

Sustainability

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BORD NA MÓNA 

Just as Ireland's needs
and priorities have
changed over 80 years,
so too have those of our
company.

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Sustainability is the heartbeat of our business. It means us building a future where Bord na Móna is a profitable company that is committed to protecting the environment. We have strong links in the communities we serve going back generations and our sustainability agenda is deeply invested in creating the brightest possible future for them.

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Introduction to Sustainability 2030

I am very pleased to launch Sustainability 2030, which sets out our ambition for a sustainable future and reports on some of our recent achievements in this regard.

Sustainability is about building a future where Bord na Móna is a profitable company that is committed to protecting the environment and delivering benefits for the community.

The announcement that in 2030 we will complete our transition from energy peat into new sustainable businesses is an historic one for our great company. The task of reorienting Bord na Móna from being nearly solely focused on energy peat into other business areas has been going on for some time.

By announcing the 2030 target we are for the first time looking at a clear destination point in our journey to sustainability.

The change is significant not just in terms of our land use but in terms both of how we perceive ourselves and how we will be perceived. We are now looking at a future where we will no longer be delivering peat to powerstations. Despite this change I don't think this one activity defines us as a company. It is true we will no longer have an almost singular focus on the peat harvest.

We will however continue to grow, and I hope thrive, as a company built on several sustainable businesses. We plan that all of these businesses will be, either in a literal or a commercial sense, 'rooted in the bog'. The association between Bord na Móna and the bogs will be an enduring one for a long time to come.

Bord na Móna has always been about community, as a community of employees and a company rooted in local communities. This will not change. We will continue as a business to be delivering benefits for local communities and we will continue to be a major employer. We will continue to be a company that is rooted in the Irish bogs, delivering in many different ways for the Irish people and the State".

John Horgan
Chairman, Bord na Móna

A future built on our bogs

Bord na Móna has been supplying energy and fuel products since its establishment – and will continue to do so, in line with a triple focus on People, Planet, and Profit

Mike Quinn has a clear vision of Bord na Móna's future. "Bord na Móna has a mandate from the Irish people to develop the natural resources located on the bogs of Ireland for the benefit of the Irish people. That mandate is clear, our business was, is and will remain rooted in the bogs of Ireland."

Bord na Móna's future beyond 2030 will not be in energy peat, he says. "Energy generation techniques have changed and it is no longer commercially viable for us in the long term. By 2030 we will cease harvesting energy peat but we will be making sure those 125,000 acres continue to deliver benefits for the company, local communities and the country at large" he said, outlining Bord na Móna's vision to see the company engaged in thriving sustainable businesses through to 2030 and beyond.

"Our land is a huge asset and we will continue to produce energy but it will be through biomass, solar, landfill gas, wind and waste to energy. We want to become a portfolio player in energy. Horticulture will still be a long-term player in the company as a supplier of growing media." All of these activities will be based in or around our landholding.

Building on the legacy of the success of peat and moving towards a more diverse portfolio of renewable energy production and sustainable business takes planning and plans are already afoot concentrating on five key areas: growth, human capital, sustainability, market leadership, and Bord na Móna's joint venture with Coillte.

"Fuels is already transitioning in terms of environmentally friendly renewable fuel sources and renewable home heating supply. Feedstock will still supply Horticulture and Fuels. Post 2030 Horticulture will still supply the professional growing media market," he said.

Mike Quinn also pointed to some of the environmental benefits that this change will mean "The move also of course means that our carbon profile, which is already falling fairly dramatically, will see a very substantial deceleration in the next decade and a half.

Add in the positive improvements in biodiversity across vast areas of land in this country and you have a change of at least National significance".

As Bord na Móna moves away from harvesting energy peat, alternative uses for its extensive landbank will generate returns that tie in with the company's focus on People, Planet, and Profit.

Biomass

Biomass is central to Bord na Móna's sustainability agenda for the future – already, the company is the largest user of biomass in Ireland, consuming 320,000 tonnes last year. The company is also developing a biomass briquette.

"We are currently conducting biomass growing trials. If these are successful, that will be a significant development in terms of our goal to become the number one supplier and user of biomass materials in Ireland and to supply biomass to the three power stations: Edenderry Power, West Offaly Power, and Lough Ree."

As an illustration of the centrality of biomass for the business, the company has created a new division lead by a Head of Biomass, Patrick Madigan, who reports directly to the CEO. This is a key appoint-



“The move into willow is a natural fit for the company – like peat, willow is harvested using tractors and Bord na Móna boasts Europe’s largest tractor fleet with 665 tractors in stock. Willow harvesting also occurs during the winter, the downtime for the company’s tractor fleet given that peat production takes place over the summer months, from May until September usually.”

