

# Land Rover BAR 2016 Annual Sustainability Report



**Raising the BAR**

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# Foreword



**We have put sustainability at the heart of everything that we do at Ben Ainslie Racing Ltd since we began in 2014. The goal has always been to win the America's Cup, and to do it by building a sustainable long-term business, with respect for all the principles of sustainable operation.**

Previous reports have detailed the growth of the team from its beginnings in late 2013, through the official launch in 2014, and in 2015 through the design, finance and build of a new BREEAM Excellent headquarters in Old Portsmouth. During this time we built and sailed our first test boats and launched the team's Official Charity, the 1851 Trust, with HRH The Duchess of Cambridge as Royal Patron. We also hold the Olympic-inspired international standard, ISO20121 for delivery of sustainable operations throughout our activities.

The report for 2016 will pick up where the others left off, as the team moved into the final preparations for our first America's Cup. Once again we hope to show our total commitment to our original goal, with sustainability at the heart of everything that we do.

**Sir Ben Ainslie, May 2017**

## Delivering sustainable operations throughout our activities



# Introduction

This is the third annual sustainability report of Ben Ainslie Racing Ltd (Land Rover BAR), Sir Ben Ainslie's America's Cup team. The sailing team was initially established to challenge and win the 35th America's Cup to be held in Bermuda in June 2017. Since the outset, sustainability has been a core part of the team's operations and ethos. This year, 2016 has been an exceptional year for the team, with some major achievements. The team's success on the water was paramount, emerging victorious in the 2015-16 Louis Vuitton America's Cup World Series in Japan in November.

We also achieved international recognition for the sustainability work of the team, by winning Beyond Sport's Sport for Environment Award, British Marine Environment Award and Ocean Awards Seafarer Award. In addition, we achieved the BREEAM Excellent certification for the design and build of the team's base in Portsmouth, along with other major milestones such as the signing of the America's Cup Sustainability Charter pioneered by the team, the opening of the Tech Deck and Education Centre at our home base, and the launch of BT STEM Crew with the 1851 Trust.

The material in this annual sustainability report references the internationally recognized Global Reporting Initiative Standards (GRI Standards). We reference the GRI Standards in order to provide a succinct but well-rounded picture of Land Rover BAR and its values. The team focuses on all elements of sustainability; the environment, resource use, waste, social/human aspects, local communities and the local economy. This report covers the activities undertaken during the 2016 calendar year by Land Rover BAR.

Sustainability reporting is essential to the progress of Land Rover BAR; monitoring progress and identifying areas for improvements and potential cost reducing measures, as well as enabling easy comparisons with other organisations and communicating information to stakeholders.

Stakeholder feedback is very important to Land Rover BAR. All enquiries, comments or suggestions related to the sustainability report should be directed to: [sustainability@landroverbar.com](mailto:sustainability@landroverbar.com).



Opening of Northern Parade School solar array



11th Hour Racing, Land Rover and BT join the team for the Power of Partnerships at Green Sports Alliance



JANUARY

Land Rover BAR Academy launched

MARCH



Opening of the Tech Deck by HRH The Duchess of Cambridge  
 Portsmouth University deploy building monitoring sensors

MAY

JUNE



Team base awarded BREEAM Excellent certification  
 Positive result for pilot native oyster restoration project, Solent roll-out planned  
 Introduction of Meat Free Monday, company-wide

JULY



Completion of the circular-economy carbon Anglepoise lamp



Beat the microbead campaign launched



2016 achievements recognised – winning Ocean Awards – Seafarers category and Marine Industry Environment Award

SEPTEMBER

OCTOBER

NOVEMBER

DECEMBER

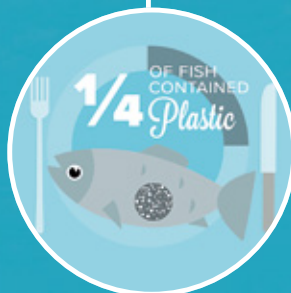
JANUARY 2017



America's Cup Sustainability Charter signed by all competing teams

- Launch of the digital education programme, BT STEM Crew

Won the 'Sport for Environment Award' from Beyond Sport



Land Rover BAR Academy become carbon neutral for 2016 and win their first race in the Extreme Sailing Series



# About Land Rover BAR

Land Rover BAR is the team name for Ben Ainslie Racing Ltd, the company conceived by four time Olympic gold medallist and 34th America's Cup winner, Sir Ben Ainslie, with the long-term aim of challenging for Britain and bringing the America's Cup back home to where it all began in 1851.

The team is committed to embedding sustainability throughout all of its operations while developing a British entry capable of winning the prestigious trophy, something Britain has so far not managed to achieve. 11th Hour Racing was the first commercial partner when the team was launched in 2014, signifying the importance of sustainability to the company.

Ben Ainslie Racing Ltd is a commercial sporting team, becoming Land Rover BAR in June 2015 when Land Rover was signed as Title and Innovation Partner. As of December 2016, the team now has a Title Partner in Land Rover and four main partners in 11th Hour Racing, BT, Coutts and CMC Markets. There are 17 official suppliers and a number of technical and base suppliers. Alongside the commercial partners and suppliers are a number of individual private investors. The team is made up of some of the best British and international sailors, designers, builders and racing support. It is set up as a limited company with shareholders and private investors who provide the backbone of support to the team. Sir Ben Ainslie is the majority shareholder and the Team Principal. The core business centres on the team's participation in the America's Cup, an activity that creates revenue through the marketing of that sporting event, and the commercial partnerships created with organisations and businesses that can benefit from it. More recently, the business has expanded to include the Land Rover BAR Academy and their participation in the Extreme Sailing Series and the Red Bull Youth America's Cup in 2017.

We have embedded sustainability into the whole of the team's operations, taking a balanced approach to economic activity, environmental responsibility and social progress. We believe there is an opportunity for all sports teams to become truly sustainable businesses. We plan to lead the way by educating and inspiring younger generations, who will then drive sustainability forward instinctively.

LAND ROVER **BAR**

Title and Exclusive Innovation Partner



Exclusive Sustainability Partner



Official Performance Partner



Exclusive Technology in Sustainability Partner



Official Online Trading Partner



Official Banking Partner



Official Suppliers



Technical Suppliers



Base Suppliers





# Land Rover BAR's vision and values

Sports teams represent key role models in society and the America's Cup attracts more media and public attention than any other sailing contest. This privileged position is not taken for granted at Land Rover BAR and we believe our influence should extend far beyond the race course.

Land Rover BAR are striving to achieve major sustainability objectives, with a light environmental footprint, zero waste and minimal energy consumption. We also have significant opportunities for creating positive change through our community engagement, to use innovation to drive sustainability, and to build our technical and design capacity and skills base.

Land Rover BAR's definition of sustainability is: an enduring, balanced approach to economic activity, environmental responsibility and social progress.

Our sustainability messaging is communicated through our 'Raising the BAR' platform (#RaisingTheBAR). Through this mechanism, we share stories of our successes and challenges, and try to inspire partners, suppliers and followers to join the movement, adding their own actions to tip the scale.

Our objectives have been developed from three focus areas which represent our sustainability vision. The activities incorporated into each area are those which we will focus our efforts on to support a better future for the environment, people and the economy.



1	Smarter Futures	Resource efficiency and pollution prevention, materials (including waste), water, energy, transport and transportation, reduction in emissions, protection of natural resources, staff welfare
2	Inspiring excellence	Supply chain management, sustainable procurement, sustainable food sourcing, local supply chain, building skills and education – skills development, partnerships, community engagement, outreach, best practice, reporting and demonstration of leadership in sustainability
3	Driving Innovation	Building technical capacity, carbon fibre recycling, fuel efficiency, blueprint for marine industry operations



## The America's Cup

**The America's Cup is the oldest international trophy in world sport, pre-dating the modern Olympic Games, the Ryder Cup and the FIFA® World Cup - and Britain has never won it.**

The first race was organised by the Royal Yacht Squadron in 1851. It was a single race around the Isle of Wight, open to yachts of all nations and a black schooner *America* won. To honour that victory, it was later renamed the America's Cup and became a challenge trophy, open to sailing clubs of all nations.

American teams representing the New York Yacht Club successfully defended the America's Cup against all challenges for 132 years – the longest winning streak in sport– until an Australian team won in 1983. Since then the America's Cup has become a truly global phenomenon, with challenges from all five continents.

The current holder of the America's Cup, ORACLE TEAM USA, has set the 35th America's

Cup match for June 2017. It will be raced in Bermuda, in 50 foot foiling multihulls called the America's Cup Class (ACC). In 2015 the preliminary series began, called the Louis Vuitton America's Cup World Series (ACWS) with three events in Portsmouth, Gothenburg and Bermuda. It continued in 2016 with ACWS events in Oman, New York, Chicago, Portsmouth, Toulon and Fukuoka. Teams then race in the Louis Vuitton America's Cup Qualifiers, the Louis Vuitton America's Cup Challenger Playoffs and the America's Cup Match in Bermuda in May and June 2017. The America's Cup Event Authority, the event organisers, have adopted sustainability goals through the Endeavour programme and its own Green Guidelines.

When Land Rover BAR win the America's Cup, the team will be able to return it home to the UK.

# Power of Partnerships

During 2016 we continued to build on the relationships with our partners across the sustainability agenda. The year started with the inaugural partners' sustainability meeting in January 2016 at the London Boat Show where the group reviewed the 2016 sustainability delivery plan and discussed how they could collaboratively contribute, recognising that together the team and partners could achieve significantly more.

11th Hour Racing brought the team, Land Rover and BT together to deliver a session at the annual Green Sports Alliance Summit in Houston, Texas titled:

## **Harnessing the Power of Partnerships - Building a Sustainable Sports Team.**

The session showcased how sports teams can harness partnerships to achieve their sustainability objectives and impact neighbouring communities.

During October, 11th Hour Racing sponsored a two day session at Cambridge University with key team members, Land Rover and Low Carbon. The Cambridge Institute for Sustainability Leadership led the programme, including a visit to the British Antarctic Survey to see the scientific evidence for a changing climate.

In a Huffington Post blog after the event in Cambridge, Sir Ben Ainslie commented:

**“ We look forward to sharing our experience for the benefit of the marine industry, and to working with all our partners to set about making a difference; furthering this agenda within our sport and out to the wider world. There is so much more that we can and must do - we are just scratching the surface, and the lesson I learned in Cambridge is that time is running out. ”**

**All partners play a critical role in the delivery and opportunity around sustainability, some highlights are:**



## **Exclusive Sustainability Partner**

### **11th Hour Racing**

11th Hour Racing Inc. was developed to create a new model of sailing sponsorship for winning teams powered by sustainable practices that support the health of our oceans. 11th Hour Racing aims to increase our understanding of the oceans, find solutions to the problems that damage or destroy our marine resources, and promote stewardship and sustainable use of the seas that sustain life on our planet. 11th Hour Racing have been pivotal at building the power of partnerships across the team. During 2016 our sustainability communications with 11th Hour Racing have extended our reach, and exciting plans to resource the sustainability legacy programme in Bermuda have been underway.



**Title and Exclusive Innovation Partner**  
**Land Rover**

A key part of Land Rover’s corporate strategy is ‘Environmental Innovation’. The company has set ambitious carbon reduction commitments across the life cycle of the vehicles and is on track to achieve this. Their life cycle assessment work drives their decision making on materials and design. Land Rover supports the team’s life cycle analysis approach to manufacturing race boats and, with the team, are developing a collaborative sharing of knowledge across newer, more sustainable composite materials committing to funding primary research in this area.



**Technology in Sustainability Partner**  
**BT**

BT’s purpose is to use the power of communications to make a better world. They are one of the world’s leading providers of communications services and solutions, serving customers in more than 170 countries. BT have supported the team in redeveloping their supplier sustainability assessor tool to support sustainability through the supply chain as well as being key support for the 1851 Trust online education resource BT STEM Crew.



**Renewable Energy Partner**  
**Low Carbon**

By investing in, owning and operating renewable energy projects Low Carbon is committed to mitigating climate change. Low Carbon is the team’s renewable energy partner having invested in the solar array at the team’s Portsmouth base. Low Carbon, on the team’s behalf, subsequently invested in a solar array at Northern Parade school to bring the total solar installations to 20% of the total electricity consumption by the team. During 2016 Low Carbon planned for a significant installation in Bermuda as both a legacy and opportunity to offset the team’s carbon impact whilst on the island.

