

## Task force on climate related financial disclosures (TCFD)

The Board recognises the global climate emergency and the risks and opportunities posed by climate change to the Group's business model and strategy.

Climate change was introduced as a principal risk for the Group in its 2018 Annual Report and Accounts and, as in prior years, the Group has reported climate-related disclosures consistent with the TCFD Recommendations and Supporting Recommended Disclosures, and will continue to mature its level of reporting in accordance with the requirements.

This year we have further evolved our TCFD reporting to include detailed analysis of identified transition risks and potential financial impacts, and physical risk modelling at a regional level with identification of potential financial impacts.

The Group has set ambitious climate reduction targets to achieve net zero carbon homes in use for 2030 and net zero carbon in our operations by 2040. These are supported by science based targets for carbon emissions reductions which were validated by the Science-Based Target initiative (SBTi) in August 2021.



### 1. Governance

Climate change is considered a principal risk for the Group and as such, it is governed and managed in line with the Group's risk management framework. (See page 57 for further details).

The Board has overall responsibility for the management of risks and opportunities arising from climate change, and on an annual basis undertakes a Group-wide review which includes consideration of climate risk. In particular the Board has taken an active role in understanding the impacts of future legislation with a focus this year on readiness for changes to Part L of the Building Regulations and the Future Homes Standard.

The Sustainability Committee (SC) supports the Board's climate responsibility, and oversees the Group's climate change strategy, to ensure climate issues are being effectively considered and managed, and reports its findings and recommendations to the Board. During 2022, for example, the Committee reviewed the progress of the development of the carbon transition plans to ensure the Group is on track to deliver its net zero and science based target carbon emissions reduction commitments, and climate risk and resilience aligned with TCFD reporting requirements.

The Group Sustainability Director and Group Strategy and Regulatory Director are responsible for updating the climate risks within the Group risk register, and consult with key Group functions to ensure comprehensive coverage of potential impacts and mitigation plans. The findings are taken to the Sustainability Committee and communicated to the Steering Groups for action.

When considering our land investment opportunities, the Regional Managing Directors are responsible for ensuring all environmental surveys including flood risk assessments are undertaken prior to acquisition, with final approval going to the Land Committee who oversee all acquisitions.

## 2. Strategy

Our strategy sets out our pathway to net zero carbon for our homes in use by 2030, and for operations to be net zero carbon, including our manufacturing facilities, by 2040. In supporting delivery of these targets we have established science based carbon emissions reduction targets of 46% for our Scope 1 & 2 absolute emissions and a target of 22% reduction per m<sup>2</sup> completed floor area of Scope 3 emissions by 2030, which have been approved by the Science Based Target initiative (SBTi). These targets are an ambitious step forwards in our approach to climate action and have been calculated to ensure that we play our part in limiting global warming to 1.5 degrees above pre-industrial levels.

We have defined four strategic focus areas to achieve our ambitions:

### Create low carbon homes

- Reduce energy demand: design homes to be more energy efficient.
- Readiness plans are in place for Part L of the Buildings Regulations and Future Home Standard.
- Understand performance and customer experience: gather real life in-use data from our low carbon home trials.
- Innovation: continue to instigate technology trials to be at the forefront of innovation, build strategic relationships with supply chain and continue to invest in our off-site manufacturing facilities.

### Deliver low carbon site operations

- Reduce our use of diesel across our sites through, for example driver training or use of low carbon fuels.
- Trial new technologies such as electric and hybrid plant when available and appropriate.
- Set standards and benchmarks for energy reduction and management on-site.

### Reduce embodied carbon

- Assess embodied carbon to identify high impact materials and services.
- Evaluate the benefits from our vertical supply chain and maximise opportunities through design.
- Supply chain: communicate our strategy to our suppliers, and work with our supply chain to reduce embodied carbon in materials.

### Ensure climate change resilience

- Climate risk management: scenario plan our strategic land holdings, and any major business change for climate resilience and mitigation.
- Design: design in climate risk measures to mitigate risks, such as window sizing, orientations, modern methods of construction.
- Nature based solutions: utilise blue and green infrastructure to mitigate against extreme weather events such as flooding, droughts.

### Climate scenario analysis

We have identified high level climate change related risks and opportunities over the short, medium and long-term that are considered to have a potentially material financial impact on the Group strategy and business model.

In accordance with best practice and TCFD recommendations, contrasting science based scenarios have been developed to enable consideration of exposure to both physical and transition risks. These scenarios have been considered over three different time horizons:

- short-term (to 2025); medium-term (to 2030) and long-term 2040+.

