



## ANNUAL SUSTAINABILITY REPORT

January – December 2018



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## **1. Introduction**

Quinn Cement has been in cement production since 1989 originally at its Derrylin Site, Co. Fermanagh using local raw materials from the quarry facilities. Given the increasing demand generated from the construction sector over the years, a second plant was commissioned in 1998 at Ballyconnell, Co. Cavan (Scotchtown Cement Works), approximately one mile from the Derrylin facility. The two plants have a combined capacity of over 1.7 million tonnes of cement annually.

## **2. Cement Manufacture**

Scotchtown Cement Works produces Portland Cement, which is a composite of synthetic minerals exhibiting hydraulic properties on mixing with water. The main raw materials are limestone (rich in calcium) and shale (rich in silica, iron and aluminium). These are extracted from quarries close to the cement works.

The raw materials used in the manufacture of cement are processed by crushing, blending and milling to produce a homogenous “raw meal”, which passes through a high temperature kiln, where a thermal process produces a synthetic mineral called “clinker”. The clinker and additives are milled into a fine powder - “cement”.

### Blending Cement

The production and application of cements with increased volumes of additives have a long and successful tradition in Europe. Today, about 70% of the cements produced and used in Europe contain MAC (Minor Additional Constituents) up to 20%, as permitted by the European standard for cement. Quinn Cement firstly began producing CEM II A/V in 2005 using fly ash sourced from Kilroot power station in Carrickfergus.

Today Quinn Cement produce a CEM II A/L using locally sourced limestone. This makes a huge contribution towards the reduction of CO<sub>2</sub> emissions by using cements with reduced clinker percentage and increased MAC.

These blended cements enhance the ecological efficiency of concrete construction as the use of CEM II allows for reduction of CO<sub>2</sub> emissions during cement manufacture. CEM I is being increasingly replaced by CEM II in the Irish and European markets.

### 3. Sustainability

Sustainable Development is defined as - 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland report (1987)).

The 2005 World Summit noted that there are three pillars of sustainability: environment, social and economic. The representation below highlights the links of the three pillars.

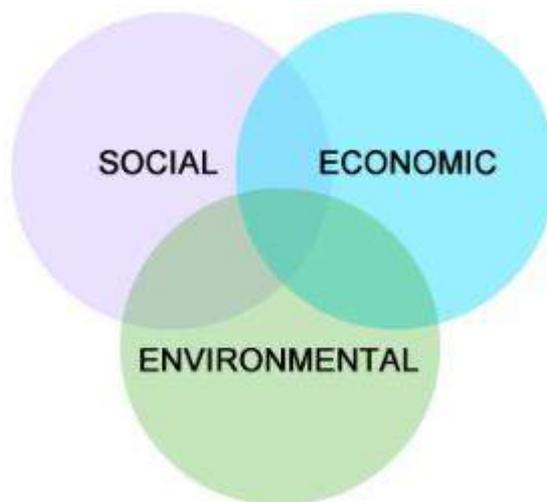


Figure 1: Sustainability

The main drivers for sustainability at Quinn Cement are:

#### **High quality cement:**

Quinn Cement is a registered firm with BS EN ISO 9001, and holds the quality marks of both British and Irish National Standards, indicating that it produces an independently audited and quality certified product.

### **Energy Efficient production:**

Quinn Cement is a modern and efficient plant which commenced operation in 2000 having been commissioned in 1998. The latest BAT (Best Available Technologies) are installed in the plant which allows cement production to be undertaken in an energy efficient manner. In addition, Quinn Cement is a member of Sustainable Energy Authority of Ireland's Energy Agreements Programme under which we have developed and achieved an accredited ISO 50001 Energy Management System. The focus of the Energy Management System will be continuous and sustainable improvement in energy efficiency.

### **Continued production of Eco-efficient CEM II:**

CEM II cements replaces up to 20% of clinker in cement with locally available limestone. This considerably reduces the CO<sub>2</sub> emissions per tonne of cement. Quinn Cement first commenced production of Eco-efficient CEM II in 2005. The technical merits and performance of CEM II cement in conjunction with the excellent environmental credentials have allowed for the production of CEM II to increase significantly over the years and now, the majority of Quinn Cement sales in Ireland are Eco-efficient CEM II.

### **Substitution of fossil fuels with alternative fuels:**

Quinn Cement completed one of its most significant sustainability projects to date at its Site in Ballyconnell. In 2010 Quinn Cement were granted planning permission and in 2012 granted an IPPC Licence to co-fuel the plant with SRF (Solid Recovered Fuel). In 2014 Quinn Cement commenced co-fuelling with SRF under its IE (Industrial Emissions) Licence. The plant upgrade has environmental, social and economic benefits:

- The combustion of coal gives rise to CO<sub>2</sub>, which is a global warming gas. Through part displacement of coal with SRF it enables Quinn Cement to reduce its carbon footprint.

- Reduces use of coal which is an imported non-renewable fuel by replacing with SRF which is a renewable fuel which can be sourced from local waste contractors.
- Reduces material sent to landfill as waste is recovered and processed into SRF.
- Energy is recovered from a waste source; there is no additional ash residue.

#### **Promotion of excellence in environmental, health and safety standards:**

Quinn Cement operates under Environmental and Health and Safety Management Systems. In 2010 the Environmental Management System was accredited to ISO 14001. Environmental Performance is discussed in further detail in Section 3.1.

#### **Communicate with the local community:**

This report is publicly available to members of the local community, stakeholders and any interested parties. Information on our Environmental Performance is also publicly available on the Environmental Protection Agency website in our Annual Environmental Report, and on the Quinn Cement website. Quinn Cement operates an open door approach and has facilitated many site visits for schools, universities and local residents. Many Quinn Cement and Quinn Industrial Holdings employees are from the local community, through internal communication they are made aware of operations of all Quinn Industrial Holdings and facilities and are welcome to visit our site at an agreed time. Annually Quinn Cement runs an open day for customers, which includes a tour of the manufacturing facility.

