

# THE WORLD'S FIRST CARBON NEUTRAL FOOTBALL CLUB: THE CASE STUDY OF FOREST GREEN ROVERS

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## **ABSTRACT**

*Shirts made from bamboo waste and recycled plastic, a stadium powered by 100% renewable energy, organic turf, electric car charging stations and vegan-only food for fans and players. Forest Green Rovers, a team in the English fourth division, have gone from a near-bankrupt British semi-amateur team to the world's first carbon-neutral football club in ten years. Their example is a model of environmental sustainability for major football clubs and representatives of other sports.*

**Keywords:** *sports marketing, green marketing, football marketing, rebranding, responsible branding, carbon neutrality, sustainability, environmental protection, change of mindset, innovation*

## **1. INTRODUCTION**

Few people think about environmental pollution in connection with football, although their relationship is obvious. Clubs playing in the higher divisions tend to have large stadiums with thousands or tens of thousands of seats. The buildings need heating and lighting, which can consume a lot of energy. So does the maintenance of a football pitch: not only does it need a lot of water for irrigation to make the grass grow faster, but special lighting at night is also essential, as is heating to keep the well-kept lawn from freezing. Large projectors, scoreboards and advertising boards can also consume a lot of energy (UNFCCC, 2019). Fans eat and drink during matches, which creates a lot of plastic waste. They also use a lot of water in the toilets. On top of this, there is the travel of players and professional staff, not to mention the transport of fans – a burden on the city in the case of home fans, with even more obvious environmental impacts such as carbon emissions in the case of away fans. As a result, a match day can cause a huge load (Mizsur, 2019). But how can this environmental burden be reduced? According to a report published in January 2021 by the Sports Positive Summit, there are eight areas where clubs can make a direct impact and operate in a more environmentally friendly way. These are:

- the use of renewable energy sources
- energy efficiency
- water efficiency
- environmentally friendly transport modes
- waste management
- replacement of single-use plastics
- availability of food which is plant-based or low-carbon
- communication, commitment to green goals

Although Sports Positive Summit analysed the English Premier League teams based on the above, the Fédération Internationale de Football Association (FIFA) says that the greenest club is in the English fourth division. Forest Green Rovers has also received an honourable mention from the United Nations, becoming the first football club in the world to be awarded the title of carbon neutral. In fact, representatives from Premier League clubs now visit Forest Green Rovers from time to time to learn about its good practices. But football clubs from other countries and even other sports are also regular visitors (Lewanczik, 2019).

## **2. GREEN INSTEAD OF BANKRUPTCY**

The birthplace of football is undoubtedly England. It was here that the sport first emerged in its modern form, and it is still hugely popular today. The top division called Premier League is the highest-grossing league in the world – if pandemic restrictions do not make it impossible, teams are playing to sell-out crowds of tens of thousands every week. But even in the fourth or fifth divisions, it is not uncommon to see games with several thousand spectators. At the same time, economic stability is not necessarily guaranteed. In England, more and more clubs are facing bankruptcy proceedings, and even clubs with a long tradition and over a hundred years of existence are on the verge of closure (Farkas 2020). This was also the case for Forest Green Rovers, founded in the West of England in 1889. It is true, however, that patina has not necessarily meant success for the English team: Forest Green Rovers have always played in the lower divisions. Even though the county of Gloucestershire has an 'El Glosico', in the manner of the 'El Clásico' game of Real Madrid and Barcelona, the club's clashes against Cheltenham Town are of little interest to people outside the locals. Forest Green Rovers was struggling to survive for years, living day to day on an annual budget that was patched together from donations from the league, the local council and local entrepreneurs. During one such 'fundraising initiative' in 2010, they met Dale Vince, founder and owner of the Ecotricity renewable energy company, one of the region's most successful enterprises. The club asked for a smaller amount of money to support the team, in exchange for any of their display spaces at matches. While he could have asked for anything, Dave Vince saw no business value even in this offer. However, Forest Green Rovers was important to him as a proud localist, thus he offered an 'all-or-nothing' deal: he would buy the whole club, but then it would be remodelled in every way he wanted (Farkas 2020, Rios 2019). His vision was to combine environmental awareness with business goals: he set out to create the world's first carbon-neutral football club, which would obviously also help promote his renewable energy company, the wittily named Ecotricity. However, fans do not like change, so they did not take kindly to him changing the team shirt to neon green (also known as lime green) as one of his first moves. There was also a minor scandal when he changed the blue-red-white colours of the British flag in the crest to black-green-white. Many felt that this was a move to impose the colours of his company Ecotricity on the club, but he argued that the word 'green' is part of the team name and that the club is going green, meaning that the change is based on real transformation and not just a redesign of the club image (Jackson 2019).