These timescales have been chosen as the most relevant to the business, reflecting major future legislative change in 2025 with the introduction of the Future Homes Standard, and aligning with the Group's net zero carbon and science based target commitments.

### Net zero carbon world 1.5°C

- Assumes climate policies and controls are introduced early and become more stringent over a relatively short timeframe (2030). High transition risk in the short-term, and very aggressive mitigation measures, but as a result physical risks are less severe compared to the 2°C scenario.

### Paris consistent scenario ~2°C

- Relatively high transition risk in the short-term, associated with aggressive mitigation actions to reduce emissions. As a result physical risks are less severe compared to the 4°C scenario.

### Hot house world ~4°C

- Low transition risk in the short and long-term as the world fails to transition to a low carbon economy. Consequently, physical risks become increasingly frequent and severe in the long-term, resulting in serious impact on the global economy, the environment and human wellbeing.

### Output from the climate scenario analysis and quantification

The Group already has a good understanding of its climate related risks and opportunities, and the tables on pages 66 to 69 provide a high level summary of the types of risks, their potential impact, the time horizons which have been considered, and the Group's response.

In 2022 the Group has further evolved its climate scenario understanding through undertaking a detailed evaluation and financial analysis of potential material climate risks and opportunities, with the support of an external specialist risk consultancy.

## Task force on climate related financial disclosures (TCFD) continued

### 3. Transition risk analysis

The transition risks are anticipated to occur in a relatively short timeframe compared to physical risks, and this is already being seen with increasing legislation on energy efficiency in homes coming into force, with the changes to Part L of the Building Regulations and the Future Homes Standard for example. This will drive changes in technology, customer expectations and the Group is already evaluating alternatives, trialling innovative technologies and engaging with suppliers.

	Summary description of transition risks	Potential impact ranking	Time-frame of impact	Business readiness
<b>Policy &amp; legal drivers</b>				
<b>Pricing of GHG emissions</b>	Carbon pricing could manifest as a range of environmental, planning or sector wide taxes. Under the 1.5°C scenario, pricing of GHG emissions could be \$155-\$454 per tonne by 2030, and \$54-\$97 per tonne under the 2°C. Carbon pricing could be felt through the supply chain and material costs.	High	Short	Evaluated as part of 2022 in depth risk analysis
<b>Increasing national regulation relating to more stringent environmental standards</b>	Increasing stringency of building, planning regulations and design requirements to enable the UK Government to meet its 2050 Net Zero Carbon Target; inc Part L of the Building Regulations; Future Homes Standard, National Policy Planning Framework, and National Model Design Code. Many local authorities have declared their own climate emergencies, and the planning system will be a key vehicle for delivery. This could impact our development and growth plans, and increase build costs.	High	Short	In plan. Further informed by 2022 in depth climate risk analysis
<b>Climate change litigation</b>	Climate related litigation claims may be bought by investors, insurers, shareholders and public interest organisations. Reasons could include failure to adapt to climate change causing harm, greenwashing.	Low	Medium	Include in future plan
<b>Enhanced reporting obligations</b>	Additional emissions related reporting requirements likely in the UK by 2030. This could include needing a materials passport in order to increase the circularity of building supply chains, and updates to the Streamlined Energy and Carbon Reporting (SECR) regulations. Scope 3 emissions reporting could also become mandatory.	Low	Short – Medium	Include in future plan
<b>Technology shifts</b>				
<b>EV use</b>	To achieve the UK Government's Net Zero Carbon Commitment by 2050, there will be an increasing number of electric vehicles. Sufficient charging points and grid capacity will be required, which will have an impact on build costs.	High	Short	In plan
<b>Substitution of technology</b>	Risk of installing technologies at the beginning of a planning process that then become obsolete or outdated. Could affect customer satisfaction and sales. This is especially at the point of the implementation of the Future Homes Standard.	Medium	Short	Under evaluation
<b>Market</b>				
<b>Change in customer demands</b>	There is a risk, if energy prices increase, property buyers will want lower carbon homes, and expect greater energy operational efficiency. Inefficient properties could also fall in value which could impact the market.	High	Short	Further informed by 2022 in-depth climate risk analysis