On bigger issues such as the Alternative Fuels Project phase 2, Quinn Cement has set up a Public Office for the duration of the public application process in which a video is screened and brochures are handed out. Drawings and samples of the proposed alternative fuels are on display for the public. The room has been visited by a number of interested parties including students and teachers from St. Michaels College Enniskillen.

### **3.1 Environmental**

Quinn Cement operates under the conditions of an Industrial Emissions Licence from the Environmental Protection Agency (EPA). This is a single integrated licence which places conditions on all emissions from the facility and its environmental management. In September 2010, the Quinn Cement EMS became accredited to the ISO 14001 standard. Quinn Cement transitioned to ISO 14001:2015 successfully in October 2017, through independent auditing and certification. The new standard demonstrates greater focus on leadership and planning, improved performance, life cycle consideration and communication.

Quinn Cement reports to the EPA on all aspects of the environment including water and air Emissions. At the end of each year an Annual Environmental Report is produced in accordance with the conditions of our IE Licence. The Annual Environmental Report can be viewed on the Environmental Protection Agency and Quinn Cement websites (Licence No: P0378-03).

Quinn Cement contributes to the Circular Economy. The Circular Economy is the philosophy that in nature there is no waste. Similarly in business, materials that are discarded from one process can be used elsewhere in a manner that allows resources to be regenerated, emissions reduced and efficiency improved. The circular economy includes the drive away from non-renewable fossil fuels, reduction in the use of virgin raw materials and it also incorporates the wider aspects of economics and trade. Quinn Cement has a policy for a sustainable life cycle approach considering the circular economy and a reduction on impact on resources and climate change while maintaining efficiency and quality of product. Cement is an important product for the Circular Economy as it eventually makes concrete which is 100% recyclable. Cement can also utilise materials discarded from other industry as a resource.

### **3.2 Social**

Throughout its history Quinn Cement has played a significant and leading role in the development and support of the local community in which it operates. This has been particularly important as the Cavan/Monaghan/Fermanagh area, which historically has been a deprived region, is now a major source of employment and supports related business associations for the Group. Quinn Industrial Holdings views the implementation of effective Corporate Social Responsibility (CSR) as a critical long-term success factor as well as an important social duty.

At a local level the Group sponsors numerous Cultural, Agricultural, Sporting and Educational activities. Including local Drama, Feis, Dance Groups, Agricultural & Ploughing events, GAA clubs, Golf Classics, Soccer, Rugby and School Development Funds. Alongside these main categories there are many other local community based events that we support. At a National level Quinn Industrial Holdings is associated with a number of groups that are both sponsorship and charity donations.

Quinn are also involved in a partnership with St. Michael's College, Enniskillen. As part of this a Work Placement Programme for Year 13 Students has been launched to promote the summer placement opportunities available within the company. This programme is aimed at developing students' employability skills by providing them with valuable hands-on industry experience through summer placements in the workplace.

As part of the programme launch in St. Michael's College, Enniskillen, the students were introduced to Quinn Industrial Holdings and informed of the many differing career opportunities that exist in a variety of disciplines throughout the Company. After this the students took part in a Job Insight Session which entailed Quinn employees from different areas and departments explaining their career paths, their role in the company and the day-to-day tasks involved in each role. This session allowed the students to hear about different career routes they might like to take

and ask questions to help with their own career choices and future progression opportunities.

Quinn Cement are active members of the Cement Manufacturers of Ireland (CMI). The mission of CMI is to represent the cement industry in Ireland, taking account of the views of all stakeholders and to ensure the many advantages of having a vibrant indigenous cement industry are clearly communicated. Through the CMI organisation we are members of CEMBUREAU. This is the representative organisation of the cement industry in Europe. The Association acts as spokesperson for the cement industry before the European Union institutions and other public authorities, and communicates the industry's views on all issues and policy developments with regard to technical, environmental, energy and other issues.

Quinn Cement is not a member but do contribute to the World Business Council for Sustainable Development (WBCSD) Cement Sustainability Initiative (CSI). This is a global effort by 23 major cement producers with operations in more than 100 countries who believe there is a strong business case for the pursuit of sustainable development. Collectively these companies account for about one third of the world's cement production and range in size from very large multinationals to smaller local producers

### **3.3 Economic**

Quinn Industrial Holdings through its various operations and manufacturing plants situated between Ballyconnell and Derrylin contribute significantly to the local and regional economies. There are over 800 people employed directly within the Group not to mention the additional significant employment generated in various service, supply and ancillary industries. By investing in a strong team at Quinn Industrial Holdings, long term and sustainable benefits are being achieved for both the company and the area.

Apart from the direct employment associated with the Cement Works, additional employment will be sustained within the services sector by means of the multiplier effect. Quinn Cement has proven to have a positive influence on sustaining employment levels in the locality and currently employs 150 employees directly when lorry drivers are included.

Quinn was awarded the Employer for the Future Award at the Irish News Workplace and Employment Awards (WEA) 2018 at the Belfast Titanic on 14/06/2018. Quinn were also shortlisted in the Career Inspiration category. Quinn's success in the awards is thanks to the many initiatives within the company to recognise and improve talent and skills, develop new products and processes, and continually advance their technology. This includes the Education partnerships, Graduate and Apprenticeship Programmes, training, development and Lean Manufacturing Programmes, investment in advanced systems, and the introduction of new products and services to the market.

Quinn Cement was named General Build Supplier of the Year at the 2018 NBG Supplier Awards held in Liverpool on 13<sup>th</sup> November. The coveted award recognises the contribution Quinn has made to the business success of NBG's merchant partners.

Quinn's new cement range was launched early in 2018 and has been very successful for merchant suppliers. Key to the success for NBG's merchants was their exclusivity deal on Master Grade Cement, which is only available to NBG merchants in GB.