## **3. GREEN, NOT IN NAME ONLY**

Earlier in this article, we discussed what a club can do for its environment, to reduce its carbon footprint. Forest Green Rovers' stadium has an organic turf that not only drains rainwater, but also collects and recycles it, providing the water needed for irrigation. The stadium, called New Lawn, is powered entirely by renewable energy, with much of the electricity generated by solar panels placed on the roof of the stadium. The mower is not only electric, but it does not even need a human to operate it – it used GPS coordinates to automatically navigate the field and mow the grass.

The grass is not treated with any herbicides or sprays and is recycled after cutting: a local farmer composts it into topsoil. The involvement of supporters as volunteers is also taken seriously. There have been examples of supporters volunteering to paint the buildings from top to bottom with environmentally friendly paint, saving money for the club's budget and not harming the environment (Gyüszi, 2013; Forbes, 2018). The players' shirts are made from 50% bamboo waste and 50% recycled plastic. A small but important detail is that the shirts are washed with phosphorus-free washing powder at the lowest possible temperature. The team travels in 100% electric vehicles, reducing carbon emissions. They are also trying to encourage fans to do the same, with charging stations at the stadium for those arriving in an electric car, and car-sharing is being promoted. Forest Green Rovers will offset the carbon emissions of fans coming to the New Lawn Stadium and away matches by including a compensation amount in each ticket. "It's a way to tackle emissions linked to transport before we can tackle it in a better way," they told The Sustainability Report. "We can't get an electric bus for away travel and we can't really control how fans come here. But we want to communicate the importance of the issue. So in the interim, we've said 'let's build a carbon offset into every ticket' so that every fan that gets here will have done so in a carbon neutral way." The club will calculate the estimated CO2 emissions by analysing the distance travelled by supporters and the means of transport they use (Ketley, 2019). Although the current stadium is also very environmentally friendly, plans for a new stadium have already been drawn up, which will be equipped with the latest sustainable technologies. Furthermore, the name of the club now includes the word "forest" as well as "green": it will be the first sports facility to be made entirely of wood. The car park will be located in a real "park": 500 trees will be planted and a 1,500-metre hedge will be laid out alongside the stadium to welcome visitors. This is what the name Eco Park refers to. The Eco Park was designed by the star architect Zaha Hadid, who has designed buildings such as the Hong Kong Innovation Tower, the Guangzhou Opera House and the London Aquatics Centre, which was completed for the 2012 London Olympics. Despite this, the Eco Park's green, environmentally friendly concept was initially rejected by the local authority in mid-2019, but it met such an outcry that the ordinance was later changed so that construction could start at the end of the same year (Lewanczik 2019; Rios, 2019). These efforts have already been recognised by the United Nations, with Forest Green Rovers becoming the world's first carbon neutral football club in 2018. As owner Dale Vince put it, "We're a small club with big ambitions, and it's fantastic we can work together to champion the sustainability message worldwide". Miguel Naranjo, Programme Manager of the United Nations Framework Convention on Climate Change (UNFCCC), said: "The beauty about Forest Green Rovers is that it's a small organisation, with not a massive budget and still it's doing so much to address the environmental footprint. So if FGR can do it, anyone can do it as well" (Mitchell, 2018).