# Power of Partnerships



**MDL Marinas**

## **MDL**

MDL is the leading and longest-standing marina operator in the UK. They not only provided the pontoons for the team both in the UK and Bermuda, they have also invested in the development of oyster cages that sit adjacent to the pontoon in Portsmouth as part of the wider Blue Marine Foundation Solent Oyster Regeneration programme. The pilot scheme was installed at Land Rover BAR and monitored by the Institute of Marine Science from Portsmouth University.



## **KPMG**

KPMG LLP is the team's official business advisor. The firm has carried out the economic impact studies quantifying the impact the team and the Portsmouth Louis Vuitton America's Cup World Series events had on the economy, and is currently working on a valuation of the sustainability programme highlighting the business benefits that can be realised.



## **1851 Trust**

1851 Trust is the team's official charity with its purpose to inspire the next generation of scientists and engineers and using the platform of sport and the Land Rover BAR sailing team to achieve this. The Trust is a key partner of the team across the Tech Deck, and with the educational online resources through BT STEM Crew the Trust takes the STEM agenda through the platform of the team to Key Stage 3 children.

## **Recognition of achievement**

During 2015 the team were establishing operations, building the team base and getting underway. In 2016 the team were able to focus on embedding the sustainability commitments and delivering on the targets we had set ourselves. Recognition of this came at the end of 2016 and early 2017 with the team achieving three international and British industry awards.

### **Beyond Sport**

In October, we received the Sport for Environment Award 2016 for using sport to positively influence social change.

### **British Marine Trade Association**

In January 2017 we were awarded the Boating Business Environment Award by the British Marine Association for our commitment to sustainability and inspiring others.

### **Boat International - Ocean Awards**

We received the Seafarer's Award at the 2016 Ocean Awards for our passion towards improving the world's oceans.



**TECH DECK**  
@ LAND ROVER **BAR**

**11TH HOUR RACING** EXPLORATION ZONE  
@ LAND ROVER **BAR**

### Tech Deck and Exploration Zone partners

The following companies have all played a role in the development of the team's two education centres: the Tech Deck in Portsmouth and the 11th Hour Racing Exploration Zone in Bermuda:

Land Rover, BT, Low Carbon,  
BAE Systems, DELL EMC,  
Henri Lloyd , 11th Hour Racing,  
1851 Trust, Design Unlimited,  
Harvey Maria, Henri Lloyd,  
Shemara Refit LLP  
with thanks to Peter Morton,  
The Graphic Project,  
Grapefruit Graphics, BUEI,  
5 Gyres, NPEC, RISE,  
Southampton Marine Services

# Identifying what matters

As part of our sustainability management system, certified to the international standard ISO20121, the team takes a robust approach to identify what matters when it comes to sustainability. The team's activities are mapped out and the corresponding sustainability risks and opportunities associated with each activity are identified. These are then prioritised by scoring each issue using a range of criteria that takes into account legal compliance as well as importance of issues to our stakeholders, which are also comprehensively mapped. The following criteria are used:

- Likelihood of occurrence
- Severity of occurrence
- Interaction with stakeholders
- Association with defined principles of sustainable development
- Likelihood of detection
- Legal and other requirements
- Compliance history
- Frequency

The table opposite shows the prioritisation ranking of sustainability issues where 10 is the highest priority and 1 the lowest. We periodically review these issues, which has led to several issues being identified at the start of 2016 which were not previously included and have been added - these are tagged 'identified'.

Other issues have 'decreased' in priority which could be due to increased management of the areas and 'increase' relates to those areas which have increased in priority.



SMARTER FUTURES	Ranking	Change 2015-16	
Pollution - air, water, ground	10	no change	
Waste production - haz and non haz	10	no change	
Embedded energy/carbon (footprint)	9	no change	
Energy consumption/carbon emissions	9	decrease	▼
Pollution - GHG/odour/noise	9	no change	
Health and safety (public and occupational)	8	decrease	▼
Impact on species and habitats	8	no change	
Employee diversity	8	no change	
Resource consumption - energy, water, materials (efficiency)	8	decrease	▼
Nuisance - noise, odour, litter	7	no change	
Unsustainable material consumption (low durability, non-reusable, recyclable, non-biodegradable)	7	no change	
Accessibility	6	no change	
On time delivery	6	no change	
Material/supplier/product costs	6	no change	
Profitability, cash flow	6	no change	
Service quality	6	no change	
INSPIRING EXCELLENCE			
Local supply chain engagement	10	no change	
Skills/knowledge development	9	increase	▲
Community/stakeholder engagement and skills development	8	no change	
Fan engagement and support	8	identified	✓
Supplier employment ethics	8	identified	✓
Positive behaviour change	8	identified	✓
Fair-trade and ethical trading and procurement	7	no change	
PR/image	7	no change	
Employee satisfaction and retention	7	no change	
Market growth	6	no change	
Employee work life balance/ health	6	increase	▲
Local employment provider	5	identified	✓
Employee training and development	3	no change	
DRIVING INNOVATION			
Performance results	8	identified	✓
Technology development/innovation	8	no change	
Sponsor, partner and investor retention	8	no change	
Sponsorship activation	7	decrease	▼

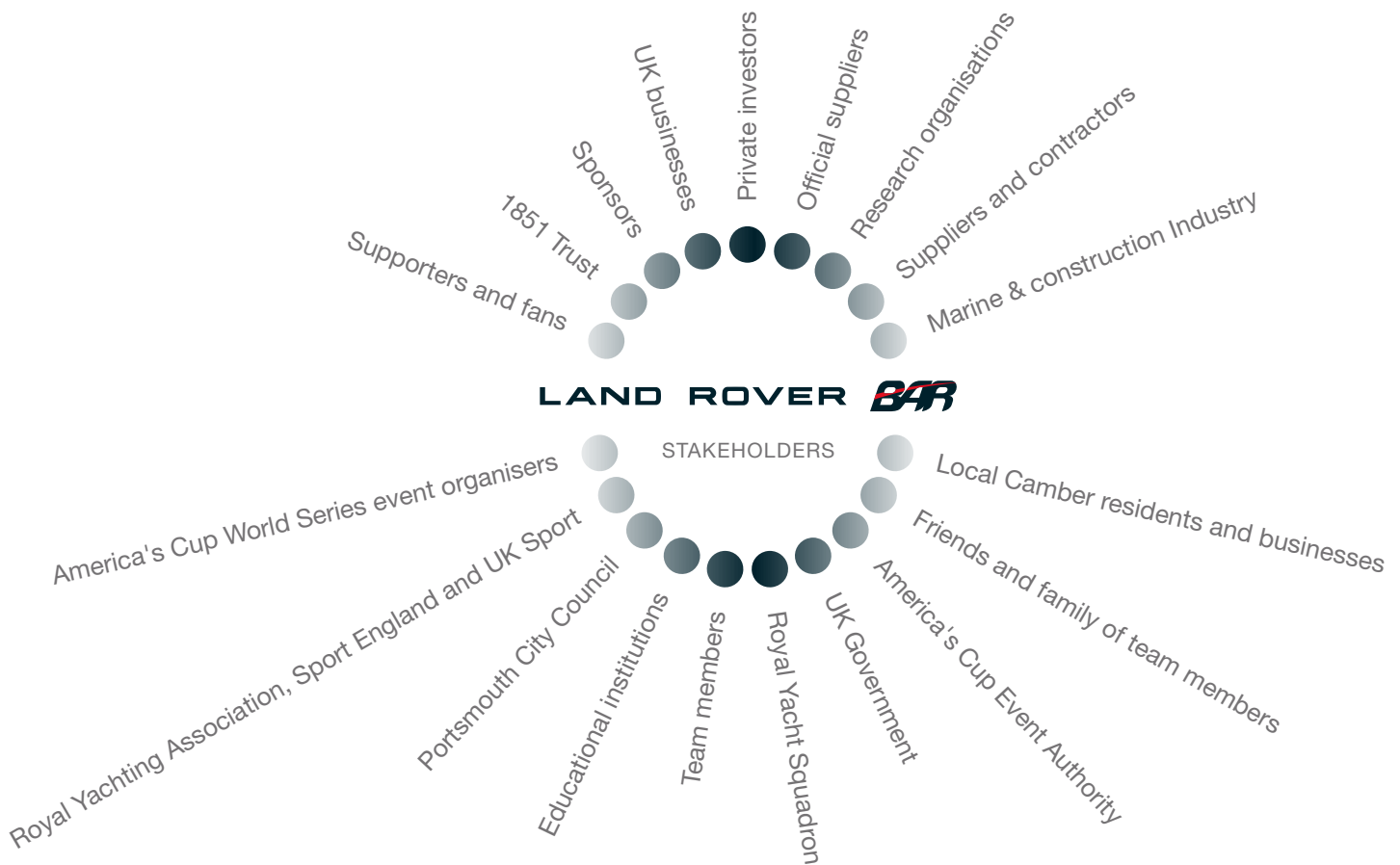
# Stakeholders and communications

During 2016, Land Rover BAR has continued to communicate and engage with its stakeholders, from the team members and families to private investors, corporate partners and suppliers, local and central government, our team's fans as well as the sport and marine industries to share good practice. We regularly attend and host events, create case studies and written media to share the work of the team. This creates a sustainability network throughout both the sport and marine industry that can share best practice and accelerate a transition to more sustainable business practices.

Land Rover BAR has a broad range of stakeholders with whom we communicate extensively, through written and social media channels, and face to face. We embrace opportunities to engage our stakeholders and always encourage their feedback and opinions on our sustainability work.

We are focusing innovation projects and communications around major areas of interest raised by our stakeholders:

- Showcasing sustainable building design and post occupancy building performance
- Driving sustainability through sport and sporting events
- End of life of composites, sustainable composites and life cycle assessment
- Single-use plastics, ocean plastics and ocean health
- Renewable energy and carbon emissions





In 2016 we were involved in over 180 events, of which 163 were hosted at the Land Rover BAR team base. In total the different events reached over 12,840 people with a diverse range of interests and age groups. The breakdown of event per group type can be seen in the table below.

Type of group	Number of events in 2016	Total attendees in 2016
Business	76	5692
School	37	1019
Community groups	26	2335
Public	17	2220
University/college	13	340
Other	12	1235
<b>Total</b>	<b>181</b>	<b>12841</b>

The events ranged from media days, talks, presentations and technical marine seminars to visitor centre and educational visits:

- 10 events were technical marine seminars run by the team as well as sponsor led events involving 410 participants
- Educational events included the Tech Deck visits and the Louis Vuitton America's Cup World Series outreach events where we engaged with 2404 young people during 2016
- We ran 15 open day events reaching 1638 individuals, opening the doors to the local community and wider audiences

Externally we participated in UK and international events and conferences sharing the sustainability story 'Raising the BAR'. We reached over 1000 participants in person and amplified this through social media and on-line live broadcasting of some of these events.

At each Louis Vuitton America's Cup World Series event the team carried out an outreach activity. During the Portsmouth event, during the practice days, 200 young people were invited to the Race Village and took part in sustainability activities making boats from recycled materials. They left the event with a refillable bottle with the message to refill and 'say no to single use plastics' – a simple task each young person could take on themselves.

In conjunction with 11th Hour Racing, the team have run 'Raising the BAR' events for both staff and partners throughout the year. External speakers such as Emily Penn and film previews have been instrumental at engaging the team on wider sustainability topics. The screening of the film 'Racing Extinction' was a catalyst for the implementation of the team's 'Meatless Mondays'.

**In 2016 we were involved in over 180 events**  
**163 hosted at the team base**  
**reaching over 12,840 people**

### Sharing the sustainability story - 'Raising the BAR'

March	Environment Youth Conference in Bermuda (via Skype)
March	Solent Forum Annual meeting
May	Highbury College Sustainability Week
March	BT CSR Board
June	Green Sports Alliance Summit (USA) and 'Raising the BAR' video production
July	Filming Ben's Olympic Green Road
July	BREEAM Excellent announcement, media event and production of BRE video case study
November	World Sailing Sustainability Forum, Barcelona
November	Sport UK, Faster, Stronger, Better
November	METS: Sustainability in Marine Industry, Amsterdam

# Roles and responsibilities

Whilst sustainability is embedded into everyone's role, ultimate responsibility lies with the Team Principal and the Heads of Departments. The Sustainability Manager and Officer provide support to each of the departments and are responsible for ensuring the relevant people in the team are aware of their responsibilities and have the right tools and resources to deliver the plan. The Sustainability Manager has also been responsible for tracking progress against the objectives and targets and reports these to the Management Team on a regular, quarterly basis, ensuring the corrective action is taken where necessary.