The new plastic bagging facility in Quinn Cement went into full production at the end of January 2018 coinciding with the launch of our new bagged product range. The new range includes General Purpose Cement, Master Grade Cement and Premium Grade Cement available in both paper and plastic packaging. The new offering has been tailored to cater for individual applications with each product boasting properties suited to different purposes which will appeal to a wider variety of tradesmen. These new products are listed on the company website.

#### **4. BES 6001**

Quinn Cement's commitment to Sustainability is highlighted through our efforts in achieving the **BRE Environmental and Sustainability Standard BES 6001 Responsible Sourcing of Construction Products**. In April 2012, Quinn Cement became accredited to BES 6001 for the first time with a performance rating of 'Very Good' and have continued to maintain this performance rating.

The BRE standard BES 6001 has been published to enable construction product manufacturers to ensure and then prove that their products have been made with constituent materials that have been responsibly sourced. The BRE Environmental and Sustainability Standard describes the organisational governance, supply chain management and environmental and social aspects to be addressed in the certification and approval of the responsible sourcing of construction products.

The requirements of this Standard provide a framework against which all construction products may be assessed. The framework comprises a number of criteria setting out the requirements of an organisation in managing the supply of construction products in accordance with a set of agreed principles of sustainability, the precise scope of which is determined by stakeholder engagement.

The standard takes into consideration Quality, Environmental, Health and Safety of Quinn Cement and our suppliers. It also looks at the areas of Resource use, GHG Emissions and Employment among others.

The requirements and associated actions have been structured into three components:

- Organisational Management Requirements
- Supply Chain Management Requirements
- Requirements related to the management of sustainable development.

Certain requirements, or elements of the requirements, are considered compulsory for organisations applying for certification against this Standard.

Each element is explained in more detail below.

## 4.1 Responsible Sourcing Policy

Quinn Cement has adopted a Responsible Sourcing Policy as can be seen below:

	<b>Environmental Management System</b>	
	<b>Title: Environmental Management Manual</b>	<b>Auth: CL Revision: 2.5 Page 15 of 33</b>

### **Responsible Sourcing Policy**

**Issue: 19/02/2018 Revision 4**

The purpose of this policy is to confirm our commitment to meeting the Environmental and Sustainability Standard expected by our customers. We recognise that our purchasing decisions of the organisation can impact on society and the environment therefore we commit to the requirements of BES 6001 Responsible Sourcing of Building Products.

The requirements of BES6001 will be achieved through Quinn Cement's Quality Management System- ISO9001, Environmental Management System- ISO14001 and Safety management System and similar credentials of our suppliers.

The main objective of the company is to optimise the process involved in manufacturing cement to IS EN 197-1, ensuring that the final product is of the optimum quality while minimising our carbon footprint and reducing impact on the environment. These objectives, carried out through responsible sourcing, will help meet the main challenges facing the cement industry today.

#### **Management Systems**

We adopt a systematic approach to all aspects of our cement manufacturing and as such we strive to meet the requirements of ISO 9001, ISO 14001, ISO 50001 and BES 6001.

Quinn Cement adopt procedures and disciplines to ensure that :

#### **Employment and Skills**

- The system is effectively implemented, by undertaking relevant skills training and conducting appropriate sustainability awareness training.

#### **Fundamental Right to Work**

- Quinn Cement operate Equal Opportunity, Recruitment and Training and Development policies and procedures to ensure international norms concerning human rights, labour practices and fundamental rights to work are respected.

#### **Ethics**

- We strive to reduce the negative impact of our operation, service and products on the environment by effectively carrying out the above standards.

#### **Legal Compliance**

- Legal requirements will comply with section 3.2.2 of BES 6001 We will operate in compliance with all national laws and regulations including, environmental, health and safety, quality and labour laws and as appropriate take into account principals from relevant international laws.

#### **Transport**

- We will minimise our transport impact on the environment in accordance with our Transport Policy.

#### **Health and Safety**

- We will establish a system to prevent pollution, accidents, ill-health and injury, to both people and the environment, while respecting the needs of both local communities and stakeholders.

#### **Stakeholder Engagement**

- We will communicate environmental awareness to our employees, contractors and customers, ensuring it is understood and implemented in accordance with the environmental policy.

- We will provide for the employee's welfare, engage with stakeholders and local communities, to take their views on board ensuring all parties engage in constructive and transparent dialogue so our operations are fully understood.
- Through our membership of CMI and Cembureau we communicate with stakeholders on common cement industry issues.

#### **Greenhouse Gas Emissions**

- We will strive to reduce greenhouse gases and fossil fuel usage, and where possible to maximise renewable energy sources, while using our raw material resources in the most sustainable manner.

#### **Lifecycle assessment (LCA)**

- We will strive to improve the lifecycle environmental performance through the identification and improvement of significant environmental aspects and impacts.

#### **Energy Use**

- Quinn Cement considers energy management and conservation and optimisation of energy and resources of paramount importance in its drive toward sustainability, as outlined in the Energy Policy.

#### **Site Stewardship and Resource Use**

- We source the majority of our constituent materials from ISO accredited sites as proof of site stewardship, we strive to maximise the use of recycled and secondary materials. Many of the Quinn Quarry sites maintain Site management, Landscaping or Biodiversity plans.

#### **Financial Stability**

- We will strive to continue to invest in alternative fuels, materials and technology to obtain long-term financial and environmental stability. Stability will be managed by developing the green economy approach addressing independence in energy supply, natural resource stewardship and job creation.

#### **Complaints and Prosecutions**

- We will have a robust complaints and prosecution procedure, which will deal promptly with any issues and corrective actions, in a transparent and efficient manner. We will strive to be open and responsive to interested parties and the needs of stakeholders will be considered in operations. Quinn Cement will produce an annual Sustainability Report to communicate actions to stakeholders.

#### **Supply Chain Management**

- We will select and approve suppliers in line with the best practice outlined within the requirements of ISO 9001:2008 and BES6001 and as outlined in the Purchasing Policy around the selection of suppliers.