	Summary description of transition risks	Potential impact ranking	Time-frame of impact	Business readiness
<b>Supply chain resilience and increasing cost of raw materials</b>	Sourcing and availability of materials could be impacted by both transition and physical risks. There is a risk of increasing development costs, due to supply and demand, and likely carbon pricing on key materials such as glass, cement and insulation.	High	Short – Medium	Evaluated as part of 2022 in depth climate risk analysis.
<b>Cost of capital</b>	As credit ratings begin to incorporate climate change considerations, there is a risk of downgrading and the cost of capital increasing.	Low	Medium	In plan
<b>Low carbon technology availability</b>	Rapid uptake of low carbon technologies such as air source heat pumps could cause market shortages and delay delivery of homes.	High	Short	Under evaluation
<b>Skill shortage impacting ability to install low carbon technology</b>	In order to reduce emissions to comply with planning requirements, access to different skills such as renewable specialists and heat pump installers, will be required. A shortage could lead to delayed delivery and an increase in build costs.	High	Short	Under evaluation
<b>Reputation</b>				
<b>Investment risk</b>	Risk to revenue and investment streams as clients and investors increasingly expect high levels of sustainability performance.	Medium	Medium	In plan
<b>Stakeholder risk</b>	Over the next decade social pressure regarding sustainability and increased public awareness could create a reputational risk if there is failure to reduce both operational and embodied carbon. The impact of this could be seen through delays in the planning process as Local Authorities enact their own climate action requirements.	Medium – High	Short – Medium	In plan
<b>Employee risk</b>	As employees are becoming increasingly concerned with climate change issues, negative publicity around failure to deliver targets could make it difficult to attract and retain talent.	Low – Medium	Short – Medium	Included in employee survey

## Quantification of transition risk

For the purposes of transition risk quantification the Group, with the assistance of an external consultancy, selected four risks and opportunities which presented the most likely material impact. The three transition risks and one opportunity were assessed on short (2025) and medium (2030) time horizons. The assessment focused on a Low Carbon World (1.5°C) scenario, associated with the most significant level of transition risk. The financial impact quantification relied on assumptions sourced from climate scenarios published by sources including IEA and NGFS, as well as public domain research.

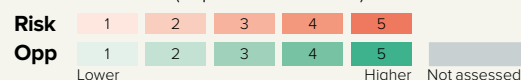
It also built in assumptions agreed with a selection of Group's internal subject matter experts for aspects such as expected volume delivery and Group's 'uplift costs' to meet regulatory requirements. The table below summarises the scope of the four transition risks/opportunity, the impact assumptions, the Group's key mitigations and the residual risk exposure.

Risk was evaluated in terms of Gross Risk Score (i.e. likelihood multiplied by impact). A score is attributed to inherent risk (i.e. without considering Persimmon's risk mitigations) and to residual risk (i.e. after factoring in mitigations). In other words, residual risk takes into account the risk mitigation/adaptation strategies and controls that Persimmon have in place to minimise the impact of the climate risk.

Transition risks are well understood by the business, and plans are already in place to mitigate the risks, and levels of potential residual risk are very low. This is based on the most up to date data and assumptions available. The Group will continue to track and monitor transition risks.

## Task force on climate related financial disclosures (TCFD) continued

Gross risk score (Impact x Likelihood)