Mike Quinn, Chief Executive Officer of Bord na Móna

ment given the recent announcement between the company and the ESB underpinning the operation of the two ESB-owned power stations to 2030. This means that Feedstock can, subject to supplying peat and biomass on a cost-effective basis, remain in business beyond the end of the current ESB agreements which expire in 2019.

Biomass already contributes significantly to Bord na Móna's bottom line. The company is building a home-grown supply of biomass from the growth of willow and bought-in forestry products. The plan ultimately is to grow willow on 15,000 hectares of land, generating 300,000 tonnes of biomass to supply Edenderry Power.

Renewable Energy

Already, increasing use of biomass in co-firing has produced impressive results, with Bord na Móna's carbon footprint substantially down over the last five to six years. This will reduce even further with the increased renewable energy production from the company's wind and solar farms.

And that is just the start with the CEO keen to make the company the number one utility scale solar company in Ireland. That is entirely feasible given that Bord na Móna has large tracts of flat land across the Midlands on which to mount ground-level solar panels.

Bord na Móna is well advanced along this road according to Mike Quinn. "A pilot 5MW solar farm will be developed in Mountlucas next year. This is part of Bord na Móna's exploration of co-locating wind farms and solar farms to take account of the counter cyclical nature of these technologies - wind is strong

during the short winter days and solar prevails on longer summer days.

Mountlucas is the company's landmark wind farm, commissioned in 2014 on 1,200 hectares of cutaway peatlands near Daingean, Co.Offaly. At the windfarm 28 turbines generate 84MW of electricity, enough to power 45,000 homes. Again, as with solar farms, the wind profile across much of Bord na Móna's land bank makes it ideal for wind development.

The plan is to develop a wind farm a year for the next seven years. These may or may not be fully owned by Bord na Móna with some evolving as joint ventures with other companies.

Other plans

The company has also recently applied for planning permission to build an Ovoid smokeless fuel plant in Foynes, Co Limerick which is designed to manufacture lower-carbon fuels.

In relation to its focus on People, the company's involvement in amenity areas around Mountlucas, Lullymore, Abbeyleix and Lough Boora Discovery Park, and the potential for a Midlands Trail Network Hub for off-road cycling offer huge benefits to the wider community.

Key to the future sustainability of the company's own people and job security is ensuring that business plans produce sustainable businesses. "Our core businesses going forward will be in energy, resource recovery, feedstock supply, growing media, and fuels," said Mike. "And our people are key to the success of sustainable employment in those sustainable businesses."

A Sustainable Future built on Growth

- ▶ Human capital
- ▶ Sustainability
- ▶ Market leadership
- ▶ Joint venture with Coillte

The future in figures

By 2030, Bord na Móna aims to be the:

- ▶ Number 1 supplier of renewable electricity on the island of Ireland
- ▶ Number 1 renewable home heating supplier in Ireland and the UK
- ▶ Number 1 Resource Recovery landfill operator in Ireland
- ▶ Number 1 supplier and user of biomass materials on the island of Ireland
- ▶ Number 1 supplier of retail growing media in Ireland and the UK
- ▶ International market leader in professional peat

Sustainable CSR

A Sustainable Business, rooted in our Communities

Bord na Móna is more than just a business. For us this is more than just a slogan. It is a statement of fact regarding our role in the communities where we operate. As a company and as a group of employees we are deeply interwoven with the social and cultural life of our heartland towns and villages. In fact, in some parts of the Ireland it is difficult to say where Bord na Móna ends and the community begins.

This deep connection is no doubt due to our history when we were in many counties the sole major employer. It is a fact that if it were not for Bord na Móna significant areas of the country would have been devastated by the blight of emigration. In providing jobs our company gave communities a vital lifeline and preserved the incalculable social and cultural capital of those areas. The question has been asked would Offaly have won All-Irelands in the 1970's, 80's and 90's were it not for the employment provided by Bord na Móna in the county? You can ask a similar question of your own friends and family, how many of us would be even in this country at all were it not for the support Bord na Móna gave to countless communities in the past decades?

It was not just employment that Bord na Móna has provided. The company has always rightly perceived that our role was to be active and directly involved in the communities where we operate. Be it briquettes for people in need from local fuel depots, support to local charities to providing for individual good causes we have constantly enriched our community connections. We have built an enormous store of goodwill built on the countless acts of kindness and care shown by Bord na Móna managers in the past and to this day.

We continue this tradition today supporting education, music and culture, good causes, sporting clubs, voluntary groups and many other facets of life in the places where we live and work. In each of these individual supports we have built

countless individual relationships that mutually enrich both Bord na Móna and our communities.

Our relationship with them is more than about providing monetary support. As a company we provide our skills and expertise to small businesses and groups. We also have provided developed special amenity areas in Lough Boora Discovery Park, Lullymore, Abbeyleix and in Mountlucas. They are areas providing biodiverse and beautiful amenities for people to enjoy.