We have had an integrated reporting structure where the Sustainability Manager reports on a monthly basis to the Management Team and to the Sustainability Partner on a quarterly basis. The Sustainability Manager is supported by a number of other consultants and support staff who have been identified depending on the delivery, including ISO20121 specialists, GRI reporting, marine technology production expertise, data collection and reporting.

**We have established a BAR sustainability team which is lead by the Team Principal and sustainability representatives have been identified in each of the departments, as detailed opposite.**

DIRECTOR AND HOD RESPONSIBILITY	
<b>Team Principal</b>	Overall responsibility, approval and communication of policy and strategic goals both internally and externally
<b>CEO</b>	Ensure financial and human resources available for delivery of policy and strategic goals Report to LRBAR Board
<b>Heads of Department</b>	Departmental delivery of policy and strategy goals Legal compliance within department Compliance with LRBAR policies, charters and guidelines relevant to department Implementation of operational controls relevant to department Compliance with sustainable procurement code Recruitment and skills development

DEPARTMENTS SPECIFIC ROLES	
<b>Operations</b>	<b>Commercial, comms, marketing</b>
COO/CFO Chief Operations Officer/Chief Finance Officer Responsibility for operational ISO20121 procedures Third party review and compliance with ISO20121 Implementation of sustainable procurement Code LRBAR Base legal compliance	CMO/CCO Chief Marketing Officer/Chief Commercial Officer Partner alignment with policy and strategic goals Stakeholder communication procedures

STAFF ROLES AND RESPONSIBILITIES			
<b>Head of Infrastructure and IT</b>	Overall delivery of LRBAR Camber base resource efficiency, IT efficiency management	<b>Sustainability Manager</b>	Strategic guidance, develop, review and improve ISO20121 system to support delivery, ensure compliance, reporting to HODs, partners and GRI report, technical advice, external engagement, innovation and special projects
<b>Facilities Manager</b>	Asset management - energy and water, data provision for reporting	<b>Sustainability Officer</b>	Support for departments in delivery of strategy, operational audits, internal engagement, reporting
<b>Team Base Manager</b>	Delivery of temporary event infrastructure in Bermuda and planning post AC35	<b>Commercial Manager</b>	Alignment of new partners and commercial opportunities with policy and strategic goals
<b>Finance Team</b>	Provision of supply chain/ procurement, staff travel and transportation data for sustainability reporting	<b>Event Manager</b>	Delivery of Sustainable event guidelines, Food Charter, sustainable procurement for events and FOH
<b>HR</b>	Employment, skills development and training	<b>Marketing Manager</b>	Communication of policy and strategic goals to partners
		<b>Communications Manager</b>	Communication of sustainability initiatives to range of stakeholders
		<b>Office Manager</b>	Office procurement and sustainability operations
		<b>Press Officer and sailing team coordinator</b>	Coordination of sailing team involvement at outreach events

“ Land Rover BAR show that outstanding marine conservation can be exciting. They minimise their own footprint while still attaining world leading racing, using their high profile to address global marine issues. Their work is not just that of rhetoric, but active participation through regular clean ups, restoration of marine environments and extensive outreach programmes. They are outstanding ambassadors for the health of our oceans. ”

Dr Simon Boxall - Principal Teaching Fellow, Ocean and Earth Science, National Oceanography Centre

# Roles and responsibilities for delivery of Land Rover BAR's sustainable strategy

<b>ISO20121 MANAGEMENT REVIEW TEAM</b> COO/CFO CMO/CCO Sustainability Manager Sustainability Officer							
<b>Shore</b>		<b>Design</b>		<b>Sailing</b>		<b>Trust</b>	
Head of Shore Team Site legal compliance Operational delivery Manufacturing efficiency Procurement decisions		Head of Design Innovation and special projects Technology Innovation Group		Head of Sailing Team Ambassadors and outreach		CEO	
<b>Shore team Camber operations</b>	Legal compliance Delivery of pollution prevention plan Waste minimisation and management	<b>Project Manager</b>	Specification of materials in construction Support/ implementation of materials research, alternative composites, data provision for life cycle analytics	<b>All sailing team, including Academy</b>	Ambassadors for sustainability goals and sailing participation Participation in outreach projects at events	<b>Education Manager</b>	35% of the Solent Region schools to attend the Tech Deck educational programme by end of 2017  Y1 50 school groups, maximum 50 per group = 2500 increasing by 10% per annum
<b>Crane and equipment operator</b>	Oil and fuel storage, pollution prevention	<b>TIG Manager</b>	Manufacturing and energy efficiency work stream	<b>Head of strength and conditioning</b>	Delivery of food charter in menu provision	<b>Projects and Events Manager</b>	100 young people per annum to benefit from collaborative sailing programme  Minimum of one national educational design-led competition per AC cycle
<b>Support boat manager</b>	Fuel efficiency, driving proficiency, spill prevention	<b>Design Team</b>	STEM Ambassadors Outreach to schools, higher ed institutions,				
<b>Boat construction manager</b>	Minimisation of waste and material consumption, provision of data for reporting						
<b>Boat captain and event operations manager</b>	Implementation of waste management, water filtration and refilling, boat wash down, wing butt use						
<b>Shore team specialists</b>	Procurement decisions						



# Carbon footprint

Carbon footprinting is a key practice for Land Rover BAR, that affords a real understanding of where our impacts lie, to help identify cost reductions and to direct development opportunities. Flights for our team, transporting race boats, operating a team base and fuelling our chase boats all have an environmental impact and a carbon equivalent emission value. Our team base was built to minimise carbon emissions and our ultimate aim is that through intelligent technology and carbon compensation measures, we can become fully carbon neutral and continue to lead the way in sustainable sport. The events we are involved in attract suppliers, sponsors and sailing fans from across the world and we are using our platform to share the sustainability message.

We are not the only sporting organisation to analyse the impact we have in terms of a carbon footprint. The London 2012 Olympic Games organisers undertook a comprehensive carbon footprint study of the event and concluded that event emissions were 28% lower than forecasted due to reduced energy consumption, effective waste management and the use of more sustainable materials. Another organisation leading by example is FIFA, who offset all their operational carbon emissions during the 2014 World Cup through certified projects in Brazil. NASCAR are also reducing their carbon footprint through initiatives such as installing tens of thousands of solar panels at their tracks and planting over 370,000 trees across America.

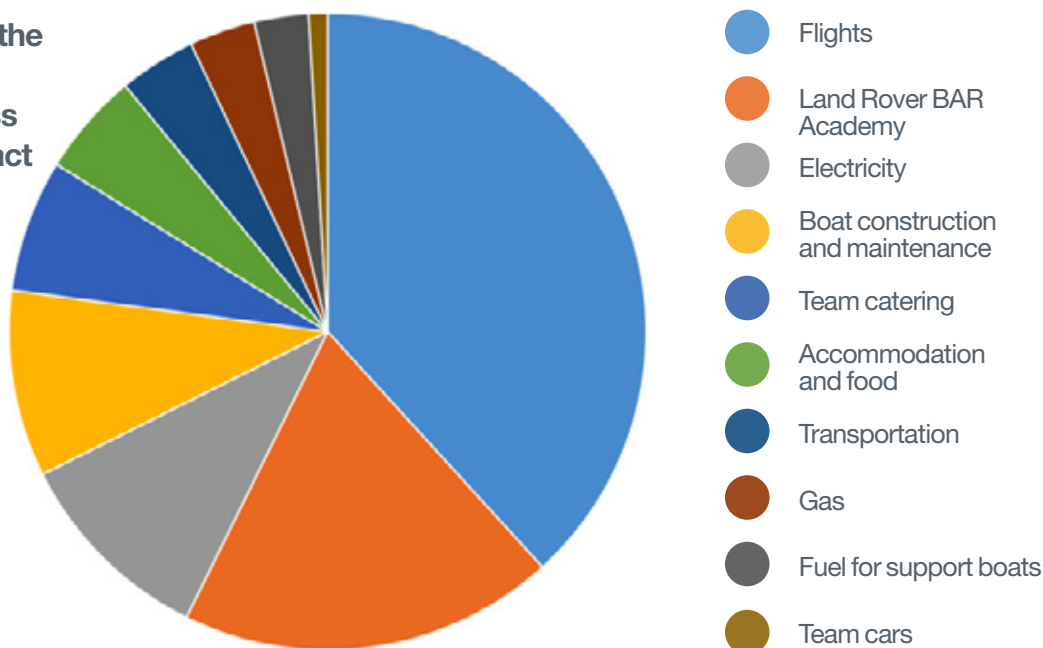
We have developed a carbon footprint of the team's activities and use this to prioritise action areas. We track our carbon across the major impact areas and continue to refine our methodology to include more aspects and detail. As a minimum, we measure in detail our Scope 1 and 2 carbon emissions in line with GHG protocol and using DEFRA coefficients and have identified and measured the major Scope 3 emissions (see Table below). We continue to work on improving our understanding of the impact from our supply chain (Scope 3 emissions) and continue to improve our measurement of this. We recognise this is the area where we can make the greatest improvements, totalling 83% of our total carbon footprint in 2016 with Scope 1 comprising of just 7% and Scope 2 a further 10%.

## Description of Scope 1, 2 and 3 carbon emissions relating to Land Rover BAR

Scope 1	Scope 2	Scope 3
Fuel combustion Company vehicles Fugitive emissions	Purchased electricity, heat and steam	Purchased goods and services Business travel Employee commuting Waste disposal Use of sold products Transportation and distribution (up- and downstream) Investments Leased assets and franchises
Fuel in support boats Fuel in company cars Gas for heating and cooling	Grid electricity	Manufacturing, operation and maintenance of test, race and support boats Flights, accommodation and food at events Team catering Transportation of boats Transportation and purchase of goods and services

Our total measured carbon footprint in 2016 was 2,560 Tonnes CO<sub>2</sub>e.  
 This chart shows the breakdown of this footprint across the major impact areas.

**Breakdown of the team's carbon footprint across the major impact areas**



Our sustainability strategy targets and aims to reduce this impact wherever possible and we can account for a measurable carbon compensation of 32% through: selection of a 100% renewable electricity supplier; Low Carbon's solar installations at the team base and Northern Parade school in Portsmouth; and Castrol's offsetting of the Academy footprint. A potential further 7-10% reduction can be estimated through sustainability programmes and actions. The key impacts are described in the table below.

**Impact of 2016 carbon compensation actions on the team's carbon footprint**

Action	Reduction impact of total team impact
100% renewable energy supplier	10%
Production of Low Carbon solar energy at team base and Northern Parade School	3%
Carbon neutral offset for Academy team	19%
Impact of reduction in flights due to Virtual Chase Boat/Mission Control	Estimated 10% of flights – reduction 4% overall
Local catering and 'Meatless Mondays'	Estimate 15% total catering footprint – reduction 1% overall
Efficiency in support boats Chase boat fuel reductions due to Virtual Chase Boat Waste reuse and recycling programme Use of recycled content in manufacturing Accommodation – room sharing Sustainable procurement across office supplies Use of local and environmentally aware suppliers	Estimate a potential further 2-5%

The impact of the construction of the temporary base in Bermuda has not been included in the 2016 carbon footprint and will be accounted for in the 2017 report.

# Smarter Futures

Smarter Futures is the area of our sustainability strategy that defines how we operate as an organisation. We were the first British sports team to be awarded the Olympic-inspired ISO 20121, which provides a management framework to Land Rover BAR to guide our use of resources and the impact we have on our environment and its ecology. By 'walking the walk' we will inspire other sports teams to follow in our footsteps and create smarter futures for us all. During 2016 we underwent and passed three third party audits from the British Standards Institute helping drive our continual improvement of our management system.