Residual Risk/Opp

**S** – Short-term (2025)  
**M** – Medium-term (2030)  
**L** – Long-term (2050+)

Transition risk	Risk name	Low carbon world scenario (1.5°C)		
		S	M	L
<b>1</b>	<b>Increasing cost of raw materials</b>			
<b>Description:</b> There is a risk of increasing cost of raw materials used in construction driven by the transition to a Low Carbon Economy. Persimmon's suppliers could pass on the impact of carbon pricing for high carbon building materials such as steel and cement onto Persimmon, consequently impacting on development costs.	<b>Impact assumptions:</b> Carbon Prices based on IEA and NGFS forecasts; volume of homes and build-type based on internal Persimmon projections; embodied carbon estimated based on current levels and assumptions on future carbon intensity of input materials.  <b>Controls/mitigation:</b> Costs ultimately recovered through land valuation; risk internally monitored by the Group's Procurement department; Scope 3/embodied carbon reduction targets; Supplier initiatives; Increasing timber frame construction offers opportunity to reduce embodied carbon.	2	2	
		<b>Max financial impact:</b> <£2 million (Very low impact)		
<b>2</b>	<b>Pricing of greenhouse gas emissions</b>			
<b>Description:</b> Under a Low Carbon World scenario, pricing of GHG emissions in the UK is expected to increase. This could impact Persimmon's operating costs. Uncertainty around UK pricing and regulations (e.g. cap and trade schemes) could make planning of future Persimmon operations difficult.	<b>Impact assumptions:</b> Carbon Prices based on IEA and NGFS forecasts; emissions based on current Scope 1 and 2 (location-based), factoring in the achievement of emission reduction target of 46.2% by 2030.  <b>Controls/mitigation:</b> Persimmon's sustainability strategy which includes a core focus on climate action and resilience; on-site energy efficiency initiatives to reduce emissions from construction; more efficient build methods; staff education around energy use.	1	2	
		<b>Max financial impact:</b> <£2 million (Very low impact)		
<b>3</b>	<b>Climate-related regulations impacting products and services</b>			
<b>Description:</b> The UK may need to increase the stringency of building regulatory requirements as part of its efforts to meet its Net Zero 2050 target. This could affect Persimmon's developments in the form of increasing development costs to ensure all new buildings are zero carbon-ready by 2030.	<b>Impact assumptions:</b> Volume of homes and build-type based on internal Persimmon projections; uplift costs to meet Future Homes Standard based on internal Persimmon calculations; assumptions on cost of air source heat pumps are linked to the UK's Low Carbon Heat Scheme.  <b>Controls/mitigation:</b> Costs ultimately recovered through land valuation; Persimmon's sustainability strategy includes the strategic focus area of 'Create Low Carbon Homes'; innovation e.g. technology trials, investment in manufacturing facilities and building strategic relationships; active role taken by the Board in managing regulatory risk.	2	2	
		<b>Max financial impact:</b> <£2 million (Very low impact)		
<b>4</b>	<b>Changing consumer preferences</b>			
<b>Description:</b> There is a risk that by 2030 property buyers will want lower carbon homes as they try to harness the opportunity of green mortgages and greater operational energy efficiency. If Persimmon is able to deliver low carbon homes by 2030, this could create opportunity for increased revenue by taking advantage of 'green premiums' on new build properties.	<b>Impact assumptions:</b> Consumer research is indicating a premium for more energy efficient homes, and a willingness to pay more for cost effective energy efficient homes. Green mortgages also have an opportunity to support the transition to sustainable homes. However the market is still evolving and financial valuation for green products is maturing.  <b>Controls/mitigation:</b> Persimmon has clear plans in place to deliver low carbon homes, ensuring they are affordable and cost effective to run for customers. Monitoring of consumer trends will continue to ensure opportunities are maximized.	1	2	
		<b>Max financial impact:</b> Under review		

## Physical risk analysis

Whilst physical risks under the scenario modelling manifest over a longer time period, there is already an increasing occurrence being observed of more extreme weather events that are attributed to current climate change. These are typically observed as such as more excessive snow falls, rainfall, unusually high temperatures, and unseasonal weather patterns.

The table below ranks the potential impacts, timescale and readiness based on those that will manifest more significantly in the future. Whilst physical risk is seen as a long-term risk, a number have been included as part of the detailed climate analysis undertaken in 2022.

	Summary description of physical risks	Potential impact ranking	Time-frame of impact	Business readiness
<b>Heat stress</b>	Hot summers are expected to become more common with more extreme temperatures. Under the Hot House scenario, heatwaves could last 20 days. This will affect comfort for customers and therefore design criteria will need to be applied to avoid overheating. Construction site conditions and working practices will need to ensure worker health, safety and wellbeing. Heat island effects will also become more prevalent in urban and built up areas.	High	Medium – Long	Included in detailed 2022 climate risk analysis
<b>Drought stress</b>	Summers will become drier, with the south of the UK predicted to experience 2.5 – 3.5 months of drought under the Hot House Scenario. Locally this will impact water suppliers, and will become part of planning considerations.	High	Medium – Long	Included in detailed 2022 climate risk analysis
<b>Precipitation</b>	Greater chance of more rainfall in the winter and less in the summer. Seasonal and regional differences. Impact on site construction activities, customer gardens and supply chain.	High	Medium – Long	Included in detailed 2022 climate risk analysis
<b>Flood</b>	High underlying flood risk in the present day. Under the Hot House scenario there is a 21%-56% increase in river peak flow rates, and the probability of flooding in a year could increase 3 to 10 times. Already a key requirement in the planning process. Increased number of flood plains in the future may impact build costs and/or land availability.	High	Medium	In plan, and further informed by detailed 2022 climate risk analysis
<b>Windstorms</b>	Classed as medium to high risk in all scenarios, but with greater severity under the Hot House scenario. Predicted to decrease in the south but increase in the Midlands, North, Wales and Scotland.	Medium	Medium	In plan, and further informed by detailed 2022 climate risk analysis
<b>Sea level rise</b>	Expected between 0.2m – 0.6m under the Net Zero scenario and up to 1.1m in the Hot House scenario. This will have an impact on coastal locations.	Low	Long	Include in future plan
<b>Subsidence</b>	Medium level risk of possible ground instability and building foundation issues. Regions around London most exposed. In the Hot House scenario there is a higher risk and greater area of impact in the south of England.	Medium	Long	Include in future plan
<b>Infrastructure</b>	The stress on water and energy utilities together with road transportation will increase. In the Hot House scenario there is the expectation of disruptions to critical services. This could impact supply chains, and result in production down times.	Medium	Long	Include in future plan