I know many of you working in Bord na Móna businesses will testify to the fact that we have a rare and special relationship with the community. Whether it is in the construction of windfarms, peat harvest operations, resource management or buying our fuel and horticulture products, our local communities overwhelmingly support us and wish us well.

That is a competitive advantage that many others in the corporate world can only stand back and envy. This advantage is built on a great tradition of supporting countless small communities and thousands of individual relationships. It is something to be proud of because it enriches us all in a multitude of ways.

...our local communities overwhelmingly support us and wish us well. That is a competitive advantage that many others in the corporate world can only stand back and envy.

Mike Quinn
CEO, Bord na Móna



Sustainable and viable

Bord na Móna is acutely conscious of the employment it provides to local communities. Maintaining this employment through commercially viable and sustainable businesses is a priority

Sustainability as a concept is not just limited to the environment. In the case of Bord na Móna, a company that is rooted in the socio-economic life of Ireland, sustainability is also about providing job security to the thousands of people it employs. But, in a national context, where competition is ever tighter and energy generation techniques have adapted, Bord na Móna too must adapt in order to provide sustainable employment and still live up to its mandate to develop Ireland's natural resources for the benefit of the people of Ireland.

"Because we own 200,000 acres of land and bog, we are charged with the stewardship of that land, which is a most important asset," said **Michael Barry**, chief financial officer of Bord na Móna.

Michael is keen to point out that Bord na Móna's three responsibilities – sustainability around profits, people, and planet – are not mutually exclusive. "Our business ethos is that everything we do must be sustainable and not damaging to the environment. For instance, from a people point of view, we provide continued employment and a healthy work

environment. And from a commercial point of view, data centres may be a way forward for us in terms of the supply of land to other businesses in a way which will not offend the sustainability criteria."

Renewable energy generation is another facet that lends itself to contributing to a sustainable agenda around the environment and commercial viability. "For instance, power generation from wind or solar are long-term sustainable businesses and also contribute to the national agenda of lowering our carbon footprint. Equally, we are sending less waste

material to landfill and treating resource recovery in a sustainable fashion. These are just two examples of how businesses, which are environmentally sustainable, yield profits for the company."

Biomass growth and use is also another area tied into utilising Bord na Móna's landbank sustainably – "we are always looking at new uses that are environmentally sustainable and commercially viable". Other areas will emerge, he said, as part of Bord na Móna's movement away from a dependence on fossil fuels and toward renewable and sustainable practices.

Horticulture, for instance, already substitutes peat with non-peat diluents in its growing media products. "We support that agenda and believe that, long term, that should be commercially and environmentally sustainable. But there will continue to be a role for peat to a limited extent in horticulture products. The professional growing market rates Irish peat as a premium product and doesn't want a complete substitution of peat, so there will continue to be a need for peat at some level."

Fuels, he notes, is also moving towards substituting traditional fuels with products high in biomass and that, too, is environmentally sustainable in the long term.

“We built our original, entirely peat focused, business quite successfully on the bogs. In the future we will have a number of businesses, some peat related, some not. The common feature of many of these Bord na Móna businesses will be that they will have a commercial connection with the bogs. This shouldn’t surprise anyone. Our business is changing but our connection with the bogs of Ireland will endure for generations to come”

Michael Barry, Chief Financial Officer of Bord na Móna



Did you know?

- ▶ 70,000 homes are powered by electricity from Mountlucas and Bruckana windfarms
- ▶ Profit after tax in 2015 was €30.4 million
- ▶ 284,000 tonnes of mixed biomass were consumed in 2015 to generate electricity
- ▶ Bord na Móna employs over 2100 employees

Human capital

Bord na Móna’s success since its establishment has been built on a legacy of hard work, loyalty, and innovation of its staff. These are the people who work the bogs, manage customer waste streams, manage our power generation portfolio, drive the tractors, sell the peat and fire ignition products, come up with ingenious solutions, manage the payroll, IT and human resources, and help copperfasten the company’s reputation at home and abroad.

This concern about the people who make Bord na Móna such an enduringly successful company is also making its way into the financial reports. “We are moving towards reporting on natural capital because, not only are we accountable from a profit-and-loss perspective, but we are also accountable regarding our impact on people and planet.”

So, in relation to the company’s impact on people, Bord na Móna will seek to include statistics on employee numbers, health and safety, and the company’s impact on the wider community in which it operates.

“Our ‘license to operate’ depends on our reputation in local communities and our ability to sustain our business in the long-term.”

For instance, wind farms tend to be built in rural areas, he said, making an amicable and respectful co-existence with the local community necessary. “We need to show people that our businesses are advantageous to them, and we do that through supporting local initiatives, sports and developing amenities.”

In addition, end-of-year reporting will also include quantifiables in relation to the company’s carbon footprint and decreasing use of fossil fuels.

