

Crest Nicholson Climate Change Risks & Opportunities Assessment 2017

Driver	Risks	Potential Impact	Timeframe	Direct/ Indirect Impact	Likelihood	Magnitude of Impact (L/M/H)	Financial Implications	How we are responding
Environmental reporting: regulations	Emission reporting obligations	Fines and/or reputational damage for failure to comply	Current	Direct	Virtually certain	Low	Fines for non-compliance and/or loss of earnings through reputational damage	Year-on-year improvements in our data capture, analysis and reporting. Carbon footprint assured by a third party.
Fuel/Energy Taxes and Regulation	Increasing cost of energy via taxes and regulation	Increased operational cost	1-3 years	Direct	Virtually certain	Low	Increased operational cost	<p>We are minimising the risk of higher operational costs by increasing our operational energy efficiency (offices, site use, business travel and commuting) through our Make Waste History initiative.</p> <p>The business is updating its core house type range and is prototyping them using off site manufacturing techniques. This will lead to less energy consumed on site with reduced need for equipment such as diesel generators and reduced transport movements to and around site as more materials are put together offsite.</p> <p>We are minimising the impact of rising energy costs for our customers by increasing the potential energy efficiency of new homes through building fabric and services.</p>
Product efficiency regulations and standards	Although we are yet to see how leaving the European Union and the recent general election result will impact upon future policy, there is a clear understanding that the built environment is a significant player in minimising the impacts of climate change. We could therefore see an increase in on-site carbon reduction requirements beyond current levels.	<p>Increased on-site carbon reduction requirements beyond current levels leading to increased operational costs.</p> <p>There is also a risk of potential disruption in production capacity due to availability of skills and labour to build under any new requirements.</p>	3-6 years	Direct	About as likely as not	Low-Medium	Increased operational costs	<p>Working with stakeholders such as the Department for Community and Local Government (DCLG), Department for Business, Energy and Industrial Strategy (BEIS), Home Builders' Federation (HBF), UKGBC, and the Homes & Communities Agency (HCA) to ensure good knowledge of future regulatory environment. See a breakdown of how we engage with stakeholders here.</p> <p>Assessing and responding to changing UK and European regulations governing our business and industry, including responding to consultations, informing future policy, and lobbying.</p> <p>Carrying out research in good time to develop cost-effective solutions.</p> <p>Effective partnering with Planning Authorities and skilled consultants to achieve consensual cost-effective outcomes.</p> <p>Following a fabric first approach in order to meet and exceed current Building Regulations.</p>

Crest Nicholson Climate Change Risks & Opportunities Assessment 2017

Driver	Risks	Potential Impact	Timeframe	Direct/ Indirect Impact	Likelihood	Magnitude of Impact (L/M/H)	Financial Implications	How we are responding
Product efficiency regulations and standards	More stringent regulation in the future with increased levels of performance testing via Part L of the Building Regulations	Increased operational cost Delays in cash collection due to delayed completions	1-3 years	Direct	About as likely as not	Medium	Increased operational costs through additional testing and increased supervision during construction. Potential delays in cash collection due to delayed completions. Potential fines for failure to comply with testing	Developed and launched a quality manual that outlines clearly how work is to be undertaken by contractors. Working with stakeholders, such as the HBF to better understand the challenges behind as-built and as-designed energy performance, including seconding our Group Technical & Quality Director to lead the review into the current performance gap in meeting design intent across the industry. This led to a published report by the Zero Carbon Hub called <i>Closing the Gap between Design and As-Built Performance</i> . Deploying learning from Crest Nicholson's programme of research in as-built energy performance and post-occupancy evaluation. Researching offsite manufacturing methods that could assist in bridging the design versus as-built gap.
Environmental regulations: landfill tax	Increasing landfill tax associated with construction, demolition and excavation waste.	Increasing landfill tax and skip cost inflation leading to increased operational costs.	1-3 years	Direct	Virtually certain	Low	Increased operational costs	Increasing operational energy efficiency through our Make Waste History campaign. Packaging take-back scheme in place with supply chain partner. Monthly waste and energy reports produced that include cost and consumption metrics. A group-wide league table that measures sites' waste reduction performance published annually with financial incentives. Developing new Group house types that will incorporate design features to reduce waste during production. Prototyping the new designs using off site manufacturing techniques that also contribute towards less waste on site.
Changes in human and cultural environments resulting from products and services to address challenges related to climate change	New lower-carbon products and technologies that are likely to be unfamiliar to customers could influence their choice of new home and their occupancy experience	Increased potential for customer dissatisfaction Decrease in demand for product by customers	1-5 years	Direct	About as likely as not	Low	Costs from enhanced requirements for after-care and the potential for lost sales	Ensuring a customer-led design process and creating communication materials (such as Home Owner Guides) that provide sufficient and understandable information. Developed commissioning manuals and delivered training to our Sales and Customer Service teams to ensure that technology in our homes is set to an optimum level of efficiency prior to occupancy. This is clearly communicated during home demonstration. Prioritising fabric-first approach and simple demand-side measures prior to considering more complex technologies. Designing systems to be user-friendly with intuitive controls. Working with supplier partners to improve the control interface of technologies and simpler guidance documents. Increased research into new products and build methodologies to reduce delivery risks.