## Task force on climate related financial disclosures (TCFD) continued

### Quantification of physical risk

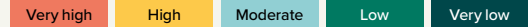
For the purposes of physical risk quantification, the Group, with the assistance of a specialist consultancy, undertook detailed climatic modelling. For physical risk, the risk to the Group's portfolio of owned assets was explored in relation to eight physical climate perils: chronic heat stress, chronic drought stress, sea level rise, extratropical cyclone, fire weather, river flood, precipitation/flash floods and subsidence.

The exposure to these climate perils (hazard exposure) was modelled by taking the regional view of the UK, weighted by the average volume delivery where Persimmon has operated in over the past four years. The models assess the climate hazards under a range of GHG emission trajectories (1.5°C – 2°C, and 4°C global warming) and the 2030 and 2040+ time horizons. This information was then used to assess the potential consequences to the Group's business and explore with the Group's internal subject matter experts what controls and strategies exist in place to address the possible consequences and how those will flow through the value chain.

The Group benefits from having a wide range of developments across all regions of the UK, which mitigates the range and variety of physical risks that it is exposed to. This also informs where risk maybe become more predominant and avoidance and mitigation strategies can be put in place. The Group has a robust land investment appraisal and planning process where all potential sites are evaluated for climate risk, thereby mitigating potential business impacts.

By 2030 assuming 1.5°C – 2°C global warming				By 2050 assuming 4°C global warming			
	Hazard exposure	Residual risk	Chronic risks	Hazard exposure	Residual risk	Chronic risks	
<b>Heat stress</b> 	Very low	Very low	Currently the UK is exposed to very low heat stress meaning on average, there are less than 5 heatwave days in a year. Changes in regulations and design with regards to overheating and energy efficiency are likely for the short-term (2025-2030), but the additional costs to the business to implement them would not be significant, as those could be factored in the land valuation process. No other impacts or vulnerabilities are foreseen and therefore Persimmon's residual risk is very low.	High	Low	Under this scenario, some regions of the UK, mainly London and the south, will be exposed to a higher heat stress, seeing an average of 5-20 heatwave days in a year. Those conditions could be relevant to ~40% of the average homes built by Persimmon, primarily in the south east of England. However Persimmon currently factors in conservative temperature and heat stress forecasts in its design to address overheating. Heat minimising solutions could be factored into building design and planning. Future regulation could require further adaption/ design measures that are typically considered in any land valuation exercise. More frequent interruptions to construction operations and supply chain are likely in the summer periods.	
<b>Drought</b> 	Low	Very low	Around 50% of the volume delivery in the regions where Persimmon operate have some level of drought stress potential, meaning on average ranging from less than a month to over two months of drought duration per year, in particular Midlands and the south of the UK, whilst the remaining 50% have a lower drought stress potential. Persimmon takes measures for their current homes with regards to keeping water usage lower than average. Any additional development costs are typically recovered through land valuation. There has been no significant financial impact to the business so far, and the residual risk is therefore considered very low.	High	Low	The risk increases. A third of Persimmon's typical operating regions/homes could face 3-4 months of drought duration per year, in particular in the south of the UK. There could be further regulations with regards to water (re)usage that could put additional costs on developments in the south east. Persimmon would consider this issue on a site by site basis and currently undertakes water usage calculations for its developments. Any additional costs would be considered in the land valuation process. Operationally, water scarcity could cause delays in construction or supply and cost issues for water-based construction materials.	