Achievements in 2010-2015

- ▶ Development of a comprehensive habitat classification system for the Bord na Móna bogs to account for the variability in cutaway habitats (pioneer to complex habitats)
 - ▶ Habitat mapping for Bord na Móna bogs – this includes a general ecology report for each site in conjunction with a species list and mapping.
 - ▶ Development of predictive habitat maps to indicate the potential extent of wetland, woodland, and grassland habitats in cutaway areas post peat production and rehabilitation phases.
 - ▶ Identification of active raised bog habitat areas and an ongoing programme of raised bog restoration in sites that show potential for restoration. This work will add to that area of active raised bog required under EU Natura 2000 obligations.
 - ▶ Identification and survey of important focal points for wintering and breeding birds, particularly those of conservation interest such as Whooper Swan, Red Grouse, Lapwing, Curlew and Hen Harrier.
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Changing landscape

Bord na Móna's land and bogs are an extraordinary asset. The responsible and sustainable management of this asset is one of the key pillars for the company's future success

As Bord na Móna transitions towards a sustainable future using Ireland's a range of natural resources including solar power, biomass, and wind power, alternative uses for its land-bank of bogs will be a key priority. With over 175,000 acres to transition out of one use into a multitude of new uses Bord na Móna will be managing the biggest land transformation in modern Irish history.

The rehabilitation of cutaway bogs falls under the remit of the Ecology Team, which has been in place since 2009. "Draft rehabilitation plans for all peat production bogs are on file with the Environmental Protection Agency and as well as this, Bord na Móna has an ongoing programme of raised bog restoration which has been ongoing since 2009" said **Dr Catherine Farrell**, senior ecologist with Bord na Móna.

"Over the last 10 years, more than 1000 hectares of raised bog in the midlands have been restored – this includes areas that were acquired but never brought fully into peat production. This restoration work will continue and, in the future, as bogs come out of peat production, we will finalise rehabilitation plans to

fulfil aspects of our responsibilities under People, Profits, and Planet."

"The 2030 date is very significant as it means we now have a hard target for rehabilitation across our energy peat bogs. It is a huge task that requires a significant amount of time and resources if it is to be completed to the standard that we apply".

The Ecology Team's work to date has been defined by the Biodiversity Action Plan 2010-2015. It has established a baseline of the ecological condition of the full extent of the Bord na Móna peatland area.

It has developed predictive maps, incorporating the necessary rehabilitation measures – targeted drain

blocking etc. – which predict how the bog areas can be stabilised post peat production.

As ever, sustainability is a key concern. "When planning commercial uses for the cutaway bogs, we have to keep in mind that some are biodiversity hotspots and treat those accordingly. In addition, we're also looking at how future rehabilitation plans and land use management will affect greenhouse gas emissions. Future development has to be sustainable without damaging the environment," she said.

"We're custodians of the boglands and those boglands provide a space for biodiversity, which is important on local and national levels. We get better value – at a company and a broader societal level – when we invest in and incorporate biodiversity management into our plans," said Dr Farrell.

Biodiversity Action Plan 2016-2021 (currently in development and due for publication Spring 2016)

- ▶ **Objective 1:** Carry out all works in line with best practice guidelines and relevant legislation across all Bord na Móna bogs
- ▶ **Objective 2:** Monitor biodiversity areas and identify and survey further biodiversity hotspots within Bord na Móna bogs
- ▶ **Objective 3:** Develop and promote best practice in terms of rehabilitation plans for all Bord na Móna bogs to stabilise former peat production areas and enhance biodiversity
- ▶ **Objective 4:** Raise awareness and create a greater appreciation of the biodiversity and natural heritage of Bord na Móna cutaway bogs and associated lands
- ▶ **Objective 5:** Monitor the progress of the Bord na Móna Biodiversity Action Plan

Getting the word out

A considerable part of the Bord na Móna Biodiversity Action Plan 2010-2015 has focussed on communication and creating awareness of the value of biodiversity, and the benefits of rehabilitation and restoration of the Bord na Móna bogs. This work will continue under the next planning phase and ranges from local to international levels. Aspects of communications will involve the following:

- ▶ We will continue to consult and engage, often on a daily basis, with statutory and non-statutory consultee. This includes Government Departments, National Parks and Wildlife Service, the National Biodiversity Data Centre, the Environmental Protection Agency, Fishery Boards, local County Councils, Coillte, the Irish Farmer's Association, the Heritage Council, BirdWatch Ireland, Irish Peatland Conservation Council, Butterfly Conservation Ireland, and other NGO's, local and national media, research and educational institutions (primary, secondary and third level) as well as the local landowners and communities that live in close proximity to the bogs
- ▶ Continue to interact with local communities and schools to identify potential local needs and projects in terms of amenity, education and/or biodiversity areas
- ▶ Organise field trips and workshops for the public in conjunction with established Biodiversity and Heritage programmes
- ▶ Facilitate areas where people can access the Bord na Móna bogs and selected biodiversity areas, such as Lough Boora Discovery Park and other walkways initiatives