Crest Nicholson Climate Change Risks & Opportunities Assessment 2017

Driver	Risks	Potential Impact	Timeframe	Direct/ Indirect Impact	Likelihood	Magnitude of Impact (L/M/H)	Financial Implications	How we are responding
Changes associated with climate change	Supply Chain: <ul style="list-style-type: none"> Increase in material supply costs due to scarcity of natural resources Potential disruption within our supply chain (e.g. supplier manufacturing plants located in areas subject to high physical risk from climate change which could lead to project delays) 	Reduction and/or disruption in production capacity	Current	Direct and Indirect	About as likely as not	High	Localised disruption to supply. Additional cost to source alternative solutions. Increased operational and capital costs	Exploring how we can partner with our supply chain to assist us in managing costs and develop skill base. This includes mutually beneficial procedures, payment terms and contractual arrangements. Considering vulnerability of supply chain to climate change risks as part of procurement / partnering framework. Group-wide framework agreements for key materials to guarantee a quantity of supply. Identifying alternative and contingency supply sources.
Changes associated with climate change	Change in precipitation extremes and droughts	Reduction and/or disruption in production on sites due to increasing frequency of heavy rainfall events and droughts. More frequent heavy rainfall events means that it is crucial to put in place robust water run off management measures. Working in particularly wet weather can slow the build programme and increase risk of health and safety incidents. More frequent extreme droughts and water scarcity challenges us to design homes that are water efficient.	1-3 years	Direct	More likely than not	Medium	Increased operational costs	Environmental management system was designed in accordance with the principles set out in ISO 140001. Our health and safety standard sets out procedures designed to minimise risk and is based on OHSAS 18001. Risk assessments are undertaken on every site, and include criteria for potential hazards due to inclement weather conditions and poor visibility. Specific risk management related to extreme temperatures and storm events incorporated within Health, Safety and Environmental management procedures, as well as standards for material storage in adverse weather. The business is updating its core house type range and is prototyping them using off site manufacturing (OSM) techniques. Manufacturing in a factory environment will mean that production is less susceptible to adverse weather. Homes are designed so that our customers can be efficient with their water use. Our homes are designed to use an average of 105 litres of water per person, per day.
Changes associated with climate change	Change in precipitation extremes and droughts	Changes to the flood risk of the land bank.	1-3 years	Direct and Indirect	About as likely as not	Low	Increase in cost for flood mitigation measures.	The majority of land is secured on option. Flood risk is re-assessed at point of purchase and cost/risk factored into the land value purchase price.
Changes associated with climate change	Change in temperature extremes	There will be challenges to project economics and market affordability from future-proofing new homes against risk of overheating.	1-3 years	Direct	More likely than not	Low-medium	Cost to conduct modelling of overheating and to implement measures if the risk of overheating is high.	Participated in the ZCH Overheating Project to define overheating and its likely impact. Introduced an overheating policy and assessment process. Further information on how we future proof our homes against flood and overheating risk is on our website . Specific risk management related to extreme temperatures and storm events incorporated within Health, Safety and Environmental management procedures, as well as standards for material storage in adverse weather.