By implementing this policy, we strive to adhere to the principals of responsible sourcing, while maintaining our environmental responsibilities through our operation. This is achieved by investing in the most up-to-date technology, and implementing the Best Available Techniques in the industry.

Signed : T.P. Feehan

Date : 27/02/2018

Please also see Quinn Cement Environmental Policy, Quality Policy and Transport Policy.

## **4.2 Quality Management**

Quinn Cement is a registered firm with BS EN ISO 9001, and holds the quality marks of both British and Irish National Standards and CE marking, indicating that it produces an independently audited and quality certified product. In June 2017 Quinn Cement successfully transitioned to ISO 9001:2015. The new standard demonstrates greater focus on leadership and planning, improved performance, life cycle consideration and communication.

## **4.3 Supplier Management Systems**

This section of the standard deals with how the constituent raw materials are managed for sustainability including quality, environmental and health and safety. The majority of materials used by Quinn Cement are supplied by other divisions of the Quinn Industrial Holdings; therefore there is significant control and transparency in the supply chain. Quinn Quarries operate under documented Quality and Health & Safety Management Systems and are accredited to ISO 14001 for their Environmental Management System.

Other suppliers of Quinn Cement are vetted for Environmental, Health and Safety and Quality standards through the supplier approval clauses of Quinn Cements BS EN ISO 9001 accredited Quality management System.

## **4.4 Requirements related to the management of sustainable development**

This section of the standard deals with particular key aspects of sustainability and how they are considered within Quinn Cement.

The key requirements are:

- Greenhouse Gas Emissions
- Energy Use
- Resource Use
- Waste Prevention and Waste Management
- Water Abstraction
- Lifecycle Assessment (LCA)
- Ecotoxicity
- Transport Impacts
- Employment and Skills and
- Local Communities
- Business Ethics

Each requirement is discussed in further detail below.

#### 4.4.1 Greenhouse Gas Emissions

Quinn Cement is a participant in the EU Emissions Trading Scheme. Annual Greenhouse Gas Emissions are independently verified and submitted to the Environmental Protection Agency Climate Change Unit.

Verified CO2 Emissions are also reported as part of the PRTR.

#### Objectives and Targets

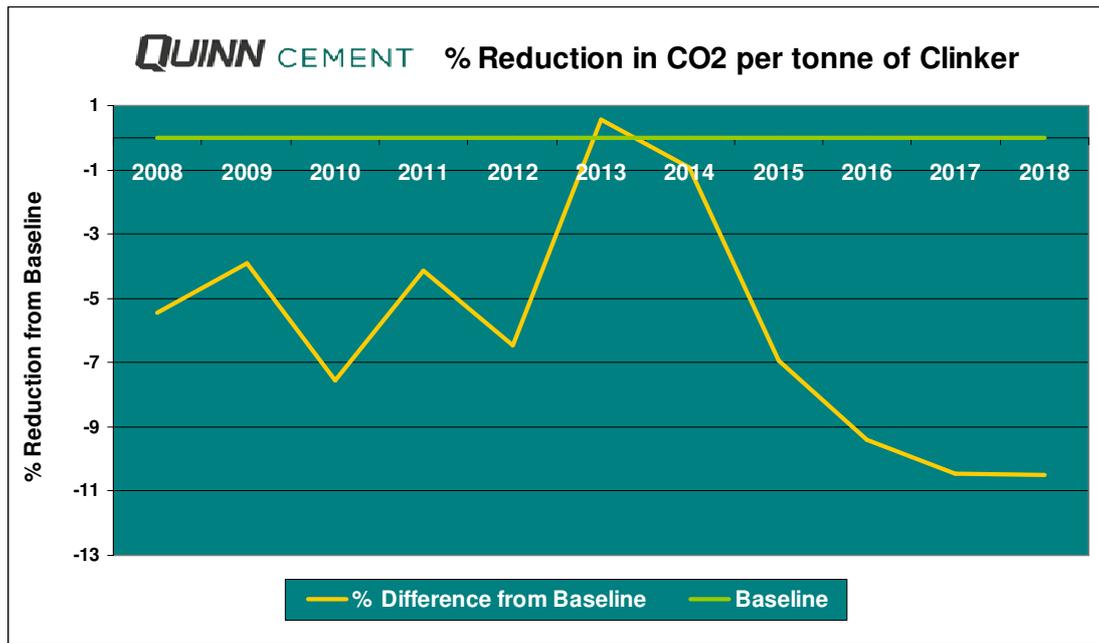
Objective	Target
Reduce combustion CO2 emissions by increasing coal tonnage replacement with alternative fuels.	Reduce combustion CO2 emissions by increasing alternative fuels usage Reduce transport CO2 as SRF domestically sourced Reduce reliance on non-renewable fuel.
Resource Use/GHG - Maximise CEM II sales	Maximise CEM II sales therefore increasing use of recycled/reuse products and reducing CO2 per tonne of cement

#### Metric

% Reduction in CO<sub>2</sub> emissions per tonne of clinker produced with a target of 15% reduction in CO<sub>2</sub> by 2020 based on ETS baseline year, with the introduction of Alternative Fuels.

It can be seen in the performance below indicator metric that CO<sub>2</sub> emissions per tonne of clinker produced in 2018 is lower than CO<sub>2</sub> emissions per tonne of clinker in the baseline year. The SRF upgrade and increased usage of alternative fuels will allow for compliance with greenhouse gas emission targets in the long term.

## Performance indicator



#### **4.4.2 Energy Use**

As the cement manufacturing process is energy intensive, Quinn Cement considers energy management and the conservation and optimisation of energy and resources as of paramount importance in its drive towards sustainability.

Quinn Cement is part of an Energy Agreement Program (EAP) coordinated by Sustainable Energy Authority of Ireland ([www.seai.ie](http://www.seai.ie)). Our involvement in this program along with our membership of the Large Industry Energy Network (LIEN) allows us to draw ideas from energy efficiency experts across multiple manufacturing sectors.