**Risk scale**



**By 2030 assuming 1.5°C – 2°C global warming**

	Hazard exposure	Residual risk	Chronic risks
<b>Sea level rise</b> 	Very low	Very low	Some regions of the UK where Persimmon operates are exposed to coastal flooding and storm surges. Typically only a small fraction of plots and volumes could be exposed, however the robust land investment appraisal process today considers such localised high risk areas, and minimises the possible business impacts.
<b>Subsidence</b> 	Low	Very low	No significant changes in subsidence conditions today and in the short-term. Typically Persimmon operates outside London where higher concentration of susceptible clay soils is found. Current design regulations mitigate the risk.

**By 2050 assuming 4°C global warming**

	Hazard exposure	Residual risk	Chronic risks
	Low	Low	Although the sea level is projected to rise and increase the frequency and severity of storm surges to those coastal regions already exposed, the fraction of land and possible future developments in the regions Persimmon operates in is likely not to increase significantly. The risk is minimised through the Group's robust land investment valuation process.
	High	Low	Possible increased risk for future development and some exposure in the south east. More conservative regulations could be introduced for foundation design and ground works. Any additional costs would typically be mitigated via land procurement.

**Hazard exposure, Residual risk, Acute risks**

	Hazard exposure	Residual risk	Acute risks
<b>Windstorm</b> 	High	Low	<p>All of the UK is in stormy regions, with 1% annual chance of having severe wind gusts of over 121km/h, and approximately half of the typical regions and homes Persimmon delivers, could see higher wind gusts of 161-200km/h. Persimmon currently complies with all up to date regulations with regards to wind design for their developments which mitigates the risk.</p> <p>Operational disruptions in construction, supply chain and utilities are however possible. Direct and indirect physical damage from extreme storms could create financial impacts and delays to construction programmes.</p>

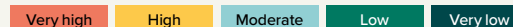
**Hazard exposure, Residual risk, Acute risks**

	Hazard exposure	Residual risk	Acute risks
	High	Low	There is no scientific evidence that extratropical cyclone intensities and frequencies will increase significantly, therefore the risk profile could be broadly similar to current conditions. Although the risk is not changing significantly and adaptation is likely not required, we will consider a strict level of wind protection in design and risk management for operations on site.



## Task force on climate related financial disclosures (TCFD) continued

### Risk scale



By 2030 assuming 1.5°C – 2°C global warming			
	Hazard exposure	Residual risk	Acute risks
<b>Fire</b> 	Very low	Very low	Currently 25% of the typical volumes and regions are exposed to low fire weather stress, with 5-20 days of fire weather conditions per year. Other regions have a very low exposure to fire weather conditions, equal to less than 5 days annually. As a consequence fire weather is not considered a material risk. There is potential for indirect risks with regards to supply chain and sourcing of timber material from overseas. No financial impacts have been reported at present.
<b>Flooding</b> 	Low	Very low	Some regions of the UK where Persimmon operates are exposed to river flooding. However this is a very localised risk. Typically only a small fraction (~5%) of plots is in zones with 1% probability of significant flooding in a year. The robust land selection process in place today, together with extra flood design considerations and loading factors for future changes minimise key impacts to current and future homes.
<b>Precipitation</b> 	Very low	Very low	A small proportion of regions (3%) is exposed to moderate or higher risk of precipitation, meaning 2-7 days with more than 30mm of rainfall. Persimmon considers rainfall parameters in drainage design which minimises this risk.

By 2050 assuming 4°C global warming			
	Hazard exposure	Residual risk	Acute risks
	Low	Low	Under the high emissions scenario by 2050, the fire weather conditions increase for some regions Persimmon operates in, but is still considered relatively low and as a consequence fire weather is not considered a direct material risk to the business.  There is a potential that timber raw materials could be disrupted due to wildfires elsewhere however that risk is not projected to increase for key regions like Scandinavia that Persimmon relies on.
	High	Low	Although the percentage of plots in flood zones does not increase significantly, projected changes indicate that the frequency of flood events could increase in the UK. Persimmon could be impacted by additional flood regulations and higher adaption/mitigation costs for developments, as well as potentially more frequent interruptions to operations. Restrictions on land supply are also possible. Persimmon carry out due diligence prior to land investment, and factors in increased river flows in flood design and planning, minimising impacts. Any additional costs are normally considered in the land investment appraisal process.
	Very low	Very low	There is a small projected increase in heavy rainfall compared to the present day. Current design considerations could be sufficient for future changes but additional regulation could emerge creating additional costs.