Crest Nicholson Climate Change Risks & Opportunities Assessment 2017

Driver	Opportunities	Potential Impact	Timeframe	Direct/ Indirect Impact	Likelihood	Magnitude of Impact (L/M/H)	Financial Implications	How we are responding
Reputation	Differentiation in the marketplace through sector-leading climate change performance and risk management of homes we build.	<p>Increased brand reputation as a market leader in building sustainable homes and communities.</p> <p>Increased demand for our product by customers.</p> <p>Increased chance of being selected as a preferred development partner and ability to secure planning permission.</p>	1-3 years	Direct	About as likely as not	Low-medium	<p>Increased revenues due to increased sales.</p> <p>Additional sites secured.</p>	<p>Considering climate change threats such as flooding, overheating and water stress in the design of homes, and capitalising on opportunities afforded by cost-effectively 'future-proofing' homes. Further information on how we future proof our homes against flood and overheating risk is on our website.</p> <p>Prioritising and integrating of climate change performance and risk management in business strategy.</p> <p>Engagement and influence with key stakeholders, including policy makers. Representation on working groups reporting to key development partners – contributing thought leadership and an evidence base to inform future plans.</p>
Fuel/Energy Taxes and Regulation	Cost savings, business efficiencies and a reduced carbon footprint	<p>Increased reputation in the industry.</p> <p>Improved scoring in benchmark schemes.</p> <p>Reduced operational costs.</p>	1-3 years	Direct	Very likely	Low/Medium	Reduced operational costs	<p>Selecting supply chain partners and products that help to achieve a reduction in energy consumption and/or embodied carbon for customers, as well as the potential for reduced home energy costs.</p> <p>Pursuing opportunities for greater energy and resource efficiency as well as reductions in operational energy use through our Make Waste History campaign.</p> <p>The business is updating its core house type range and is prototyping them using off site manufacturing techniques. This will lead to less energy consumed on site with reduced need for equipment such as diesel generators and reduced transport movements to and around site as more materials are put together offsite.</p>
Environmental regulations: landfill tax	Pursuing opportunities for reductions in materials and resource use to achieve leaner, more efficient production.	<p>Increased reputation in the industry.</p> <p>Improved scoring in benchmark schemes.</p> <p>Reduced operational costs.</p>	1-3 years	Direct	Virtually certain	Low/Medium	Reduced operational costs	<p>Increasing operational energy efficiency through our Make Waste History campaign.</p> <p>Packaging take-back scheme in place with supply chain partner.</p> <p>Monthly waste and energy reports produced that include cost and consumption metrics.</p> <p>A group-wide league table that measures sites' waste reduction performance published annually with financial incentives.</p> <p>Developing new Group house types that will incorporate design features to reduce waste during production. Prototyping the new designs using off site manufacturing techniques that also contribute towards less waste on site.</p>
Regulations	Cost-effective compliance with evolving building regulations and climate change legislation	Increased skills, knowledge and capabilities in responding to changes in building practice from climate change within the business.	1-3 years	Direct	Very likely	Medium	Avoidance of costs associated with non-compliance.	Remaining alert and responsive to changing regulations, and taking part in dialogue and debate by actively participating in numerous industry groups and advising and consulting with government departments on current and future policy.

Crest Nicholson Climate Change Risks & Opportunities Assessment 2017

Driver	Opportunities	Potential Impact	Timeframe	Direct/ Indirect Impact	Likelihood	Magnitude of Impact (L/M/H)	Financial Implications	How we are responding
Other	Innovative, proven and viable solutions to respond to climate change and its risks applied consistently across the business and in the homes we build, including using low-carbon processes, products and technologies	<p>Lower compliance costs</p> <p>Increased skills, knowledge and capabilities in responding to changes in building practice from climate change.</p> <p>Work environment that fosters and support innovative thinking, evaluation, and learning.</p> <p>Ensuring continuing demand for our product.</p>	Current	Direct	Likely	Medium	Decreased capital and operational costs	<p>Identifying and developing sources of innovation and expertise, both internally and through our supply chain and partnerships. This has included:</p> <ul style="list-style-type: none"> • Our strategic programme of research into building performance and post-occupancy evaluation. • Projects within HCA's Design for Manufacture programme. • Our collaboration with external climate change experts. • Prototyping off-site manufacturing techniques that are more resilient to weather impacts during construction, use less energy and raw materials in construction and will further improve quality and lower the running costs for customers.
Other	Engagement with a broad range of stakeholders and external experts	<p>Expanded view and understanding of issues that affect supply chain and stakeholders, which enables more responsive actions.</p> <p>Increased knowledge and learning within the business.</p> <p>Reduced risk from unknown or unexpected challenges.</p>	1-3 years	Direct	Likely	Medium	None	<p>Seeking stakeholder views, bringing learning into the business, and reinforcing our risk management processes.</p>