

Publication
In mainstream reports

Status
Complete

Attach the document
AvalonBay_2019AnnualReport.pdf

Page/Section reference
Page 1, "Corporate Responsibility" section

Content elements
Risks & opportunities

Comment

Publication
In mainstream reports

Status
Complete

Attach the document
AvalonBay_2019AnnualReport.pdf

Page/Section reference
Page 1, "Corporate Responsibility" section

Content elements

Emission targets

Comment

C15. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

No additional context necessary.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Financial Officer (CFO)	Chief Financial Officer (CFO)

Submit your response

In which language are you submitting your response?
English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission
I am submitting my response	Investors	Public

Please confirm below
I have read and accept the applicable Terms