The British Standard Institute published their Sustainable Event Guide in 2016 as a guide to events tackling sustainability. Land Rover BAR was featured as an organisation 'leading by example'. The report described our embedded approach and strong leadership commitment towards sustainability:

**“ Sir Ben not only leads the team’s sustainability message internally, but is also part of wider calls to action. Externally, he actively promotes what Land Rover BAR are doing and champions sustainable sport. He recently joined forces with BT to launch 100% Sport - a global initiative to inspire sports fans to switch to renewable energy. ”**

(2016 BSI Sustainable Events Guide: Developing a sustainability management system for events. A stepping-stone to BS ISO 20121)

## Achieving excellence

A major achievement for the team in June 2016 was the achievement of BREEAM Excellent standard for the design and build of the team base in Portsmouth. We believe we are the first sporting team in the UK to achieve this standard for a professional sports facility, and the first building in Portsmouth to achieve this accreditation. Following its completion, the base has been nominated for and won some of the most prestigious architectural awards in the country, including:

### Accredited BREEAM Excellent

#### Awarded

G15 Awards - Commercial Project 2015  
Considerate Contractors National Bronze Award 2016  
Graphisoft ArchiCAD Awards - Project of The Year 2016  
Constructing Excellence Regional Awards - BIM Project of The Year 2016  
BCO National Awards - Innovation Award 2016  
RICS National Awards - Commercial Project of The Year 2016  
Structural Steel Design Awards - Highly Commended 2016  
Portsmouth Design Society Awards - Best New Building 2016

#### Shortlisted

UK Construction Computing Awards - BIM and Collaboration Project of The Year 2015  
RIBA South/South East 2016  
CN Specialist Awards - Project of The Year 2016  
RICS National Awards - Project of The Year 2016  
Constructing Excellence Regional Awards - Sustainability, BIM and Project of The Year 2016  
Building Awards - Sustainability Project 2016  
Civic Trust National Award 2017

BRE Case Study on the Land Rover BAR team base can be found [here](#).

## Resource consumption

The Building Monitoring System (BMS) installed in the team base in Portsmouth is the start point for monitoring its performance. We continue to monitor the overall energy, water, gas use, as well as the renewable energy production from the 432 solar panels installed on the building's roof.

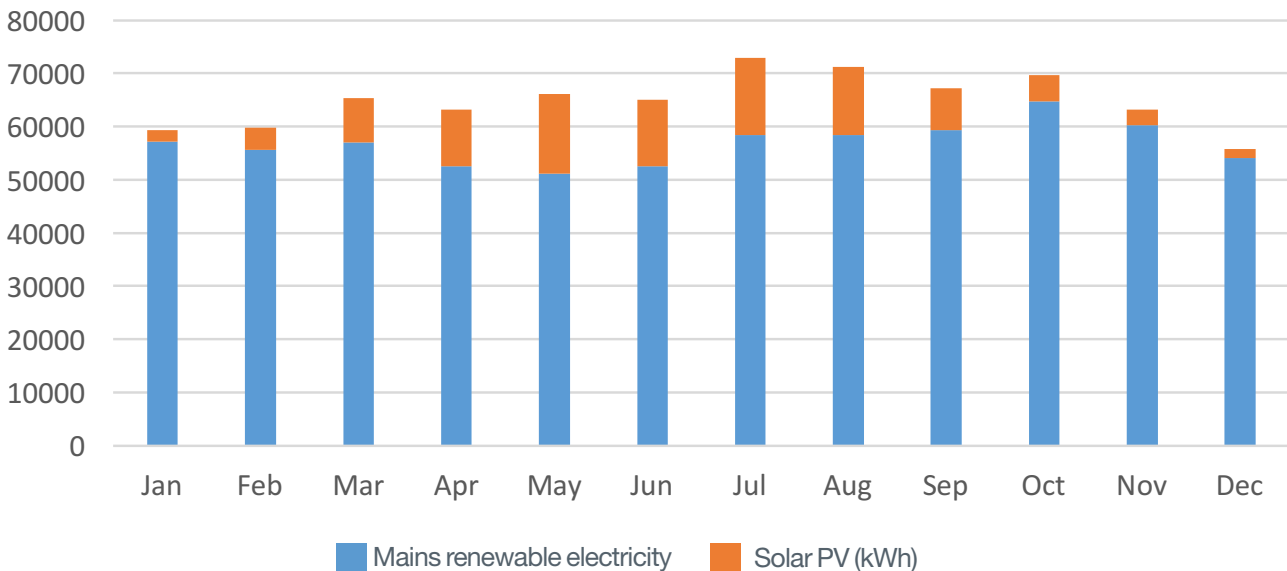
We have set a target to retain energy consumption levels at or below the original building design estimates. This is a well-known challenge as changes in building use and demands from building occupants can drive up energy consumption. The team is committed to addressing this as we go forward, through regular monitoring and reduction measure meetings between Facilities Management and the Sustainability Officer. We are also working with the University of Portsmouth on a post occupancy building performance project. Sensors placed around the building gather data to evaluate building performance against design, identify user comfort against actual building environment and to evaluate the further development of BIM as an asset management tool to deliver cost savings and knowledge insight. The total design energy use of the building was estimated to be 650 MWh during 2016 whilst the total measured consumption exceeded that at 762 MWh, mainly understood to be as a result of the building housing 120 people while being designed to be optimised for 80 people.

As energy consumption increased we recognised that reaching our original target of 20% of the electricity consumption coming from our own renewable energy was going to be tough with the existing array and few viable local alternatives. We worked with Low Carbon, the team's renewable energy partner, to find alternatives to achieving our target. Given our building constraints, we did not have the available roof space to add more solar panels to increase our own generation of renewable energy. However, if we could add those panels to another structure in Portsmouth, namely a local school, we could achieve multiple benefits: the school would receive renewable power at no cost, the team could compensate for some of its carbon footprint, and a local legacy would be established. We were able to work with Nothern Parade school in Portsmouth to realise a second Low Carbon solar panel installation of 64.8 MW. Taken together, the team's total generation of solar energy totalled 21% for 2016.

During 2016, an additional array which should deliver 93.6MW has been planned by Low Carbon for deployment in Bermuda.

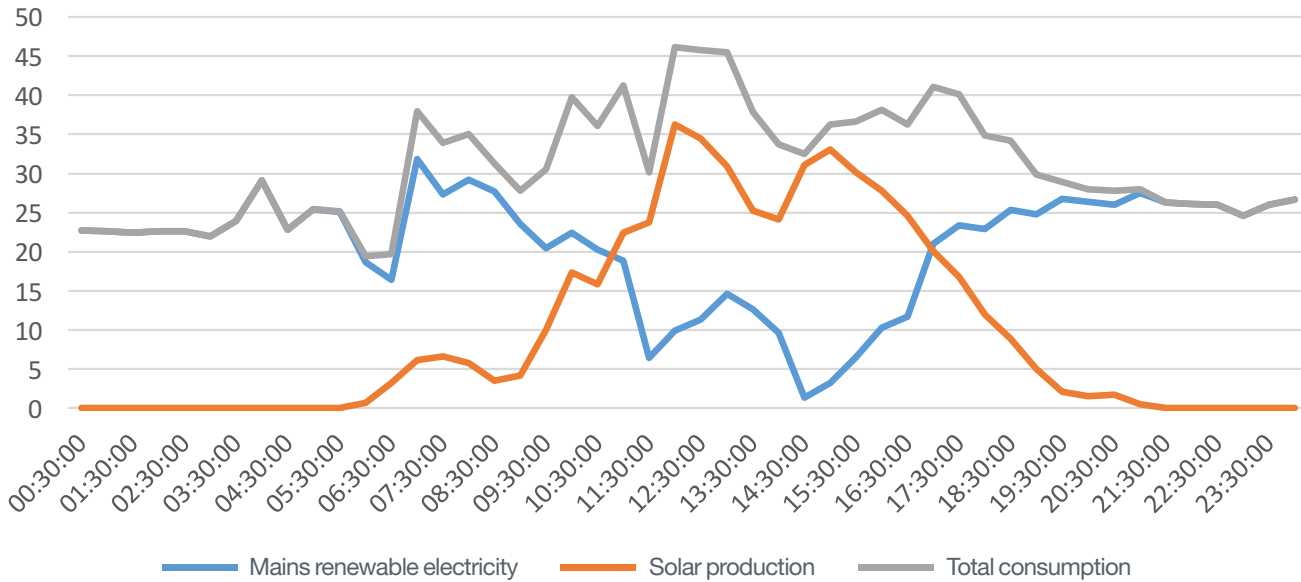
**WE ARE COMMITTED TO 100% RENEWABLE ELECTRICITY AND VOLUNTARILY SOURCE OUR MAINS ELECTRICITY FROM A 100% RENEWABLE ENERGY PROVIDER.**

### Electricity consumption, Camber - Portsmouth (kWh)



We monitor the daily consumption to identify areas of exceptional energy use and where we can reduce this. The example, daily consumption graph shows the impact of the solar production on our daily mains usage peaking in the middle of the day. The graph also shows how the building starts work at 06.30 when the sailors start their training in the gym, a peak around midday with the kitchen and ovens and a slow turn off as staff leave and the sailors do their final training session.

### Daily mains renewable electricity consumption and solar production (kWh) 28th May 2016

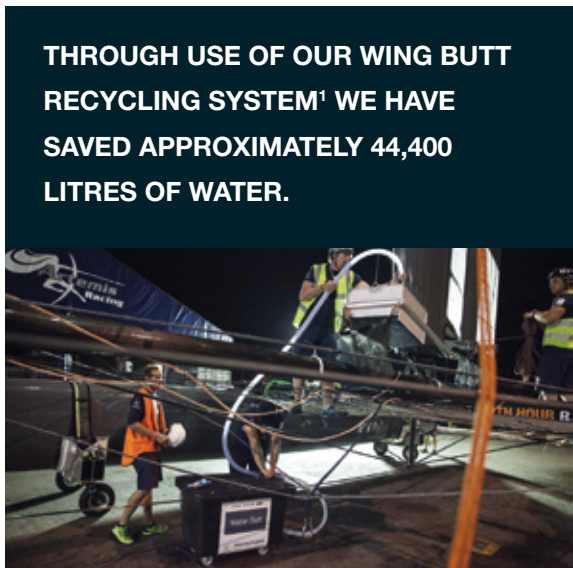


We monitor our water and gas through the BMS. For three months, the BMS was not recording the consumption levels so to estimate usage during this period we have interpolated between the total monthly usage recorded. The data clearly shows, as expected, seasonal differences for both water and gas use.

	Q1	Q2	Q3	Q4	Total
Gas (m <sup>3</sup> )	14333	6527	5439	11118	37417
Gas (CO <sub>2</sub> e)	32754	14915	12429	25406	85504
Water (m <sup>3</sup> )	311	409	587	223	1530
Water (CO <sub>2</sub> e)	207	141	202	77	627

For water consumption, we utilise the rain water tanks and water butts for external washing of boats and equipment as well as watering the urban garden. Through the summer months when our storage is depleted we are reliant on mains water which is reflected in our consumption patterns.

In addition, our window cleaning and solar panel cleaning company use water from roof runoff that collects in an underground storage tank, and is then pumped through purifiers. This cuts water on jobs through a unit-valve at the pole tap and has resulted in a saving of over 7160 litres.



**THROUGH USE OF OUR WING BUTT RECYCLING SYSTEM<sup>1</sup> WE HAVE SAVED APPROXIMATELY 44,400 LITRES OF WATER.**

<sup>1</sup> Wing Butt Recycling System: This innovative system eliminates run off and waste water from the launch procedure, achieving 100% use of reused water.





“ Protecting the oceans is one of humanity’s most important challenges. We need to recognise the vital connection that we all share with this resource that is now under extreme pressure. The ocean connects and sustains all of our continents; more than three billion people globally depend on the ocean for their daily living. ”

Jeremy Pochman, President of 11th Hour Racing



## Planning for Bermuda

Temporary infrastructure at events can be a major source of waste. The Land Rover BAR team developed a resource management plan for the construction and deconstruction of the temporary team base in Bermuda. Construction started in August with the shore and sailing team moving in at the end of 2016 in preparation for the America’s Cup finale. We have closely replicated our sustainability ethos in Bermuda with our food charter, waste management and environmental protection plans. However, we are also committed to leaving a lasting positive legacy for the island through various projects with our partners and organisations on the island.

## Partnerships in Bermuda

### Living Reefs Foundation

11th Hour Racing are supporting the coral gardening project led by the Living Reefs Foundation in Bermuda which will leave a legacy of the America’s Cup long after teams depart the island. The 11th Hour Racing coral garden frames have been installed on the sea bed and juvenile corals which have been grown in laboratories

have been attached. The project aims to increase coral recruitment in the area, particularly in areas damaged by recent Hurricane Nicole, and the frames are being regularly monitored by students from the Bermuda Institute of Ocean Sciences.