#### **4. VEGAN ONLY**

A significant element of the green club model is the use and promotion of environmentally friendly vegan nutrition. According to the club's communication, one of the main reasons for becoming vegan was that mass animal farming has a distinctly negative impact on animal welfare and the environment. Their pioneering and innovative efforts have been recognised by major international institutions, and in 2017 they were the first to be awarded the Vegan Society's Vegan Trademark. Red meat has not been consumed at the club since 2011, and since 2015 only vegan food has been on the menu. This not only means that only vegan food is available in Forest Green Rovers' buffets on match days, but also that the club's staff and even players are served vegan food on a daily basis. No one, but no one, is allowed to bring in or eat meat on club premises (Forbes 2018).

Of course, many people disliked this idea at the beginning. But as Vince Dale puts it, Becoming the world first vegan football club “was the most difficult thing we did, and I would say it wasn’t that hard,” he said, “Football game is once a fortnight for two hours. So why not come and try something different instead of something that you eat every other day of the week? And, you know, our fans did, they came and they tried it and they loved it.” While the number of spectators has quadrupled, the number of food sales has increased fivefold (Rios, 2019). What is more, the players may have benefited from the vegan diet and the resulting easier digestion, as former fifth division Forest Green Rovers were promoted to the fourth division for the first time in their history in 2017. And the fans were very happy about that. After all, let us face it, a good place in the table is more important for a football fan than sustainability. For them, climate change and reducing our ecological footprint are lower in the order of importance than the result against our neighbouring city at the weekend. However, the protection of the environment is a subject that is hard to argue with. There can be little criticism that the club is a founding member of the UN's Sports for Climate Action initiative, or that it was the first football club to sign the EU Eco-Management and Audit Scheme with the European Commission (Lewanczik, 2019; UNFCCC, 2019; Herman 2021). In addition, fans can feel the positive effects of the measures first-hand. Car-sharing, for example, not only allows them to get to matches quicker, but it is also cheaper and increases their circle of friends and acquaintances. Vegan food gives them a different, healthier diet than the classic British cuisine and fast food. After learning about the benefits of renewable energy and seeing solar panels in the stadium, several fans have installed solar panels in their homes. The purchase of electric cars has also increased among them. And all of them have become more educated, more conscious consumers, which is reflected in other purchasing decisions, consumer behaviour and in their efforts to live more sustainably (UNFCCC, 2019).

## **5. PATTERNS FOR YOUNG AND OLD**

The team's Ambassador Scheme also promotes sustainability at a local level – the education programme acts as a channel between the Forest Green Rovers club and local educational institutions, effectively bringing the green attitude to the youngest generations. The student ambassadors gain an insight into how the club “has gone green” and how the players themselves represent and promote its values. The programme also distributes 400 shirts to third-graders each year – an ingenious and useful initiative because it is at this age that children decide which team they will cheer for. This gives Forest Green Rovers and its green ambitions even more exposure (UNFCCC 2019). The team also launched a free education programme, Fit2Last, for the local community and educational institutions. The programme explores the linkages and mutual benefits of sustainability, healthy lifestyle education and sport through individual lessons, school trips and visits by players to schools (Lewanczik, 2019). This way, young people are introduced to green thinking in more ways and on more fronts. This is important because young people at this age are open to new, progressive ideas and are therefore more receptive to environmental protection than the generation of their parents. These activities have had an impact on the UK and international scene. As the lead of a recent article put it, "Unless you've spent the last five years living in a cave you've probably heard of Forest Green Rovers." (Jackson 2019) Because even though they only play in the fourth division (and not so long ago in the fifth division), the news of their green philosophy and activities have spread everywhere – so much so that, according to their media analysis, they have reached three billion people with their press coverage since 2017 (UNFCCC, 2019). Moreover, Forest Green Rovers, a fourth division club, has its own fan clubs in twenty different countries. When the new shirt was released, orders were received from 16 countries in the first 24 hours, including South Korea, Malaysia, Hong Kong and Australia.