## Resilience of the Group's business strategy and business model

The Group has in place a number of climate change mitigation strategies and identified opportunities as part of its business model. These have been further informed by the detailed 2022 climate risk analysis which has considered the potential risks and opportunities at a more granular level and assessed potential financial implications.

The Group, as is standard in the industry, reflects development costs when performing land valuations and potential climate risks are considered in the same manner. Land values will be reflective of potential mitigation costs, however there may be challenges in the future where land in certain locations is in scarce supply, or where land values are regionally low and will not support potential additional reductions from climate mitigation costs.

## Transition risk mitigations and opportunities

- The Group has core house types used across its national network of development sites which helps ensure that any new regulatory requirements can be effectively and consistently applied across the Group.
- The Group delivers more energy efficient homes than the second hand property market with homes that are increasingly energy efficient, thereby attracting a strong customer base.
- The Group has developed its strategy for delivering to the new Part L of the Building Regulations which come into in June 2023 requiring new build homes to produce c.30% less carbon emissions compared to current standards. Homes have improved insulation, improved ventilation, more efficient boilers and some may have solar panels to achieve this improved efficiency. The Future Homes Standard (FHS), expected in 2025, will require homes to produce 75%-80% less carbon emissions and will remove gas fired systems. This will require a switch to alternative heating systems such as air source heat pumps, higher levels of insulation and air tightness, and additional energy recovery or generation technologies. The Group is already well placed to deliver this.

- The Group has a number of pilot projects to assess the most effective method of achieving the Future Homes Standard. The pilot projects are being used to: trial new technologies such as infra-red heating; to assess the most effective build methods of achieving the improved efficiency required using a 'fabric first' approach; and, to gain feedback from customers on the 'liveability' of the homes.
- The improved efficiency of new homes is also a significant opportunity for the Group as we develop homes which will have a lower impact on the environment, are currently cheaper to run and provide a competitive advantage to the second hand housing market.
- In designing our developments particular attention is paid to all issues that surround the policy transition necessary to achieve new, more stringent climate and environmental policy requirements. In order to deal proactively with local and site specific interpretation/application the Group has developed Design and Access Statement templates aligned with the National Model Design Code.
- The Group's business model includes vertical integration – The Group owns its own timber frame, wall panel and roof cassette manufacturing facilities. These modern methods of construction will assist in building low carbon homes, with a reduced build time.
- The Group has gained a more detailed understanding of the embodied carbon risk of its house types, and the detailed climate risk analysis performed this year, has highlighted the potential carbon pricing and subsequent raw material cost increase risks. The Group Procurement team are increasing supply chain engagement on high carbon materials.
- The Group's UK-wide and diverse high quality land holdings support its strong network of outlets and ensures the business is wellpositioned to invest in land at the right time in the cycle. The strong gross margins embedded in the Group's existing landholdings help to absorb potential volatility caused by increasing building costs.
- The Group's significant ongoing investment in training ensures that it maintains an appropriate skills base to manage changes to operations and processes required by climate change mitigation requirements.

## Physical risk mitigations and opportunities

The Group already manages a number of potential physical risks such as flooding as part of its planning activities. These have been further informed by the detailed 2022 climate risk analysis which has considered the potential risks and opportunities at a more granular level and identified potential financial implications.

- The Group undertakes comprehensive environmental and flood risk assessment for each potential land acquisition that it makes, and for strategic land considerations.
- Planning requirements principally influence the requirements for any flood mitigation, drainage requirements, and there is increasing consideration for use of blue and green infrastructure.
- The detailed climate risk analysis undertaken this year has further informed potential physical climate risks, and the impact they could have on the business over the medium to long-term horizons. This information has informed the Group Land and Planning team when considering future site locations and land viability costs.
- The Group has a UK-wide network of sites and therefore has significantly reduced exposure to potential regional climatic risks, and is able to strategically consider potential development locations.

## Risk management

As a principal risk for the Group, climate risk is governed and managed in line with the Group's risk management framework see page 57. The framework requires identification of the risk, evaluation of the potential impact, the consequences, allocation of the risk owner, probability assessment, description of controls and controls owner, and finally an evaluation of any residual risks. The Group's identification and assessment of risks is managed by the Risk Committee, with the Board taking ultimate responsibility for risk management.

The climate risks, their potential consequences and their current impact on the Group's business model, are identified and reviewed by the Group's executive team, senior members of the Group Finance team, Group Sustainability Director and Group Internal Audit Manager. A wide range of insights and resources are used to ensure climate related impacts are effectively tracked and considered to include; climate insights & trends, emerging legislation and government policies, consultations, local authorities positions, and industry body resources.