### RSE

Robots in Service of the Environment (RSE) is a new nonprofit backed by some of the best minds in robotics and co-founded by Colin Angle, founder and CEO of iRobot and Erika Angle, founder and executive director of Science from Scientists. 11th Hour Racing and Land Rover BAR have been collaborating and engaging with RSE as part of their lionfish legacy project in Bermuda, as RSE is developing small, cost-effective ROVs that can stun and capture lionfish on a wide scale, and at depths unavailable to sport divers, who traditionally hunt the spiny, venomous fish with spears. A prototype of the robot will be displayed in the 11th Hour Racing Exploration Zone at the Land Rover BAR base in Bermuda. RSE is partially funded by Schmidt Marine Technology Partners, a programme of The Schmidt Family Foundation.



### Solar panels for the National Museum of Bermuda

We are working with our partner, Low Carbon, to install solar panels at the National Museum of Bermuda in the Royal Naval Dockyard.

**THE INSTALLATION IS EXPECTED TO GENERATE MORE THAN 93,600KWH OF CLEAN ENERGY PER YEAR, CONTRIBUTING TO A SIGNIFICANT PORTION OF THE MUSEUM'S ELECTRICITY CONSUMPTION NEEDS AND SAVING 43 TONNES OF CO<sub>2</sub> PER YEAR**

### Bermuda Sloop Foundation

A grantee of 11th Hour Racing, the Bermuda Sloop Foundation provided unique learning experiences for middle school students on the island aboard their Sail Training Vessel *Spirit of Bermuda*. In the course of a “school year,” approximately 300 Middle School-age students participate on a 5-day, 4-night rite of passage, using ‘Training Under Sail’, a uniquely powerful context for learning and self discovery. With a grant from 11th Hour Racing, the Bermuda Sloop Foundation now incorporates programming focused specifically on the impacts of marine debris in Bermuda, and how the single-use plastics that are everywhere in daily life end up in the ocean and impact marine ecosystems. The goal for this programme is that every student that leaves the ship has an increased understanding of ocean plastics and how their personal behaviour is vital to eliminating trash in our seas. The Sloop Foundation Environmental Ambassador groups will visit the 11th Hour Racing Exploration Zone before heading out on the water, to learn more about ocean plastics and invasive species.

### Roy Bedlow, Chief Executive at Low Carbon

commented: “We continue to support Land Rover BAR as a sustainable sports team, and applaud their goal to minimise their impact on the precious resources of Bermuda. By partnering with them on this project, we will be aiming to produce enough energy to match and even exceed the amount that the team use whilst on the island. At the same time, we’ll be leaving an important sustainable legacy for Bermuda, as our project will keep producing renewable energy long after the team has left. It is exciting to be working with Land Rover BAR, local businesses and the museum to apply solar energy in an effective, targeted way that will benefit the people of Bermuda for years to come.”

Sir Ben Ainslie commented:

**“ We have set our goal to be the most sustainable sports team, and feel it is important for our team to have a minimum impact on Bermuda and leave a legacy behind... The solar project is one of the most important projects to be delivered by our partners – although our goal is to take the Cup home, we want to leave plenty behind us that will benefit the island and its people. ”**

## Managing waste into resources

A comprehensive waste management policy is in place at our team base in Portsmouth. In 2016 we achieved zero waste to landfill for our non-hazardous material, 66% reuse, anaerobic digestion and recycling, only 30% heading for waste to energy. The total tonnage can be seen in the table.

Waste disposal 2016	(tonnes)
Reuse	7
Recycling	43
Anaerobic digestion	16
Waste to energy	30
Hazardous	4

At each ACWS event, we set up our own temporary recycling stations including food segregation onboard vessels. Whilst we often have to accept the facilities provided by the event organisers we have challenged them to provide recycling for the event.

Where possible we look to eliminate waste. As a visible campaign to raise awareness of the single use plastics and ultimately the impact the use of plastics has on our oceans, we have a campaign to “say no to single use plastics” and banning the microbead. We issue all team members, guests and children at outreach events with refillable bottles, and provide filtration stations at our UK base and at event venues. This is now widely accepted throughout the team and any visitors with single use plastic bottles have them replaced with our team bottles. The next campaign against single use resources was coffee cups and similar, we have been working to eliminate these across the team providing the event staff with refillable cups.

Our waste reuse plan is assisted by the Portsmouth based social enterprise, The Recycled Assets Company. The team at Recycled Assets not only provide us with a flexible green logistics partner who visit the base on a regular basis and whenever needed in between to evaluate and take our waste that they can repurpose and reuse.



They achieve this whilst providing meaningful work experience and employment opportunities to disadvantaged people in the Portsmouth area delivering both a cost effective service to the team and significant social benefit to the local community. In 2016, Recycled Assets have helped us to divert 7 tonnes of waste from recycling or disposal and instead repurpose it into something useful, such as planters for our urban garden made from old pallets and lined with event branding material from the Portsmouth America’s Cup World Series. Through leading by example and engaging with innovative enterprises such as The Recycled Assets Company, we hope to encourage our suppliers and partners to manage their waste more effectively and multiply the positive impact of doing so.

## In 2016 **7 tonnes** of waste was repurposed into something useful

In addition, we have developed bespoke gifts and giveaways, bags, pencil cases and document wallets, from our old sails which have been made by the Old Sail Loft in Burnham on Crouch and are labelled with the specific sail that the material came from.

We continue to research and find solutions to the end of life of carbon fibre which is reported in the Driving Innovation section.

## Biodiversity

Biodiversity is important to a team whose activity is based on the natural environment. At the Portsmouth base, the biodiversity hub is flourishing with introduced native species, bird boxes and bug areas in gabions.

Oysters were saved from a dredge site and relocated to 9m<sup>2</sup> of protected oyster beds hosted on the team's pontoon developed in partnership with our marina partner MDL Marinas to help restart a viable population of oysters in the Solent region.

The oyster pontoon has exceeded expectations in survival rates, showing the potential for marinas and man-made recreational structures to be effective homes for species both commercially and for biodiversity benefits.

**69 SPECIES NOW FIND THEIR HOME ON THE SITE, COMPARED TO EIGHT PRIOR TO THE DEVELOPMENT OF THE BUILDING.**

On the roof, the team have created an urban garden with planters growing local produce and herbs for the kitchen as well as flowers and species for bees to feed on. Six bee hotels were installed on the roof to encourage solitary bees.

**“ The team have made a particular effort with this site to provide ecological enhancements that are suitable for the habitat and marine environment in which the site is situated, demonstrating a long term commitment to establishing a locally relevant enhancement of the species diversity of the site, using best practice and marine ecosystem conservation management. ”**

Tony Blunden, Ecologist, Aluco Ecology Ltd



## Food Charter

Making sustainable choices when it comes to food is important. We hope that our commitment to choosing sustainable sources can influence others and together we can make a difference. Our Food Charter guides us to source local, ethical and nutritious food for the team and our visitors, which poses as little threat to the environment as possible and benefits local producers. We encourage all our partners and sponsors hosting events at the Team Base to follow our Food Charter. We support Sustainable Fish Cities and all of our fish is selected using the MSC good fish guide. We also support the Portsmouth Food Partnership, a local initiative which aims to: “improve health and well-being and encouraging a positive healthy food culture within the City of Portsmouth that is fair, resilient and economically and environmentally sustainable.”

As part of the team’s commitment to carbon reduction, an initiative resulting from the screening of Racing Extinction was the commitment to go meat free every Monday. Jono MacBeth, Land Rover BAR’s Sailing Team Manager spearheaded the effort inspired by the film’s call to action: ‘#Startwith1Thing’ and managed to bring the team along on the Meatless Monday commitment. In the UK alone, we eat on average 50% more meat than is recommended by the World Health Organisation and livestock is responsible for 14.5% of global greenhouse gas emissions. Our ethos was if everybody went meat free for just one day a week, we could make a real difference. We estimate since starting the campaign in the summer, we have saved the equivalent carbon of a car driving to Bermuda and back (that does not include the bridge construction).

We work closely with our in-house caterers, Watkins and Faux, who came on board in 2016 at the Portsmouth base delivering local and seasonal sourcing as well as sustainably certified (MSC) seafood. We are looking to achieve certification with the Sustainable Restaurant Association in 2017, achieving the highest attainable 3 star rating in the pre-assessment. We have continued to take our food charter to Bermuda, where highlights include the donation of leftover food to the Eliza Dolittle Society, food scraps to feed pigs at the local farm and tea/coffee grounds are composted on site.

## Our Food Charter

### PROVIDE GOOD LOCAL FOOD

We are committed to providing food that is not only healthy and tasty, but is fresh, seasonal and local. We want our team and visitors to be able to eat good food that supports local growers and businesses, by sourcing the majority of food from within 25 miles of the team headquarters, celebrating our vibrant and diverse food culture.



### RESPONSIBLY SOURCED

We ensure that our food is sustainably sourced and has a low carbon footprint. 100% of our fish and seafood will be sustainably sourced, ideally from our local fishermen. We will make sure that the food supplied from further afield is Fairtrade and ethical, guaranteeing that producers get a fair price for their goods.



### GO ORGANIC

Our food is organic, Red Tractor, Free Range or LEAF marque accredited to ensure we support farming methods that protect the soil and environment from artificial chemicals, and follow high animal welfare standards.



### MANAGE WASTE

By carefully planning our menus, portioning and using products with little or recyclable packaging, we can ensure we produce as little landfill waste as possible, reducing our environmental impact. We will avoid all disposable tableware and single-use plastics and polystyrene.



### DONATE UNUSED FOOD

Where leftover food is unavoidable, including cooked food, we will donate it to local organisations that redistribute food to those who really need it. That way we can reduce our environmental impact and give back to the local community.



### EDUCATE AND RAISE AWARENESS

We want to create a positive food culture that places a greater value on the food that we eat, the animals that provide it and the people that produce it. Our team and visitors can enjoy good food while growing their awareness of the environmental impact of food so that they can make better, more sustainable choices.





## Reducing our fuel

Fuel consumed by the chase boats represents a significant proportion of the team's carbon footprint and is monitored along with the operating hours to identify fuel efficiency opportunities.

**WE WORK CLOSELY WITH OUR PARTNER YAMAHA TO ENSURE WE HAVE THE ENGINES FIT FOR PURPOSE DELIVERING EFFICIENCY TO THE TEAM**

The chase boats are essential for safety and effective coaching and were traditionally essential for the design team to see the boats in action as they trained. Our chase boats are required to reach speeds of 50mph and to be effective for the design team they would want to be able to analyse the data whilst watching the sailing on a computer. This is a difficult feat at the speeds the boats travel at now. All the drivers are trained and pass an assessment before being allowed to drive the chase boats, which ensures they are competent and understand the importance of driving with efficiency in mind. The team has four chase boats which are used in different situations. The engine on Chase 1 has been upgraded and the boat now achieves an average fuel efficiency of 31 litres/ hour, an increase of 23% efficiency compared to Chase 2.

The most recent chase boat, Chase 4 is a further 43% more efficient compared to Chase 2. We have an additional two docking RIBs which use small amounts of fuel in and around the harbour and are looking to replace these with electric engines in 2017.

To reduce the fuel consumption further we developed, with our Technical Innovation Group, the BT Virtual Chase Boat which uses technology to accurately monitor performance through cameras and sensors installed on the race boats. The Virtual Chase Boat supplies our coaches, designers and performance analysts the data they require to effectively monitor and enhance performance, from 'Dell EMC Mission Control' back at the team base. This approach reduces personnel on the water and removes the need for a dedicated chase boat for the design team. It also reduces the need for the entire design team to be relocated to Bermuda as the data can be streamed during training sessions to the team base in Portsmouth, further reducing carbon emissions from travel. In 2016, the carbon impact from the chase boat fuel equated to 54 tonnes of CO<sub>2</sub>e.

**to reduce fuel consumption we have developed the BT Virtual Chase Boat**



## Land Rover BAR Academy

The Academy was created to find and support talented young British sailors, to provide a pathway into the America's Cup, and specifically to build a British team that can win the Red Bull Youth America's Cup in June 2017. The Academy embraced the sustainability ethos of the senior team, implementing car sharing, recycling at events and using refillable bottles. In addition, Castrol agreed to support the team by implementing full carbon offsetting for academy activities. Castrol contributed to the Sares Wind Farm in Turkey via a recognised carbon offsetting scheme. The breakdown of the carbon impact from the Academy team can be seen in the table. For more information view our case study [here](#).