This enthusiasm is hardly justified by success in sport, but more so by the cause they have taken up and represented for more than ten years. Club owner Dale Vince even says, “What I think we’ve created is a new kind of football fan. People that get the environment and they may be interested in football too, to a degree. Some are, and some are less so” (Ketley, 2019).

It is also a great achievement that first division football clubs and top clubs from other sports regularly visit Forest Green Rovers to learn good practices such as vegan burgers, electric car charging stations in car parks and solar panel installation – the latter of which Arsenal implemented after their visit. UEFA, the Bundesliga, World Rugby, Roland Garros, EFL, Sky Sport and even delegations from Wembley Stadium have visited Forest Green Rovers (Lewanczik, 2019).

Dale Vince and the team have been supported by a number of sponsors in recent years, as they can offer a relevant value proposition to any organisation/company that wants to highlight its climate-friendly, green credentials. The first and most important sponsor partnership was of course with the owner company, Ecotricity, a green energy supplier and operator of modern wind farms – the green values they represent are the basis of Forest Green Rovers' paradigm shift. This relationship has now become much more fruitful for the sponsor, with the extra media attention and the resulting network of connections also adding a lot of marketing value to Ecotricity. One of the first sponsors to join the Forest Green Rovers cause was Grundon, which recycles 100 per cent of the waste produced by the club. And to help them achieve the vision of the world's first vegan football club, they have been supported by Quorn, a company that sells vegetarian and vegan food. These partnerships have been ongoing since the change of ownership, meaning that working with Forest Green Rovers has since become a proven and fruitful business for each company. And as for the skull symbol so often used in football caps, Forest Green Rovers' shirts also feature a version of it, thanks to a partnership with international wildlife conservation non-profit Sea Shepherd (Lewanczik, 2019).

In 2020, these collaborations were taken to the next level. The club's new investor was Arsenal professional footballer Hector Bellerín, who became the second largest shareholder in Forest Green Rovers after depositing a substantial sum. Bellerín has been committed to green values for many years and is a vegan himself, and has also pledged to fund the planting of 3,000 trees through a charity for every team win this season. The 25-year-old player has since involved his social media page in the support of Forest Green Rovers and their cause, spreading the message of sustainability and climate neutrality to millions. Bellerín has also helped to put the club on an even firmer financial footing (Farkas 2020).

And what comes next? The club now seeks to extend its values to the world. As one iron law of marketing says, being first in something is one of the keys to business success. Since Forest Green Rovers became the first carbon-neutral football club in the world, everyone has attached this adjective to them, so other clubs can no longer claim the leadership. But there will be followers, and if they can make sustainability more mainstream, it will be good for the planet. As Dale Vince puts it, “It’s great to be first, but I believe it’s only a matter of time before the big boys like Real Madrid, Man United and the San Francisco 49ers follow our example.” But other clubs can also start working on sustainability. For them, too, Vince’s important advice is not to worry about what is out of our control, but to focus on what a club can do to protect the environment (Mitchell, 2018).

## 6. CONCLUSION

*Table 1: The green renewal of the Forest Green Rovers football club*

Category	FGR solution
Use of renewable energy sources	Stadium powered by 100% renewable energy
Energy efficiency	Use of solar panels Automated lawn mowing, using electric equipment
Water use efficiency	Organic lawn carpet
Environmentally friendly transport modes	Electric charging station The team uses 100% electric vehicles Promotion of cycling Promotion of car sharing and public transport for home and away supporters' tours
Waste management	Shirts made from bamboo waste and recycled plastic Composting and recycling of used lawn mats
Replacement of single-use plastics	100% recycled waste (creating a circular ecosystem)
Availability of plant-based or low-carbon foods	Providing only vegan food for fans and players
Communication, commitment to green goals	Complete "greening" of the official club colours Promotion of actions to reduce the ecological footprint of supporters and reward well-performing supporters Involving sponsors and business partners with green values and organising joint actions and promotions with them