## Task force on climate related financial disclosures (TCFD) continued

The climate risk register is reviewed and updated, as required, on at least an annual basis. It is arranged into transitional risks and physical risks. As risks are identified, the Group considers whether the business's strategy and business model already manages/mitigates the relevant risk.

If any gaps are identified, then in accordance with the Risk Framework, the Group establishes the appropriate response.

The climate scenario analysis and detailed climate risk analysis and modelling has provided detailed assessment of transition and physical risks against three time horizons. This has provided greater depth of understanding, and enabled prioritisation of climate related risks, and the Group will continue to embed the findings into its climate risk and opportunities management.

### 4. Metrics

The Group monitors emissions from its own operations, which have been measured in accordance with the GHG Protocol Corporate Accounting and Reporting Standard (Revised Edition). Detailed GHG emissions information is located on page 47 in accordance with the requirements of the Streamlined Energy and Carbon Reporting requirements, and disclosures are for Scope 1, 2 and an emerging level of information for Scope 3 (supply chain products & services, and homes in use).

The Group is committed to playing its part in the international effort to reduce greenhouse gas emissions by reducing its own emissions across the business's operations, and also the supply chain and from the homes we sell.

As such, the Group has set an ambitious target to be:

- Net zero carbon in our homes in use by 2030; and
- Net zero carbon in our own operations by 2040.

This commitment is supported by interim science based carbon reduction targets to reduce our operational emissions (Scope 1 & 2) by an absolute of 46.2% (vs 2019 baseline) and our indirect emissions (Scope 3) from our supply chain and homes in use, by 22% per m<sup>2</sup> completed floor area by 2030. These reductions will be achieved through wider supply chain engagement, product innovation as well as changes to current operational processes.

In 2022, an environmental target makes up 5% of the Executive annual bonus focused on steps taken to support achievement of our Scope 1 and 2 science based targets (see page 65). The Board believes in the importance of ESG and cultural metrics and this is reflected in the use of customer care and quality in both the annual bonus and PSP, and the Remuneration Committee will incorporate specific environmental targets in the 2023 PSP award (see page 129).

Time period	Target	Metrics
<b>Short-term (2022 – 2025)</b>	Continue to embed climate risk and opportunity analysis into the business strategy and operations	Qualitative
	Reduce our operational footprint (Scope 1 & 2)	% reduction in diesel fuel use % energy efficiency
	Maintain 100% carbon neutral electricity purchased – green/REGO backed	Zero CO <sub>2</sub> from Scope 2 sources
	Undertake embodied carbon assessments, set reduction targets	Tonne CO <sub>2</sub> /m <sup>2</sup> completed floor area
	Supply chain engagement on embodied carbon	Action plans in place to reduce carbon content of top CO <sub>2</sub> contributors
<b>Medium-term (to 2030)</b>	Homes to be net zero carbon in use by 2030	SAP calculation
	Reduce absolute Scope 1 & 2 GHG emissions by 46% by 2030 (2019 baseline)	Transition pathway – tonnes/CO <sub>2</sub> against a 2019 baseline
	Reduce Scope 3 Purchased goods and services, and use of sold products by 22% per m <sup>2</sup> completed floor area	Tonnes/CO <sub>2</sub> /m <sup>2</sup> completed floor area against a 2019 baseline over their lifetime
<b>Longer-term (to 2040)</b>	Net zero carbon emissions in our own operations (Scope 1 & 2) by 2040	% zero carbon % carbon offsets

### Priorities for 2023

The detailed climate risk analysis undertaken this year has provided the Group with further insights into potential climate related risks and financial implications.

Key areas of focus for 2023 are:

- Climate risk health check: whilst the level of risk is overall quantified as very low to low, this is based on mitigation measures remaining in place, and the Group will ensure there is no loss of focus and rigour in its approach. An annual "climate risk health check" will be undertaken as part of the Group's risk management strategy.
- Water efficiency & scarcity: the climate analysis has highlighted the risk of drought stress occurring in the southern areas of the UK. It is likely that planning requirements will increasingly consider water efficiency and scarcity in identified drought stress areas. The Group will evaluate water efficiency and integration of blue and green infrastructure into developments.
- New energy efficiency opportunities: the Group undertook detailed customer research in 2022 on energy efficiency and low carbon energy transition. This research will be further considered and support maximising the transition opportunity.