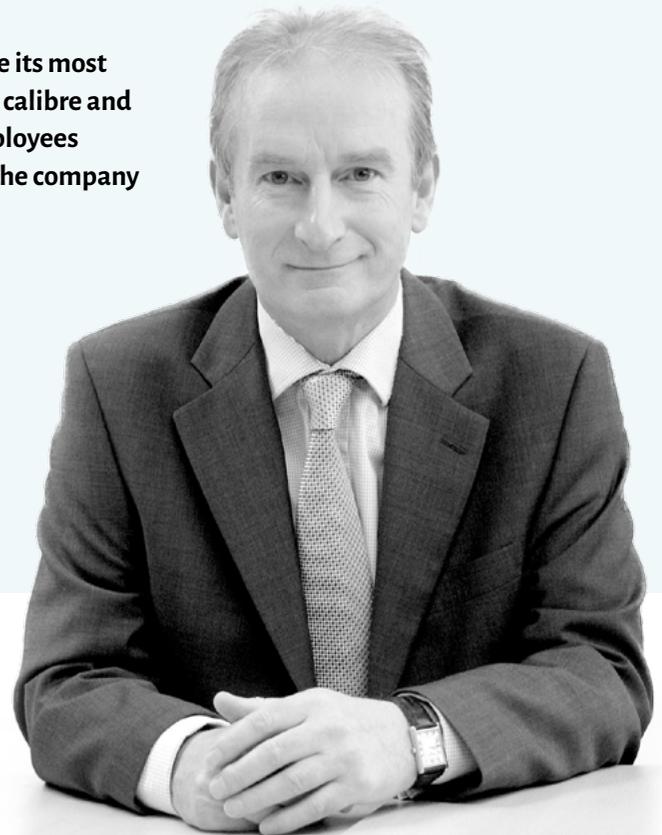
"The work to date of the Ecology Team and the interaction with the wider Bord na Móna community has demonstrated the significant role that biodiversity and rehabilitation plays in our day to day business. As this role grows and evolves, Bord na Móna will continue to invest in developing the bogs for future benefits—combining the investment value and returns on a range of levels for planet, and also for people and profits".

Some future priorities

- ▶ Continue with the Bord na Móna Raised Bog Restoration Programme (2009- present). For example the Clonboley and Killeglan Bog clusters in South Roscommon, which will be restored in the period 2015-2017.
- ▶ Establish further rehabilitation trials on cutaway bog areas: trials planned for 2016-2021 include an additional Sphagnum inoculation trial, different establishment methods for reed and other peatland species and controlled water run-off (sluice control).
- ▶ Continue to monitor the effectiveness of the breeding wader project site at Drinagh Bog developed with BirdWatch Ireland in 2010. Develop a map of the ecosystem goods and services of Bord na Móna bogs.

Sustainability and You

Bord na Móna's people are its most important resource and the calibre and commitment of its employees are critical to the success of the company



Bord na Móna is committed to promoting health and wellbeing throughout its entire workforce. This stems from the company's core values, Resourceful, Engaging, and Respectful.

It also stems from a deep understanding of the needs of its employees, many of whom are second- and third-generation Bord na Móna people. And it is rooted in understanding that Bord na Móna is more than just an employer, more than just a business. It is the reason many communities exist at all in the Midlands and sustaining those communities and the employees who live and work there is a key concern for the company.

"When everyone understands what we're trying to do and how they contribute to it, it makes us a more successful business and each person a more fulfilled employee," said **Jim Stockwell**, Head of Human Resources at Bord na Móna.

Having satisfied and fulfilled employees is the reason the company ran the first of its annual engagement surveys last December and also relaunched its Health and Wellbeing programme (see next page).

It's all part of a drive to match the people needs of the business with the personal needs of an employee. Very often, those personal needs are not just tangible elements such as salary, safety, and career advancement, but also intangibles such as recognition, values, and commitment. "In terms of recognising people, we've invested a lot in identifying and developing a structure for people with ambition, potential, and interest. This is because we want to increase the number of positions filled in-house. We also want to have people able to grow into bigger jobs, which is critical to managing the future of the company.

"We've also introduced a mentoring process, so that seasoned leaders and newer people will act as mentors for people to navigate their way to promotion. This is all designed so that our employees, who value themselves highly, see that there is something here for them in the company."

Sustaining its experienced workforce is a key strategy for Bord na Móna as it moves towards 2030. "We are a people-dependent business and we want to keep as many people employed as possible. That's why we invest so much in balancing the needs of people having a job, protecting their earnings, and producing peat at competitive prices in order to protect hundreds of jobs into the future," he said.

As with any company, Bord na Móna's employees are its ambassadors and they will be the agents of change in the move towards a sustainable future. "How our employees feel about coming to work for us is hugely important in terms of how they behave. More fulfilled employees deliver better services to the customer and they are better team players. We're keen on having the most satisfied employees."