### Land Rover BAR Academy - breakdown of 2016 carbon footprint (% of total 497 tonnes)

Team travel to training camps and events	37%
GC32 race boat, container and sails (capital equipment purchases)	29%
Equipment maintenance and servicing	13%
Team accommodation at events	7%
Subsistence at events	5%
Container shipping of equipment between events	5%
Support boat fuel at events	4%
Hospitality and branding	1%



## Smarter Futures: progress against targets

Objective	Target	Progress
Maximise the use of 'greener' sustainable products	100% sustainable seafood for all operations	Green
	No single use plastic	Yellow
	100% wood FSC/PEFC certified	Yellow
	100% paper and paper products to contain post-consumer waste (printing and branding)	Green
Ensure staff welfare	Set up cycle to work scheme and child care vouchers	Green
High level of staff awareness of sustainability issues and relevance to their roles	100% staff undertaken sustainability training annually	Green
Transparent reporting of progress	Publish annual (GRI referenced) sustainability report Achieve and retain ISO20121	Green
Increase awareness of sustainability in BAR	100% staff to receive sustainability briefing annually	Green
Minimises environmental footprint of team base construction and life cycle operations	Implement necessary improvements to building to achieve BREEAM excellent	Green
	Life cycle approach to build, operation and deconstruction of Bermuda base - resource management planning and aim for zero carbon energy operations	Yellow
Minimise energy consumption of the Team Base	Energy consumption at or under BREEAM excellent design capacity of base (identify target in relation to average UK consumption)	Red
	20% electricity consumption generated by solar PV	Green
	100% mains energy from a renewable energy supply Temporary power generation utilising 20% minimum biofuel mix	Green
Minimise environmental (carbon) footprint of team operations	Monitor carbon footprint of team operations (Aspirational target would be to achieve carbon neutrality - potential significant cost attached)	Yellow
Minimise whole life carbon impacts of products we build and purchase	10% improvement in manufacturing efficiency identified by 2017 from baseline 2014/2015	Yellow
Minimise risk of pollution to land, water and air and damage to species and habitats	Zero pollution incidents	Green
Minimise damage to species and habitats	Zero incidents	Green
Minimise fuel consumed	10% improvement in fuel efficiency in chase boats from 2014/2015 baseline	Green
Minimise impact from staff and visitor travel	50% UK staff travel by sustainable forms of transport (not single occupancy car) Increase in staff uptake of cycle to work scheme	Green
Minimise impact from transportation of goods	Screen all transportation options to provide lowest carbon impact	Yellow
Minimise proportion of water from mains sources	100% external boat and equipment wash from rainwater	Yellow
Minimise water consumption	Water consumption at or under BREEAM excellent design capacity of base (identify target in relation to average UK consumption). Design capacity of base is 2800m <sup>3</sup> p.a. based upon historic data for workshops, offices, restaurants, sports halls and bars, all prorata to match the areas and estimated usage profiles for the base	Green
Maximise recycling of waste	60% diversion from WTE and landfill through reuse, compost and recycling	Green
Reduce waste	Actively manage waste at all venues including temporary event venues - where possible report on waste generated	Green
Zero waste to landfill	Zero to landfill for all non-hazardous waste, no waste directly to landfill	Green

# Inspiring Excellence

At Land Rover BAR, we want to play a major role in creating an inspirational centre of marine excellence across the Solent to one-day match Motor Sport Valley. We are already on the journey to developing regional high-performance marine engineering skills and will continue to do so through our work experience, internships and apprentice schemes. We will continue to encourage similar high-performance marine industries to relocate to the region to create a centre of marine technology, design, engineering and innovation excellence along the coasts of the Solent strait. During 2016 we took part in over 200 events presenting the Land Rover BAR story to local and international audiences – across sailing, sport and the marine industry



## Driving sustainability in sport

### America's Cup Sustainability Charter



**ON THE 9TH OF JUNE 2016, A SIGNIFICANT MILESTONE WAS ACHIEVED WHEN THE TEAM SUSTAINABILITY CHARTER WAS SIGNED FOR THE 35TH AMERICA'S CUP.**

The Land Rover BAR team was instrumental in preparing the Charter and bringing it to the Competitor Forums for discussion amongst the team principals. The Charter was signed by all six teams competing in the 35th America's Cup, and was supported by the America's Cup Event Authority (ACEA). ACEA continue to help coordinate progress and have established monthly meetings to share experiences in Bermuda and drive sustainability across the event and collaborating on some outreach and legacy events.

This is a tremendous step forward to create positive international change.

**“ Sport is excellent at supporting social change, it now needs to drive environmental change. ”**

Jo Grindley CMO/CCO Land Rover BAR

### Green Sports Alliance

The ability we have to influence sports teams and the general public to be more sustainable is multiplied through our partnerships. The Green Sport Alliance Summit provides the sports community the opportunity to share sustainable best practices and innovations. The summit in 2016 focused on The Power of Partnerships and we attended it with three of our key partners; 11th Hour Racing, Land Rover and BT. Together we hosted a session which focused on harnessing partnerships to achieve sustainability objectives.

### Event outreach

Our ability to influence people on an international scale has been enabled through the Louis Vuitton America's Cup World Series. We ran outreach events at each of the race locations, engaging the team and sailors with local communities to pass on the sustainability message.

While in Oman, we engaged with 30 primary school children to increase their awareness of waste reduction and reuse. This project culminated in the children constructing their own boats from recycled materials and taking part in a race.

### TEAM SUSTAINABILITY CHARTER FOR THE 35<sup>th</sup> AMERICA'S CUP

#### BETWEEN:

1. Artemis Racing
2. Emirates Team New Zealand
3. Groupama Team France
4. Land Rover BAR
5. ORACLE TEAM USA
6. Softbank Team Japan

#### BACKGROUND:

As teams participating in the 35<sup>th</sup> America's Cup we recognise the opportunity we have to set new benchmarks across both the sport and marine industry. As teams we are committed to leaving a positive legacy engaging with our fans and partners wherever we compete.

We support this 35<sup>th</sup> America's Cup team sustainability charter and will use our reasonable endeavours to implement it and embrace the ethos of the charter.


#### COMMITMENTS:

1. Eliminating single use plastics  
Ocean plastics is an increasing problem and we see the opportunity and message we can convey by committing to identifying opportunities to eliminate single use plastics. We will provide our teams with refillable hydration bottles, avoiding single use plastic drinks bottles.
2. Maximise reuse and recycling  
Participating in events and setting up temporary bases can produce waste. We are committed to identifying opportunities to reduce our waste as far as reasonably possible. We are committed to identifying opportunities to reuse packaging and other materials and to recycle waste, where local recycling facilities are available.
3. Conserving water  
Participating in events and identifying opportunities to conserve water where reasonably possible, particularly in the launch and retrieval of boats. Where possible, we will use water saving water butts and minimise the water used for boat wash down. Where possible, we will use rain water for the wash down of our boats.
4. Avoiding water pollution  
We are committed to identifying opportunities to protect the waters in which we sail. Where possible, we will use environmentally friendly cleaning fluids for our boats, ensure safe refuelling procedures and ensure spill kits are available on board support boats.
5. Reducing our energy/ carbon impact  
We recognise that through the base, our travel and transport, boat construction and the fuel used in vehicles and support boats, we consume energy and have a carbon impact. We are committed to understanding our carbon footprint and identifying opportunities to reduce this, for example, through efficient use of resources and material and product choices. We are committed to identifying opportunities to reduce our electricity consumption.
6. Protecting marine habitats  
We are committed to identifying opportunities to minimise the risk that our boats and safety boats harm the marine environment. We will not knowingly anchor in areas of fragile marine habitats.
7. Being diverse and inclusive  
We are committed to embracing diversity and being inclusive in our activities including fan engagement, staffing and local outreach.
8. Supporting the local economy  
Through our procurement of goods and services we will endeavour to support the local economy and local suppliers where we operate.
9. Communicating a better future  
We recognise we are advocates for the oceans and our sport is connected to the natural environment - we will communicate our positive actions and look to inspire fans, suppliers and local communities in taking up our example.
10. Sustainability Champion  
We will identify a sustainability champion in our own team to collaborate with other teams and ensure we are operating in accordance with this team charter.

Dated this 9th day of June 2016

#### AGREED AND ACCEPTED

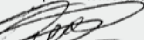
Artemis Racing

  
By Iain Percy, Team Principal

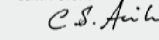
Emirates Team New Zealand

  
By Kevin Shoebridge, Chief Operating Officer

Groupama Team France

  
By Bruno Dubois, Team Principal


Land Rover BAR

  
By Sir Ben Ainslie, Team Principal

ORACLE TEAM USA

  
By Jimmy Spill, Skipper

Softbank Team Japan

  
By Dean Barker, Skipper

## In New York we engaged with **30** young people from the South Bronx

In New York, we engaged with 30 young people through Rocking the Boat, a grantee of 11th Hour Racing which empowers young people from the South Bronx to develop the self-confidence to set goals and gain the skills necessary to achieve them. Students work together to build wooden boats, learn to row and sail, and restore local urban waterways, revitalising their community while creating better lives for themselves. Additionally, we engaged with the Billion Oyster Project and the New York Harbor School with 11th Hour Racing, learning about scientific diving, boat construction, marine biology and aquaculture.

## In Chicago we delivered an educational day to **30** students

In Chicago, we engaged with 30 students and the Shedd Aquarium to deliver an educational day on invasive species and a beach clean, collecting 17kg of marine debris. We also worked with 11th Hour Racing to showcase Racing Extinction with two free and open to the public screenings at the event race village: a film by Oscar winner Louie Psihoyos which shows never-before-seen images exposing the plight of endangered species and the risk of mass extinction.

It was difficult to support an outreach event locally at the Fukuoka event as a result of a lack of translators within the team to help deliver our lessons, and so we supported the team from home with the University of Portsmouth Sailing Club and The Green Blue, with a beach clean, oyster inspection and talk from Build Team member, Alan Boot on sustainable materials and carbon fibre recycling.

## In Portsmouth we engaged with **200** young people on ocean plastics activities

At the America's Cup World Series event in Portsmouth, in partnership with 1851 Trust and 11th Hour Racing, we engaged with 200 young people on ocean plastics and renewable energy through fun activities in the Race Village. 11th Hour Racing provided all the participants with a reusable, BPA free, locally sourced water bottle. Each bottle carried the message 'Say no to single use plastics' and contained a special note from Sir Ben Ainslie to promote responsible environmental practices.

In Toulon, we engaged with 15 young sailors to integrate young people into the conservation process of the ocean; raising awareness of their role as an ambassador of the coastline. With the support of 11th Hour Racing, the young sailors learnt how to make reusable bags by repurposing T-shirts and pledged to say NO to single use plastics. They received recycled pencil cases – made from the sails of Land Rover BAR's very first test boat.





# TECH DECK

@ LAND ROVER **BAR**

## Building skills, education and STEM

### The Tech Deck

1851 Trust Royal Patron, HRH The Duchess of Cambridge, opened the Tech Deck at the Portsmouth base in May 2016. The education centre offers a unique behind-the-scenes experience with hands-on interactive exhibits, enabling young people to get close to the boats, team, and technologies in development that will allow the team to fly faster and sail smarter. Developed for Key Stage 3 of the National Curriculum, the aim is to foster and ignite young people's interest in STEM (Science, Technology, Engineering and Mathematics) and inspire students to continue to careers in these essential fields. Throughout the centre, we have shared and demonstrated the many challenges the team face in designing, building and racing in the America's Cup, as well as the roles science and technology play in designing boats that fly, and areas such as sailing tactics.

Since opening in May, 4877 people have visited the Tech Deck during school visits, public open days, an RC44 Event, the America's Cup World Series, and sailing club visits showing the breadth of interest and versatility in the space.

### BT STEM Crew

We supported the 1851 Trust in developing BT STEM Crew, a learning programme designed to engage students aged 11-16 in STEM subjects and careers. The team provided content and staff time to develop the programme drawing on the design and technology of the America's Cup to provide relatable, real life content and inspire students to pursue a STEM career.

Sir Ben Ainslie commented

**“ We hope that by using real life sport and technology to explain every day science and math problems, we can encourage more young people to consider STEM careers and become Britain's future innovators, scientists and engineers. ”**

### Faraday Challenge

In October, the 1851 Trust launched a national design competition in partnership with the Institution of Engineering and Technology (IET). The 1851 Trust also offer Faraday Challenge Days; one-day STEM activities delivered free of charge that give students the opportunity to research, design and make prototype solutions to genuinely tough engineering problems.