Quinn Cement has developed an Energy Policy, Energy Management System and procedures and has recently achieved accreditation to the energy efficiency standard ISO 50001. ISO 50001 is designed to optimize the internal energy consumption throughout any organization. The overall objective is to support organizations wanting to set up a comprehensive energy management system, and to continually improve their energy performance, with the aim of lower energy costs and less greenhouse gas emissions. ISO 50001 follows closely the structures of ISO 14001, which allows for many similar requirements to be implemented across standards, and facilitates the integration of additional requirements. In an Energy Management System where energy awareness is high throughout the entire workforce it can lead to substantial, sustainable energy improvements.

Quinn Cement is committed to sustainable energy use and energy efficiency. The ISO 50001 accreditation adds to our existing accredited ISO14001 Environmental and ISO9001 Quality Management Systems.

Document Title	EnMS Energy Policy		
Document Reference	EnMP 002		
Current Revision	A	Author	R O'Callaghan
Status	Current	Approval	T.P Feehan
Issue Date	13-06-2019	Next Review	01-06-2021
Storage Location	Dedicated EnMS server location		

## Energy Policy

**Quinn Cement considers energy management and the conservation and optimisation of energy and resources are of paramount importance in its drive toward sustainability.**

Quinn Cement recognises that energy consumption impacts on the environment in a number of ways. It is our policy to manage energy consumption in a manner that will minimise CO<sub>2</sub> emissions from the plant and limit environmental impact and contribution to climate change. This policy covers all energy use apart from vehicular, at Quinn Cement for cement production as defined by the energy management system scope and boundaries.

This Energy Policy outlines the company's commitment to compliance with applicable Irish and European energy legislation and other requirements.

Senior Management at Quinn Cement are responsible for ensuring that energy management is prioritised across all operations and that energy policy is appropriately defined, documented and implemented. Quinn Cement will provide the necessary resources and information to ensure effective management of energy, and strive to improve energy and resource efficiency in premises, equipment, plant and motors, operations and employee behaviour.

### **Quinn Cement commit to ensuring:**

- Continual improvement in energy performance;
- The availability of information and necessary resources to achieve objectives and targets;
- Compliance with applicable legal requirements and other requirements to which the organisation subscribes related to energy use, consumption and efficiency;
- Support for the purchase of energy efficient products and services and design for energy performance improvement;
- Control of energy consumption and improved energy efficiency through better productivity and working conditions;
- Raising the awareness and consciousness among staff and contractors of the impact of wasting energy in their daily role through training and energy conservation promotion;
- The monitoring of energy consumed in as detailed a manner as is practical that will allow for continuous assessment and improvement;
- The identification of significant energy use and to implement plans to reduce consumption on a continuous basis;
- The setting of objectives and targets using the framework of the ISO 50001 compliant energy management system and to review progress on an ongoing basis.

Quinn Cement recognises the role of the cement industry in reducing GHG emissions. We are committed to reducing our CO<sub>2</sub> in line with the national targets of the Kyoto Protocol, its successors and industry targets set out through CMI, CEMBUREAU and WBCSD. These targets will be achieved through introduction of alternative fuels, clinker substitution CEM II and energy efficiency measures.

Signed:  .....

Date: 1 - 7 - 2019 .....

**Please also see Quinn Group Environmental Policy, Quinn Cement Environmental Policy, Responsible Sourcing Policy and Transport Policy.**

Examples of efficiency initiatives in this area include:

- Reduction in clinker contents in cement through the introduction of CEM II products.
- Metering and automated monitoring of utilities and fixed electricity usage
- Lighting Surveys

In 2014 Quinn Cement moved towards more sustainable sources of energy with the implementation of our Alternative Fuels initiative to displace fossil fuel consumption with waste derived fuels and this has been of great benefit to energy reduction for the site.

**Objectives and Targets**

Objective	Target
Energy Use - ISO 50001	Maintain accreditation of Energy Management System
Reduce total energy consumption.	Implement conclusions of the Energy audit

### 4.4.3 Resource Use

Almost 100% of constituent materials of Quinn Cement originate from ISO 14001 accredited sites. Due to the nature of the product most materials are virgin material but where possible substitutions are made for recycled and reused materials. This is most evident in the use of Pulverised Flyash, a by-product of the power industry which is blended with our raw materials. As well as this, up to 10% of virgin Gypsum used at Quinn Cement is replaced with recycled gypsum.

All waste materials from the process are recycled back through the process to ensure the most efficient use of raw materials.

Energy use on site is strictly managed for optimum efficiency through our participation in the Emissions Trading Scheme and through the implementation of the ISO 50001 Energy Management Standard.

#### Objectives and Targets

Objective	Target
Resource Use - ISO 50001	Maintain accreditation of Energy Management System
Resource Use/GHG - Maximise CEM II sales	Maximise CEM II sales therefore increasing use of recycled/reuse products and reducing CO2 per tonne of cement

#### Metrics

(i) Materials diverted from the waste stream for use as a fuel source as a % of total fuel energy use, with a target of 40% coal displacement with the introduction of Alternative Fuels.

(ii) Recycled/secondary aggregate use as a proportion of total aggregate use, with a target of 40% displacement of virgin aggregate.

			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Relevant Section</b>	<b>Performance Indicator</b>											
3.4.3	a Materials diverted from the waste stream (SRF) for use as a fuel source as a % of total fuel energy use	%	0	0	0	0	0	0.01	26.67	29.59	39.98	36

#### 4.4.4 Waste Prevention and Waste Management

Quinn Cement operate a very strong waste segregation policy based on the waste management hierarchy where elimination is the most preferred and landfill is the least preferred waste management option. Segregation allows for the best possible waste treatment option which is based on the traditional waste hierarchy and the principle of – Reduce, Reuse, Recycle.