Holistic approach

As part of its people-centred approach to health and wellbeing, Bord na Móna has always endeavoured to offer a high level of initiatives to its staff.

- ▶ Free health screening is offered every two years
- ▶ An independently operated employee assistance programme is available for employees and their families to deal with health or financial issues
- ▶ Campaigns are run around mental health, diet, wellbeing
- ▶ Themed events are held (see Health and Wellbeing programme panel)
- ▶ The Cycle to Work scheme is very successful
- ▶ Lough Boora Discovery Park provides something for all the family, though its extensive network of walkways, cycleways and other amenities on our landbank of cutaway peatlands

Health and Wellbeing Programme

As part of its Health and Wellbeing Programme, Bord na Móna has rolled out a number of events around health and wellbeing throughout the year. These events are based around four general themes: General Wellbeing, Physical Health, Nutrition, and Financial Wellbeing.

Every two months, one of these themes guides a number of events which take place across the company as per the following calendar:

Jun-July 15	Aug-Sept 15	Oct-Nov 15	Dec-Jan 15/16	Feb-Mar16
Physical	Nutritional	Financial	General	Physical

This relaunched programme and the timetable of events and activities is based on feedback from Bord na Móna's employees. Ideas and experiences of activities were shared and the information exchanged will be included in future calendar plans where possible.

While these themes guide activities throughout the year, the HR department will also include national campaigns and specific awareness campaigns.

Engagement Survey

Bord na Móna's engagement survey formed part of the company's ongoing efforts to include staff in discussions around how the company is run. This is an acknowledgement that the staff are not just employees; they are experienced observers and participants in the fortunes of the company, which is rooted in the communities in which they live.

"We see engagement as a way of trying to get people to see what their role is in what we are trying to do as a company and understanding our strategy. Communication is a huge part of that and our CEO, Mike Quinn, is very keen on making sure people understand what we're doing and why."

Health & Safety

In Bord na Móna, no aspect of its operations or administration is considered more important than the health, safety, and welfare of its employees, contractors, customers, service providers, and visitors.

"Health and Safety is a dedicated committee of the Board," said Jim Stockwell, acknowledging that this is an indication of how important health and safety is to the welfare of the employees. "We have quite a risky work environment and we recognise that and take it seriously. For instance, 80 per cent of our training is oriented towards health and safety and most of our investment in skills-based training is around health and safety."

The overall goal is to provide a safe workplace and a healthy environment with adequate welfare facilities as an integral part of how Bord na Móna does business in all its workplaces nationwide.

Overview of Key Figures and Performance Indicators

Planet

Bord na Móna's growth in generation capacity must be delivered while simultaneously reducing the overall carbon intensity of the electricity we produce from the portfolio through biomass co-firing in our peat-fired Edenderry plant and bringing cleaner sources of electricity onto the grid. Our target is to have a 75% reduction in CO₂ emissions intensity by 2020 from 2007 levels.

Emissions intensity in electricity generation	0.66 tCO₂/MWh
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The Retail Business is pursuing a peat dilution strategy as a core part of its sustainability agenda. Peat dilution is a key metric for our horticulture business. It is the amount of peat substitute we have used in our growing media products as a percentage of the total volume sold.

Peat dilution in Horticulture	32%
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One of the primary methods that Powergen is using to reduce the carbon intensity of the electricity produced at the Edenderry power station is by replacing peat with biomass. This process is known as peat dilution or co-firing.

Peat dilution in Edenderry power station	27%
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As part of Bord na Móna's biodiversity work programme the Group carried out a baseline survey of our bogs. The objective of this survey is the compilation of a comprehensive biodiversity knowledge base from which to plan for biodiversity management and conservation across the bogs. For each site a present day habitat map has been developed as well as a future predictive habitat map.

Peatland biodiversity baseline conditions mapped	80,000ha
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People

Bord na Móna continues to place very high emphasis on continued professional development and training. The Group's training plan identifies all the relevant training needs in line with the priorities of the businesses. Arising from this process a schedule of training is produced. The Group pursues a policy of constantly improving health and safety in the workplace by fully integrating best practice into business management at all levels. This is achieved through training, raising safety awareness, promoting safe behaviour, and developing and reviewing health and safety systems policies and procedures.

Health and Safety training hours	18,024
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Total training hours	27,654
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Days training delivered	3,457
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Number of attendees	6,266
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Accidents	158
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Profit

Turnover is comprised of revenue, excluding value added tax, trade discounts and including other levies on goods and services to external customers arising in the normal course of business.