## 11th Hour Racing Exploration Zone

During 2016, the 11th Hour Racing Exploration Zone was designed and developed for the temporary base in Bermuda. The concept replicated some elements of the Tech Deck giving visitors the opportunity to see how we use technology and innovation to not only make the boats go faster, but also to create long term sustainable solutions and protect the environment. This dedicated educational space brings to life critical topics around ocean health, sustainability, innovation and technology, with a series of creative displays. Visitors will learn how to make a tangible and positive impact to reducing ocean plastics, about the power of the sun as a source of renewable energy, and understand the devastating effects of invasive species, particularly the lionfish that infests Bermudian waters. The 11th Hour Racing Exploration Zone aims to ignite the interest of the young people of Bermuda in STEM and ocean health, and inspire students to continue on to careers in these essential fields.



## Land Rover BAR Sustainability Challenge

We continue to build skills, giving opportunities to local Universities to engage with the team. We worked with students from the University of Portsmouth Environment Network to develop innovative solutions that help address our sustainability challenges. Seven teams competed in the competition, taking part in numerous workshops and discussions with our sustainability team to develop their proposals. During the Louis Vuitton America's Cup World Series Portsmouth event in July, the two finalist teams were judged by staff from the University of Portsmouth, Land Rover BAR and 11th Hour Racing.

Wendy Schmidt, Co-Founder of 11th Hour Racing:

**“ With the 11th Hour Racing Exploration Zone, we hope to create a legacy lasting well beyond the 35th America’s Cup. Through interactive displays, we focus on some of the concerns that are top of mind for all of us: which invasive species is creating havoc in the Atlantic Ocean? How widespread is the problem of ocean plastic pollution?**

**We also look at bigger issues, such as what it means to have a circular economy and how we can accelerate the transition to the use of more renewable energy. We are thrilled to share this story with Land Rover BAR’s fans, sailing and sports enthusiasts, the public, and we hope to capture their imagination and spark creativity and interest in our oceans. ”**

The winning team was a multi-disciplinary group that included geographers, engineers and computer scientists, and their proposal was a sophisticated way to improve and optimise the current rainwater harvesting system, while using hydrogen fuel cells to derive further renewable energy to add to the 432 solar panels already installed on the team base. They secured a two-week work experience opportunity with the team, and during their time with Land Rover BAR the students conducted a feasibility study of their winning project. Winning team member, Maxwell Falstein, said: “It has been very rewarding and the opportunities do not end with this project, thanks to excellent contacts at Land Rover BAR and other sponsors.”

## Supporting the local economy

We have worked with our partner, KPMG, to assess the economic impact of our operations and those of the Portsmouth America's Cup World Series which was delivered and managed by TEAMORIGIN Events.

KPMG's report identified that during 2016, we generated:

**£33.2m** of Gross Value Added (GVA) to the UK economy via core operations. While the completion of the new base meant that the overall GVA figures were down slightly from the £47 mln 2014/15, the report demonstrated a 72% increase in GVA from core operations.

**£40m** combined team & event economic impact in GVA to the UK

**£66m** media value in advertising value equivalency terms, increased from £59 million 14/15

**621** full-time equivalent jobs (FTE) across Great Britain – 555 FTE

**£16.9m** invested in research & development

**£13.5m** direct GVA generated in Portsmouth

### Louis Vuitton America's Cup World Series

The 2016 World Series event in Portsmouth saw Land Rover BAR in first place again and returning to the top of the overall leader board. The event drew crowds of 141,806 people and delivered £6.6m of Gross Value Added income to the UK economy. Of this £6.6m, £1.7m was generated over the course of the four days as a direct result of the spending by spectators. 57% of the businesses surveyed indicated that they experienced an overall increase in their sales as a result of the event and 92% of spectators indicated they were likely to visit the Portsmouth area again in the future.

### Employment

The team employed in 2016 a total of 103 staff and a further 43 permanent contractors. During 2016, the team also engaged 6 apprentices, 48 work experience placements and 24 internships. 52% of these individuals originated from the Solent region. Like many marine engineering companies the team is male dominated with a 71:29% male:female split. The team is keen to promote opportunities across the scientific disciplines and has a number of females in key roles.

Sustainability training and awareness is continual with the team and starts with the staff inductions.

Regular sustainability updates are given in the team meetings along with regular newsletter updates and the #RaisingtheBAR sessions with guest speakers. Key team members also attended the one day Sustainability Leadership Course run by Cambridge University.



**Team and event generate  
£40million  
for the UK economy  
in 2016**

### Sustainability in the supply chain

We recognise the importance of our supply chain and through our Sustainable Procurement Code, aim to screen both products and the companies that we work with against sustainability criteria. We have experienced a number of challenges in implementing and tracking the progress against our procurement code, and have trialled a number of different tools to integrate it into our purchasing system. With the pace of purchasing, we have found challenges in creating a system that captures the sustainability requirements needed while maintaining a streamlined procurement process that keeps up with the fast pace of purchasing.

A recent success, through working in partnership with BT, our technology in sustainability partner, has been to adapt their award winning Better Futures Supplier Forum formula and supplier assessment tool and through a University of Portsmouth student project, we have started to introduce this to our suppliers. The aim of the tool is to provide an action plan for improvement and benchmarking for each company.





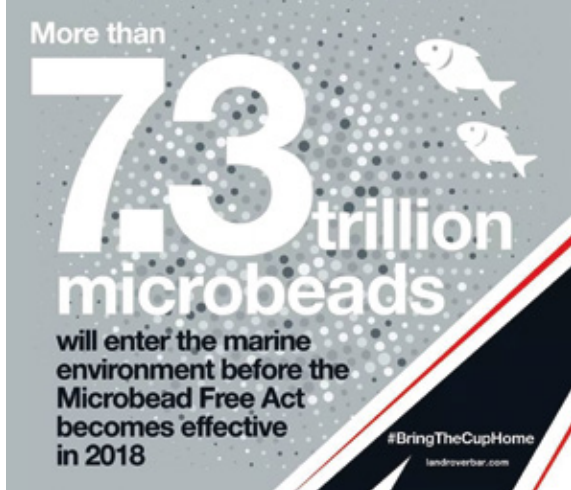
Working closely with our partners and challenging our suppliers we have influenced a number of them who have improved their environmental management:

- Land Rover, our Title and Innovation partner has taken and adopted the team's event guidelines for their sport sponsorship events
- MDL Marinas, our base partner supplying the pontoons at the Portsmouth and Bermuda team bases also developed the oyster pontoon in Portsmouth and have supported the roll out of the project across the Solent hosting oysters on their marinas in the Hamble River as well as installing planters and bee hotels at their marinas
- Henri Lloyd, our technical clothing partner implemented fully recyclable swing tags removing the metal eyelets and plastic tags

- Green Marine, our off-site manufacturing centre implemented recycling across their business and improved their waste management
- Grapefruit Graphics provide the team with most of their branding, and are working towards certification for their existing sustainability management system and helped the team source recycled and non-PVC branding materials, which are now being offered to other clients
- Land Rover, BT, Low Carbon and TEAMORIGIN Events joined the team and 11th Hour Racing for a Sustainability Leadership Course at Cambridge University

We have a target of 80% of our suppliers coming from the Solent region, and whilst we aim to achieve this and engage with local suppliers we have been challenged at times to find the skills and quality in the Solent region. To date 30% of our suppliers are Solent based, representing 35% of our spend. However, as we look beyond the Solent, within the UK we have a total of 85% of our suppliers being UK based, representing 74% of our spend.

**85%**  
suppliers UK based



## Campaigns and Education

We believe our influence should extend far beyond the race course and are committed to increasing awareness of important issues on an international level. One way through which we broaden our reach and increase our impact is through campaigns; a recent example is our fan engagement campaign on abolishing the use of microbeads.

### Alternative composites

We also raise awareness and reach thousands of people through exhibiting at events. At the London Boat Show, which was attended by 90,000 visitors, we demonstrated the feasibility of alternative composite materials, the use of life cycle assessment (LCA) to evaluate the benefits and the importance of future generation skill development.

### Ocean plastics

During the RYA Dinghy Show we exhibited the impacts of ocean plastics and gathered 120 pledges to 'Say No to single use plastics' which were shared on social media. We ran five Camber Clean Ups during 2016 with local Camber residents and students joining with the local 'Love your Harbour' campaigns. As part of our awareness against ocean plastics, we have entered into a new partnership with Seabin Pty to tackle the issue of harmful waste in the ocean. The innovative Seabin collects marine pollutants such as oil, detergent and floating litter in marinas and is currently in development. It uses a shore based water pump to suck water through the system; debris is collected and stored in a bag while water is passed through an oil filter and returned to the marina. Land Rover BAR will receive the first production Seabin to be installed on their Camber pontoon.

## Invasive species

We have been working together with our Exclusive Sustainability Partner, 11th Hour Racing, in Bermuda on a legacy project to raise awareness about invasive species, specifically the lionfish which was introduced to the Atlantic Ocean in 1985 and has widely expanded from Rhode Island to Venezuela. Lionfish consume the local herbivore fish responsible for eating the algae, which then outcompete the slower growing corals that build the surrounding reefs. As a result of their invasion, the coral reefs in Bermuda and other affected areas are being damaged and this can lead to serious impact on the local economies. Our campaign is promoting lionfish as a delicious and sustainable seafood to increase consumption, and reduce the damage they cause. The campaign has received recognition by the White House as it supports the initiative 'tackling climate through sport', and has been brought to life by developing the idea of a celebrity chef culinary event, the #EatLionfish Chefs' Throwdown hosted by 11th Hour Racing, with the support of all the America's Cup teams and the America's Cup Event Authority. The event was planned for 19 April 2017 ahead of Earth Day. In an effort to maintain the lionfish-containment momentum following the completion of the America's Cup, 11th Hour Racing engaged culinary students from Bermuda College to be part of the Chefs' Throwdown, as well as local and international organisations who are leading efforts in scientific research and innovation around invasive species.

## Go-sailing

Our official charity, the 1851 Trust, provides the opportunity and encourages young people to:

- Experience sailing and continue in the sport
- Understand the career choices and wider opportunities in Science, Technology, Engineering and Maths (STEM)
- Consider the environment and act sustainably

Over the summer hundreds of young people were given the opportunity to sail for the first time. The 1851 Trust, working with the Andrew Simpson Sailing Foundation, set up The Portsmouth Sailing Project to provide 1,000 children aged 9-13 a free sailing session with a fully qualified RYA instructor.