*Source: Table created by the authors, based on the article*

## LITERATURE:

1. Farkas Máté (2020): Márkát építeni nemcsak a legnagyobbaknak lehet! Mit tanulhatunk a legzöldebb futballcsapat, az angol negyedosztályú Forest Green Rovers példájából? ("Building a brand is not only for the biggest! What can we learn from the example of the greenest football team in the world, English fourth division Forest Green Rovers?") <https://sportmarketingtagozat.hu/hirek/markat-epiteni-nemcsak-a-legnagyobbaknak-lehet/>, Published: 15 December 2020.
2. Forbes (2018): Forest Green Rovers named world's first UN certified carbon-neutral football club, <https://www.theguardian.com/football/2018/jul/30/forest-green-rovers-named-worlds-first-un-certified-carbon-neutral-football-club>, Published: 30 July 2018.
3. Gyüszí Dávid (2013): Angol klubcsapatok környezettudatos gazdálkodása – Forest Green Rovers ("Green management in English club teams – Forest Green Rovers"), <https://sportsmarketing.hu/2013/10/21/angol-klubcsapatok-kornyeztudatos-gazdalkodasa-forest-green-rovers/>, Published: 21 October 2013.
4. Herman, Martin (2021): Introducing the 'world's greenest football club' - and their new kit made from coffee beans, <https://www.weforum.org/agenda/2021/03/forest-green-rovers-coffee-kit-soccer-recycled-sustainability/>, Published: 3 March 2021.
5. Jackson, Alex (2019): Forest Green Rovers, or what is the price of success?, <https://backpagefootball.com/forest-green-rovers-or-what-is-the-price-of-success/123338/>, Published: 11 December 2019..
6. Ketley, Conor (2019): Forest Green Rovers to compensate carbon emissions related to fan travel, <https://www.sustainabilityreport.com/2019/07/31/forest-green-rovers-to-compensate-carbon-emissions-related-to-fan-travel/>, Published: 31 July 2019.

7. Lewanczik, Niklas (2019): Forest Green Rovers Are the Best Club in the World – Just Not on the Pitch. <https://spielmacher.io/forest-green-rovers-are-the-best-club-in-the-world-just-not-on-the-pitch/>, Published: 21 January 2019.
8. Mitchell, Stuart (2018): Forest Green recognised by United Nations after going carbon neutral, <https://ethicalmarketingnews.com/forest-green-recognised-by-united-nations-after-going-carbon-neutral>, Published: 4 August 2018.
9. Mizsur András (2019): Mit tehet egy futballklub, hogy ne tegye tönkre a bolygót? ("What can a football club do to stop destroying the planet?") [https://index.hu/sport/futball/2019/12/18/premier\\_league\\_klimavaltozas\\_fenntarthatosag\\_arsenal\\_manchester\\_united\\_watford/](https://index.hu/sport/futball/2019/12/18/premier_league_klimavaltozas_fenntarthatosag_arsenal_manchester_united_watford/), Published: 18 December 2019.
10. Rios, Beatriz (2019): Forest Green Rovers, the world's greenest football club, <https://www.euractiv.com/section/health-consumers/news/forest-green-rovers-the-world-greenest-football-club/>, Published: 10 July 2019.
11. Soutar, Robert (2010): Inside the world's first carbon neutral football club, <https://dialogochino.net/en/climate-energy/34778-inside-forest-green-worlds-first-carbon-neutral-vegan-football-club/>, Published: 10. April 2020.
12. Sport Positive Summit (2021): Sport Positive Summit releases 2020 EPL sustainability table. <https://www.sportpositivesummit.com/news-article/sport-positive-summit-releases-2020-epl-sustainability-table/>, Published: 25 January 2021.
13. UNFCCC (2019): Creating the Greenest Football Club in the World - Forest Green Rovers | United Kingdom, <https://unfccc.int/climate-action/momentum-for-change/climate-neutral-now/creating-the-greenest-football-club-in-the-world-forest-green-rovers>, Published: 2019.

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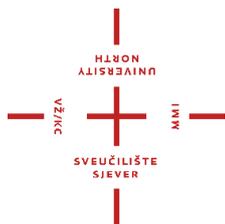
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