To reduce waste to landfill from Quinn Cement, general waste goes to waste the contractor for processing into SRF which can be recovered as a fuel at Quinn Cement.

#### Objectives and Targets

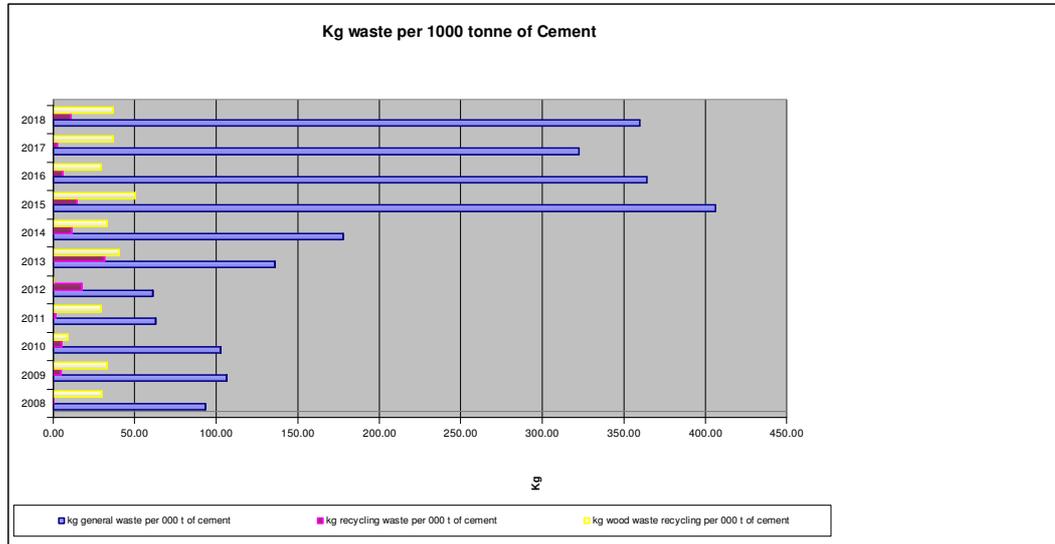
Objective	Target
Waste - Increase amount of waste recycled	Increased recycling – Circular Economy

#### Metrics

- (i) Recycled/secondary aggregate use as a proportion of total aggregate use (as of Resource use Section), with a target of 40% displacement of virgin aggregate.
- (ii) Tonnes of general waste to landfill as a proportion of production output, with a target of <100kg of waste to landfill per tonne of product.
- (iii) Tonnes of recycled waste diverted from landfill as a proportion of production output, with a target of <5kg of recyclable material per tonne of product.

(iv) Tonnes of wood waste recycled and diverted from landfill as a proportion of production output, with a target of <25kg of recycled wood per tonne of product

### Performance Indicator



#### 4.4.5 Water Extraction

Water comes from two sources on site: (i) mains water and (ii) borehole water. The mains water supply is used for canteens and welfare facilities whereas the borehole water is used in the process and for cooling. Where possible reuse loops are used for process and cooling water, however much of the water is required in the process. All staff and contractors are given relevant training water management through induction or environmental awareness procedure.

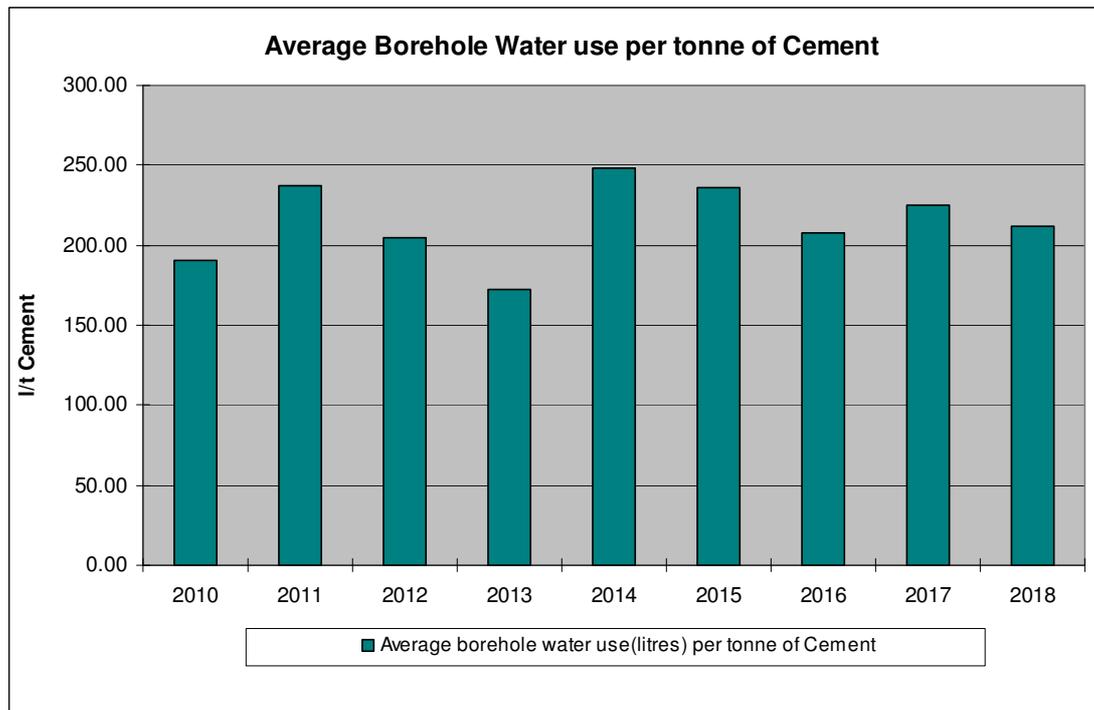
#### Objectives and Targets

##### Metrics

Objectives	Targets
Investigate water collection/reuse on site	Assess the potential for water collection and reuse and determine feasibility in new projects
Reduce water usage	Assess for leaks routinely. Maintain water abstraction for production below 300 l/t Cement

(i) Maintain water abstraction for production below 300 l/t Cement

##### Performance Indicator



\* Please Note Borehole Water Use statistics are only available from 2010

#### 4.4.6 Life Cycle Assessment

Life Cycle Assessment (LCA) is a technique to assess the environmental aspects and potential impacts associated with a product, process, or service, by:

- Compiling an inventory of relevant energy and environmental releases
- Evaluating the potential environmental impacts associated with identified inputs and releases.