## Inspiring Excellence: progress against targets

Objective	Target	Progress
Maximise sustainability within value chain	100% compliance with sustainable procurement code	
	100% suppliers screened - 50% suppliers with environmental management (ISO14001 or equivalent) in 2015 (increasing 10% per year)	
	Inspire 5 partners or suppliers annually to improve their sustainability management	
Engage local community	35% of the Solent Region schools to attend the Visitors Centre Educational programme by end of 2017	
	Deliver a minimum of 4 annual open days where the public access the base – 300 per day x 4 = 1200	
	Engage with local schools and community groups and the HE/FE sector to host interactive and educational visits where we inspire children and young people about sport, the sport of sailing and the America's Cup – Y1 50 groups, maximum 50 per group = 2500 increasing by 10% per annum	
	100 young people per annum to benefit from the collaborative programme with RYA (Royal Yachting Association) to engage a wider demographic in the sport of sailing through 1851 Trust	
	Annual technical marine seminars will be hosted at the BAR HQ in Portsmouth	
Wider engagement in sustainable sport	100% events with outreach relating to sustainability	
Build on design and technology skills	50% staff from Solent area	
	113 direct jobs plus 5 direct consultants in campaign first AC cycle.	
	2 direct jobs on base construction.	
	Engagement with 5 regional or specialist research and academic institutes	
	2 companies given opportunity to have graduates working within BAR	
Bring investment to the local economy	80% suppliers from Solent area 80% investment in Solent area	
Build local skills base	91 Work placements first AC cycle: Comms & Marketing 30 starting Aug 14, Fitness: 20 starting May 15, Sailing Team: 2 starting Q4 (prior to AC youth squad), Sustainability: 4 starting 2014, Shore: 5 starting 2014, Design: 10 starting 2015, Business Support: 10 starting 2015, ACWS event: 20 - 10 per annum	
Build local skills base	20 Interns first AC cycle: Comms & Marketing: 4 starting Q4 2014, Fitness: 6 starting Q3 2015, Sustainability: 4 - one per annum from 2014 (projects), Shore: 2, Design: 4 starting Q4 2014	
Build local skills base	14 Apprenticeships – for first 2 years of operations (multiplied by 3 = 42 over first 6 years), Comms & Marketing: 2 (rolling from 2015 for 2 years), Fitness: 1 Catering apprentice - 2 year rolling starting 2015, Shore: 8 rolling 2 years from 2015, Business Support: 3 (IT, Admin, Finance) 2 year rolling from 2015, Engage with Highbury College, Southampton City College, Isle of Wight College for apprentice schemes, 20 Training programmes first AC cycle	
Build local skills base	Minimum of one national educational design-led competition per AC cycle	
Create partnerships	Applied Technology Department established by 2017	
	BAR will support the development of a marine centre of excellence in the Solent Region.	
	50 local businesses engaged in BAR technical seminars annually	
	Goring Hotel - events and hospitality staff training programme	
Maximise the use of 'greener' sustainable products	100% sustainable seafood for all operations	
	No single use plastic	
	100% wood FSC/PEFC certified	
	100% paper and paper products to contain post-consumer waste (printing and branding)	

# Driving Innovation

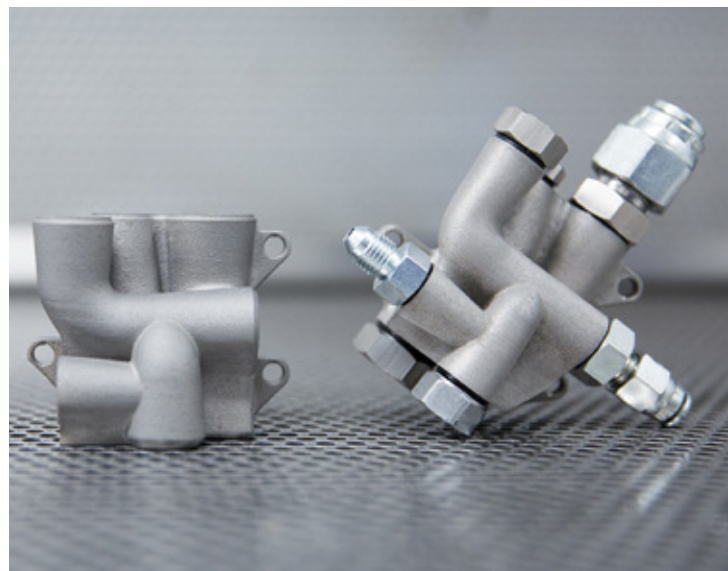


We use our position at the leading edge of high performance sport to drive innovation towards a low carbon economy and addressing the global issue of finite resources. As a sailing team, we harness the power of the natural environment to maximise our performance and we aspire to translate this into driving innovation, revolutionising efficiency in boat design and advancing the life cycle of composite materials. The team collaborate with Universities and research organisations to use technology, engineering and innovation skills to find future solutions for long-term issues in sustainability.

## Technical Innovation Group (TIG)

Land Rover BAR has a core of technical, design and engineering knowledge – but the broad sweep of modern scientific and technological advancement means that there will always be opportunities that lie outside our main areas of expertise. The task of the TIG is to find and apply these technologies, and develop them to provide a race winning edge to the team. The TIG complements the existing design team with an external, world-class, multidisciplinary research and development group.

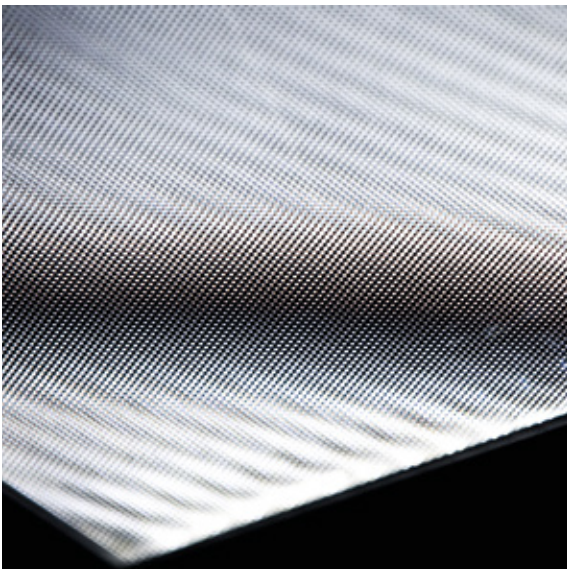
The TIG is governed by a steering group chaired by PA Consulting. 34 projects are currently being developed within the TIG.



## Carbon fibre recycling and reuse

The composites industry predicts that market demand will increase by 40% between 2014 and 2020. Carbon fibre is costly and energy intensive to produce and there is a great commercial viability around recycling and the production of new carbon fibre products. The main challenge for any carbon fibre composite project is the disposal at the end of the material's existing use. Carbon fibre recycling is limited and not widely commercially available. In the UK, a single facility exists which uses a pyrolysis technique burning the resin at high temperature and reclaiming the fibres which are currently in a short-chopped form. This facility is 'at capacity' for the next five years posing a significant challenge to effective management of the material. As a result, the team has researched alternative resin systems and has tested the mechanical properties of these resins which can be recycled.

A second challenge is the viability and ease of use of the current recycled materials. Southampton Solent University students carried out preliminary testing and recoding of the mechanical properties of a range of materials with a view to building a database of alternatives to virgin fibres.



## Circular economy

40% of carbon waste arises from the manufacturing process. The team worked with the Portsmouth based icon lighting manufacturer, Anglepoise® to reconstruct their Original 1227 Giant Floor Lamp using carbon fibre offcuts from the build of the team's T2 Test boat. The project showcased an innovative approach and demonstrated the feasibility of reusing carbon offcuts, rather than disposing of the material as waste. Simon Terry, Innovation and Brand Director at Anglepoise® commented

**“ Carbon fibre is a material that has its roots in advanced design situations where strength, thinness and lightness are required, but when employed in offcuts its focus can shift to a more aesthetic one... It can also be formed relatively thinly due to its inherent strength allowing light to travel through the weave. ”**

The project showcased the potential symbiosis between two diverse design and engineering companies.

A second University of Portsmouth Business Studies student group carried out a project identifying the potential market for recycled carbon fibre.

## Primary research

As Title and Innovation partner, Land Rover are committed to identifying an end of life solution to carbon composite materials. Their interest, driven by the light-weighting and electrification of the automotive industry, builds a cross-industry collaboration with the team. Land Rover have committed with EPSRC research funding for a PhD studentship at the University of Southampton to investigate the carbon fibre composite recycling options that retain the material value and deliver recycled carbon fibre product ready for mass manufacturing. The PhD project aims to increase the current knowledge of efficient, low energy recycling, reuse and reprocessing options for carbon composite materials, increasing the circularity during the product life cycle and reducing its global carbon impact.

## Life cycle analysis

The team has continued to develop their approach to life cycle assessment, recognising the importance of understanding the impacts from the various stages of production. Processes were adapted as a result of the initial findings to reduce the quantity of waste in the construction of the team's boats T3, T4 and R1. In addition, the impact from the moulds was identified as an area where reductions could be made and recycled carbon fibre was used in the build of the second set of hull moulds, estimated at around 10% of the total carbon content.



## Solent oyster restoration project

The team continued to host the pilot for the Solent oyster restoration project, and the thousand oysters were continually monitored by the Portsmouth University Institute of Marine Science. Success came in July when results showed evidence of increased levels of spat in water samples, demonstrating active reproduction with millions of larvae recorded, in addition to exceptional survival rates, at only 3% mortality.

The success of the pilot resulted in the Institute of Marine Science securing PhD funding to role out the work across the Solent. The team's partner MDL continue to play a key role in the project. The wider programme is being led by the Blue Marine Foundation.

## Driving Innovation: progress against targets

Objective	Target	Progress
Collaboration	Engage with National Composites Centre	3 case studies published
	1-2 projects for sustainability collaboration with MSc/ PhD level each year	4 projects undertaken
	Land Rover BAR will actively work with Portsmouth University, Southampton Solent University and the Isle of Wight College across design, innovation, marketing and sustainability projects	
Maximise innovation opportunities across LRBAR activities and engage partners to drive wider sustainability benefits	5 case studies published annually	



## Appendix A

# Sustainability reporting framework

We apply the following principles when reporting:

- **Relevance:** Data will be reported appropriately to reflect sustainability impacts of Land Rover BAR
- **Accuracy:** Data will be as accurate as possible
- **Completeness:** All identified aspects will be disclosed to ensure a complete and valuable report
- **Consistency:** Methodologies and reporting techniques will be consistent so results are meaningful and reliable
- **Comparable:** Results will be presented a way that makes them comparable with other similar organisations and industry averages
- **Transparent:** Calculations, methodologies and other internal processes will be made available

## Indicators

The indicators reported on herein have been selected based on the GRI Standards (G4).

If they are important to or are significantly influenced by Land Rover BAR and its activities; each aspect was assessed according to six criteria, one affirmative answer as a minimum was required in order to allocate the aspect as material:

- 1** Has the aspect already been determined as important to Land Rover BAR due to a specific process, sponsorship deal or government requirement?
- 2** Is the aspect likely to have a significant impact on the local communities surrounding the Team HQ?
- 3** Does the aspect influence public and stakeholder perceptions of Land Rover BAR?
- 4** Does the aspect have the potential to pollute or damage air, water or land?
- 5** Can BAR influence the aspect?
- 6** Is the aspect likely to have a long-term effect on Land Rover BAR?





## GRI indicators and location

Indicator	Description	Location	Level of reporting
G4.1	Statement from the most senior decision maker	Foreword p.3	Full
G4.2	Key impacts, risks, and opportunities	Identifying what matters p.14	Full
G4.4	Primary brands, products and services	About BAR p.6	Full
G4.5	Location of team base	About BAR p.6	Full
G4.6	Countries of operation	About BAR p.6	Full
G4.24			
G4.25			
G4.26	List of stakeholders and engagement routes	Stakeholders and communications p.16	Full
G4.27	Key topics and issues identified via stakeholder engagement	Stakeholders and communications p.16	Full
G4.28	Reporting period	Introduction p.4	Full
G4.31	Contact details of report writer	Introduction p.4	Full
G4 EC4	Financial assistance received from government	About BAR p.6	Full
G4 EC6	Proportion of senior management from the local community at significant locations of operation	Employment p.40	Full
G4 EC7	Development and impact of infrastructure investments and services supported	About BAR p.6	Partially
G4 EC8	Significant indirect economic impacts, including the extent of aspects	Driving innovation p.44	Partially
G4 EN1	Materials used by weight and volume	Driving innovation p.45	Partially
G4 EN2	Percentage of materials used that are recycled input materials	Driving innovation p.45	Partially
G4 EN3	Energy consumption within the organisation	Smarter futures p.22	Full
G4 EN4	Energy consumption outside of the organisation	Smarter futures p.22	Partially
G4 EN10	Percentage and total volume of water recycled and reused	Smarter futures p.22	Full
G4 EN23	Total weight of waste by type and disposal method	Managing waste p.28	Full

## GRI indicators and location

G4 EN22	Total water discharge by quantity and destination	Resource consumption p.23	Partially
G4 EN24	Total number and volume of significant spills	Smarter futures p.33	Full
G4 EC9	Proportion of spending on local suppliers	Supporting the local economy p.40	Partially
G4 EN32	Percentage of new suppliers that were screened using environmental criteria	Supporting the local economy p.40	Full
G4 EN33	Significant actual and potential negative environmental impact in the supply chain and actions taken	Supporting the local economy p.40	Partially
G4 LA9	Average hours of training per year per employee by gender and by employment category	Supporting the local economy p.40	Partially
G4 SO1	Percentage of operations with implemented local community engagement, impact assessments and development programs	Supporting the local economy p.40	Partially
G4 SO2	Operations with significant actual and potential negative impacts on local communities	Supporting the local economy p.40	Full



# Land Rover BAR 2016 Annual Sustainability Report



To keep up to date with our latest sustainability news, please visit [landroverbar.com/sustainability](http://landroverbar.com/sustainability)

All enquiries, comments or suggestions related to the sustainability report should be directed to [sustainability@landroverbar.com](mailto:sustainability@landroverbar.com)

**#RaisingTheBAR**