Turnover	€417m
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Spend on research & development activities	€5.5m
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Capital expenditure and financial investment	€113.8m
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Energy Efficiency Obligation and Energy Usage

Bord na Móna consumes much of its energy in harvesting peat for three peat fired power stations and two briquette factories which fall outside the Public Sector Reporting requirement of Statutory Instrument 542/2009. In the calendar year 2014, Bord na Móna recorded to SEAI an Energy Performance Indicator (EnPI) reduction of 49.1% versus 2013, consisting of:

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|--|---|------------------------------------|
| ▶ 23,089 MWh of grid electricity (a nett of electricity imported versus that generated on site) | ▶ 538,862 MWh of renewable energy generated on site (excluding wind farms) | ▶ 61,396 MWh of fossil fuel |
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Actions undertaken

In 2014 Bord na Móna undertook a range of initiatives to improve the Group's energy performance, including:

- ▶ The FSS team were accommodated in 400m² of refurbished office space. The refurbishment consisted of fully insulated walls, floor and roof, the heating is thermostatically controlled with a variable speed pump set, new energy efficient lighting with PIR and occupancy sensors were installed and the natural ventilation was achieved with the installation of a mondraught windcatcher x-air.
- ▶ Route optimisation is monitored using weekly and monthly updates from the Scania Fleet Management System. This along with consideration of road conditions and sensitivity of population along routes informs decisions around the most economical routes between the peat supply and the customer.
- ▶ As part of ISO50001 at Mounddillon, actual versus expected fuel use is reviewed on a monthly basis against a target action baseline with target savings set at 5%. In 2014, these savings were not achieved, with an increase of 3.3% in fuel use due to significant less peat transported by rail and the resultant dis-economies of scale; this remains an active project which may generate savings with more suitable conditions
- ▶ A Driving for Work initiative was implemented during the period which tested and assessed 100 drivers across the business. This online assessment module measured driver awareness, performance and driving style, all of which are the main impacts on fuel efficiency. These assessments also prompted further interventions with drivers who were identified as having opportunity for improvement.
- ▶ Introduction of Drehid Landfill Gas Utilisation plant for the production of electricity from landfill gas since 2013; operating at a high capacity factor
- ▶ Feedstock have been working with an external contractor regarding a new design for remote secure fuel tank, which it is hoped will enable a more efficient fuel delivery, dispensing and recording system and reduce the fuel using assets associated with this service. This design was progressed in 2014 for piloting in 2015;
- ▶ A Tractor Operation module was developed in 2014, and is currently being edited for inclusion of key opportunities around driver performance, idling and machine maintenance and checks;
- ▶ The Feedstock staff energy efficiency campaign was rolled out in 2014 and an associated energy team was formed to drive this initiative targeting the fuel we use in our seasonal production activities and the fuels used to transport this product by road and rail to our customers. The campaign also includes the ancillary support services in areas such as pumping, lighting, heating and compressed air;
- ▶ Promotion of sustainability and energy efficiency to the staff as part of an awareness campaign;
- ▶ Upgraded Incumbent Fuel Management System in our Energy business at the Mounddillon facility;
- ▶ Road fleet trailer covers implementation to ensure efficient truck haulage.

Bord na Móna & Better Energy

2014 marked the first year of a new three year energy efficiency obligation scheme (2014 to 2016). This mandatory scheme followed up on the Voluntary Scheme for the period 2011-2013 where Bord na Móna exceeded our energy efficiency targets. Targets under this new mandatory scheme are higher than those for the

Voluntary Scheme and involve reaching targets across Energy Poor, Residential and Non Residential sectors. In 2014 Bord na Móna was in compliance with its obligations under the Energy Efficiency Obligation Scheme and we continue to work to remain on track to reach the Scheme's minimum 75% cumulative target in 2015.

Actions Planned

In 2015 and future years, Bord na Móna intends to further improve the energy performance by undertaking the following initiatives:

In respect of Newbridge, the following will be planned for commencement and / or completion in 2015:

- ▶ **Installation of Biomass heating system on the site** – estimated annual reduction of approx. 170 tonnes CO₂ emissions. Each building will have a separate pump and heating will only be provided on an as-needed basis based on temperature set points in each location. This will further reduce energy usage and CO₂ emissions.
- ▶ **Installation of 50m² of Photovoltaic solar panels** – BnM PowerGen are facilitating the installation of these units.
- ▶ **External Lighting** – Upgrade/replacement of external car park and site lighting with low energy long life LED units.
- ▶ **Canteen** – replacement of domestic ovens/cookers with more cost and energy efficient commercial convection oven.

In addition, we hope that by year end we will have installed a further layer of energy monitoring into all of the buildings on site with a view to ultimately reducing overall demand. This information will be publicly displayed as part of an ongoing development of energy management tool previously installed.