Quinn Cement have carried out gate to gate lifecycle assessment which is a partial lifecycle assessment looking at only the value-added process in the entire production chain.

#### Objectives and Targets

Objectives	Targets
Expand the scope of the lifecycle assessment	Assess the potential for more extensive range of environmental aspects
Environmental Product Declaration for cement	Achieve independently verified Environmental Products Declaration (EDP) that conforms with ISO 14025 and ISO 21930 or EN15804.

Declared Unit: The declared unit used in this study is 1 tonne of Cement. The list of significant inputs for the production of 1 tonne of cement (CEM1) is clinker, gypsum, and ferrous sulphate. The environmental analysis was limited to identify total energy consumption and total carbon dioxide (CO<sub>2</sub>) emissions per ton of cement (CEM 1).

The following processes of gate to gate have been considered:

- Mining and crushing Raw Materials.

Limestone is quarried and brought to the cement plant where it is crushed to a maximum size. The crushed limestone is ground together with other materials such as shale, silt and bauxite. The mixture is called raw meal.

- Preheater tower and Kiln

Raw meal passes through the preheater which helps to decrease the demand for energy in the kiln. Raw meal is fed into a rotating kiln, maximum

temperature in the kiln is around 1450°C. This temperature allows for a chemical reaction to occur which forms clinker most of the energy in cement production is used in this calcination process. Fuels used in the kiln are coal, diesel oil, and alternative fuels. Coal is used more than other fuels.

- Clinker cooler and clinker store

Clinker is air cooled and stored.

- Cement Mill

Clinker is then fed to the cement mill where it is milled with additives. The main constituents of cement are clinker, gypsum, crushed limestone, ferro sulphate, and grinding aid products, these are all ground together to form cement.

- Cement silos

The finished cement is loaded and stored here to transport.

Table 1: Percentage Distribution and amounts of fuels consumed in the kiln per ton of cement (CEM1:95% clinker)

Type of Fuel 2018	Amount (GJ)	Percentage (%)
Coal	2.56	63.82%
Alternative Fuel*	0.88	36.05%
Diesel	0.0094	0.13%
Propane	0.00	<0.01%
<b>Total</b>	<b>3.45</b>	<b>100</b>
*Alternative fuels commenced Nov 2014		

Table 2 Amounts and sources of fossil CO2 emissions from the production of 1 ton of cement (CEM1:95% clinker)

Process 2018	Amount of CO2 (kg)	Proportion (%)
Combusted fuels in the kiln(ETS)	258	32.74
Process Carbon ETS	525.12	66.63%
Electric Power	4.99	0.63%
<b>Total</b>	<b>814.93</b>	<b>100</b>

Results show that the most significant energy consumption and CO2 emissions are related to clinker kiln, due to the process of calcination of limestone and fuel combustion in the kiln. Of total CO2 emissions, 66.63 % and 32.74 % result from the calcination process and fuel combustion respectively.

#### **4.4.7 Transport Impacts**

Quinn Cement transport cement throughout the Republic of Ireland, Northern Ireland and the UK. The Metric is based on the average miles travelled per tonne of cement delivered.

A new Quinn Cement depot opened in Rochester London in 2012. It was initially observed that the average mile metric increased per tonne due to the increased supply of bulk cement to GB. However over time the average miles per tonne has generally decreased. This has been achieved by increases in exports by bulk shipment.

There is a minimal transport impact from delivery of raw materials to the site due to the proximity of the surrounding quarries.

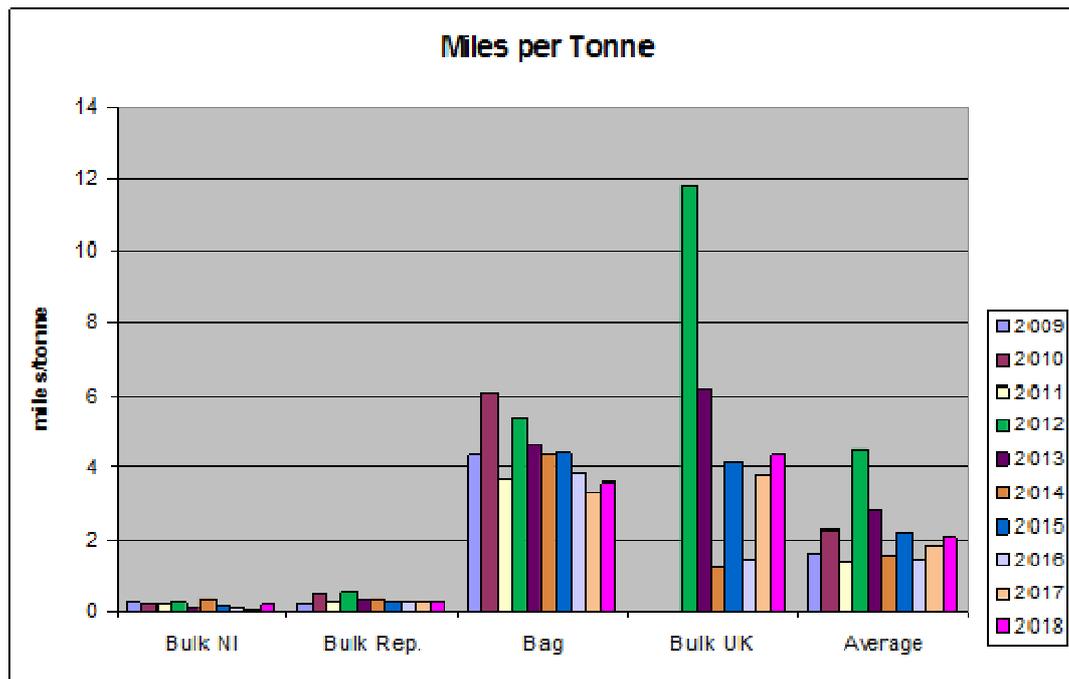
#### **Objectives and Targets**

<b>Objectives</b>	<b>Targets</b>
Reduce Transport Impact on Environment	Decrease miles per tonne by increasing exports by bulk shipment and transfer station sales

#### **Metrics**

Maintain an annual metric below 4 miles per tonne of cement delivered. Review target to take into consideration growth to UK market.

## Performance Indicator



### 4.4.8 Employment and Skills

All staff are given relevant training on an ongoing basis, including BES 6001 training. All contractors and new employees receive induction training which includes awareness of BES 6001.

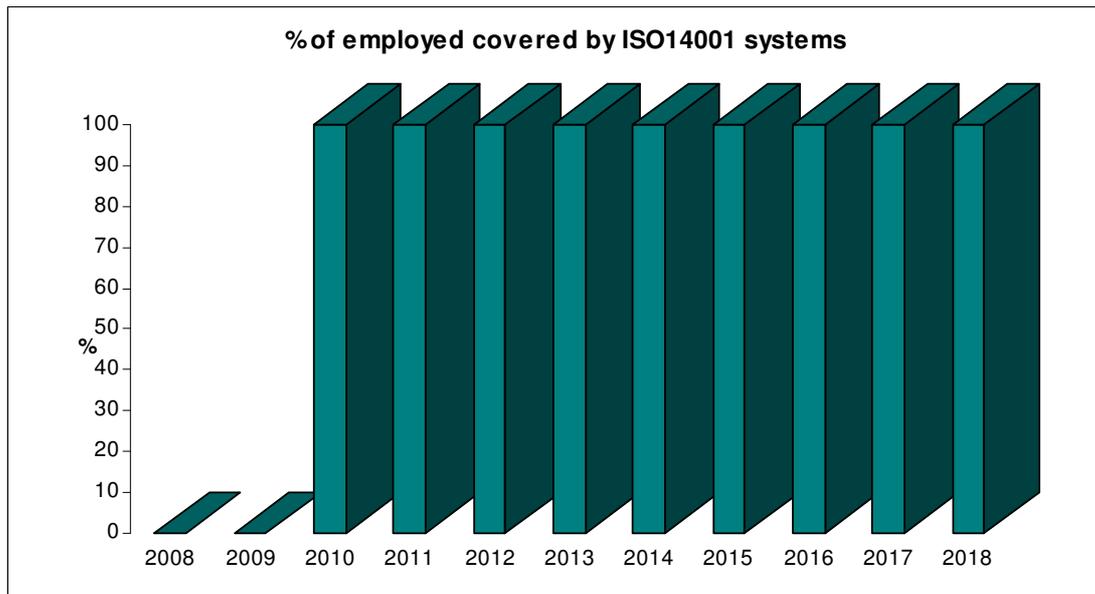
### Objectives and Targets

Objectives	Targets
Training	Ensure staff receive training required to carry out their role effectively including environmental, health and safety, energy management, sustainability, emergency response

### Metrics

% of employees covered by certified ISO14001 system (i.e. Training and Competence sections), with a target of 100%

## Performance Indicator



### 4.4.9 Local Communities

Quinn Cement as part of the wider Group has developed and grown within and with the support of the local community. Quinn Industrial Holdings is the most significant employer in the area and this has sustained growth within the community.

Information on Quinn Cement's policies and performance is publicly available for stakeholders and interested parties. Quinn Cement welcome interested parties for site visits and facilitate the development of others through offering student work placements and educational site tours (second and third level institutions).

A notice board is found at the entrance of the facility, the board displays key information in relation to the site as well as emergency out of hours contact telephone number. In the event of a complaint Quinn Cement have a fully documented procedure for investigating complaints.

### Objectives and Targets

Objectives	Targets
Local Communities	Continue Community Newsletter

## Metrics

(i) Number of Convictions for Emissions other than CO<sub>2</sub> with a target of 0.

### Performance Indicator

			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Relevant Section	Performance Indicator	Unit of expression											
3.4.9	Number of convictions for air and water emissions per annum	Number per annum	0	0	0	0	0	0	0	1	0	0	0

#### 4.4.10 Business Ethics

Business Ethics are very important to Quinn Cement as it provides the guidelines on how to react to situations by what is considered core values of what is '*right*'. Ethics within Quinn Cement are underpinned through Human Resources policies and procedures which outline a set of acceptable behaviours and conduct for dealing with moral duties and obligations.

Currently within Quinn Cement there is no documented code of business ethics however there are a number of policies that influence ethics and facilitate the main actors within an organisation to behave ethically with regard to specific matters these include:

- Anti-Bribery and Corruption Policy – Relates to upholding the integrity and reputation of the company and lists honesty, fairness and integrity as key tenets. Zero tolerance on bribery or corruption. .
- Harassment / Bullying Policy – Aim to promote a good and harmonious working environment.
- Whistle Blowing Policy – Staff may become aware of confidential information and have the option to report any concerns in a structured manner
- RoI and UK Disciplinary Policy and Procedure – Separate policies for respective legislation. Disciplinary issues, unfair dismissal, industrial relations.
- Grievance Policy – sets in place mechanism for employees to report and resolve problems. Informal and Formal stage.

## **Further Information**

[www.epa.ie](http://www.epa.ie)

[www.cement.ie](http://www.cement.ie)

[www.cembureau.eu/](http://www.cembureau.eu/)

[www.quinn-buildingproducts.com](http://www.quinn-buildingproducts.com)