- ▶ Optimisation of Landfill Gas at our Drehid facility with a new gas cleaning plant including an innovative approach to the removal of sulphur containing material in the landfill gas.
- ▶ Retuning of existing tractor fleet for optimised fuel consumption.
- ▶ Retention of ISO50001 Energy Management System at all BnM facilities with this standard
- ▶ “Buy it Right, Use it right, Turn it off, RIGHT” energy awareness campaign targeting fuel and electrical use in production season 2015 and year round road and rail transport and ancillary services
- ▶ Energy Champions appointed in all works for implementation of all opportunities.
- ▶ Value stream mapping of our bog operations and supply chain processes to include energy losses.
- ▶ Working group on Workshop/Office energy saving opportunities in areas such as printing, lighting, heating seasons and thermostatic controls.
- ▶ Working group targeting 10% savings in electricity usage in pumping, through rationalisation, redesign, loss reduction, operational practice and maintenance.
- ▶ Migration of all 2.3 MW of installed pumping onto the Maximo asset management system.
- ▶ Life Cycle Analysis of significant energy users.
- ▶ Retention of ISO50001 Energy management System.
- ▶ Generation for Energy Performance Indicators for production activities.
- ▶ Extension of the Fuel Management System to all fixed tanks.
- ▶ Piloting of the prototype fixed fuel tank at Mountdillon. Feedstock have been working with an external contractor regarding a new design for remote secure fuel tank, which it is hoped will enable a more efficient fuel delivery, dispensing and recording system and reduce the fuel using assets associated with this service. This design was progressed in 2014 for piloting in 2015.

Innovative sustainability

Our overall sustainable Innovations strategy is to transform Bord na Móna from being dependent on its traditional businesses to one that, among other things produces low Carbon fuel, alternative growing media and a strong emphasis on renewable energy. The transformation of the company was and is dependent on a continuous cycle of Innovation/R&D in all of the above areas the involvement of all our employees has been a key enabler for this to happen.

Some of the projects we are now working on include:

1. The Biomass Briquette (using pre-treated biomass)

One of the critical success factors which will increasingly impact on the success of the business is the incorporation of sustainable raw materials in the production of fuel products. Bord Na Móna currently provides convenience fuel products to the market, which is a growing sector. Bord na Móna have set a challenge to develop a sustainable alternative to Peat Briquettes, using sustainable biomass (derived from a pre-treatment process), having similar water proof and calorific specification to that of the standard BnM briquette. Bord na Móna seek to investigate innovative processes using waste co-products and by-products to produce a product with minimal impact on air quality.

3. Alternative uses for Peat ash in the Growing media business

Innovation are currently assessing the potential of a renewable product that will recycle our fly ash waste from Edenderry Power Plant and waste glass from our AES waste business into a marketable inorganic growing media. The opportunity for this product in BnM is consistent with our group sustainability agenda.

5. Biochar as a GHG management material

Biochar is a type of charcoal obtained from the thermo-chemical conversion of biomass in an oxygen-limited environment. Biochar is used mainly as a soil amendment with the intention to improve soil functions and to reduce emissions from biomass that would otherwise naturally degrade to greenhouse gases (carbon sink). However, in recent years, biochar has become increasingly used in European agriculture, where it can be used in the treatment of slurry, as a litter additive and as a feed supplement (toxin binder). Our research in this area is to establish if biochar produced from peat will have a competitive advantage over those produced from other feedstock types in terms of its capacity to bind up pollutants arising from agricultural practices.

2. The biogas treatment project (landfill gas treatment using biofiltration)

Conventional treatment for removing corrosive elements from landfill gas is using chemical scrubbers for H₂S and activated carbon for siloxane. However, because of high concentrations, high costs of consumables (carbon/chemicals) and disposal costs for secondary waste streams, the solutions are very expensive and render pre-treatment commercially unviable. Bord na Móna have developed a technology that could be used to clean and/or remove contaminants such as siloxanes and H₂S from Biogas and Landfill Gas to render it more suitable for energy production. Bord na Móna have now almost completed the development of this technology from demonstration scale directly to full scale.

4. The Horticulture projects (peat dilution in compost using waste/recycled materials)

Bord na Móna is leading the development of alternatives to peat based growing media based on green compost and wish to expand its knowledge to encompass new raw materials. Innovative technologies and new raw materials are being assessed to develop new processes and products in order to reach target.

6. Ongoing energy crop growing trials on cutaway Peatlands

The Innovation team are involved in overcoming the historic issues surrounding the cultivation and harvesting of biomass on our cutaway peatland. The growing trials focus on grassy crops (Italian Rye Grass, Reed Canary Grass, Soft Rush, Reeds etc.) for various end uses, such as; composting, anaerobic digestion and thermal combustion (EPL/Biomass Briquette). It is expected that outputs of the growing and harvesting trials will be used to determine a future roadmap which will see our cutaway peatlands growing valuable sustainable biomass into the future.

Sustainability is the heartbeat of our business. It means us building a future where Bord na Móna is a profitable company that is committed to protecting the environment. We have strong links in the communities we serve going back generations and our sustainability agenda is deeply invested in creating the brightest possible future for them.

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