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University  
Of  
Sheffield.



**Johnson Matthey Fuel Cells**  
*the power within*

# Low Carbon Vending Solution



Market Engagement Report

December 2014

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## Annex A Market Consultation Workshop - Participants

*“Simply put – we want to stop buying carbon and greenhouse gases and are looking to suppliers to demonstrate how they are acting and innovating to reduce carbon in the operation, production, management and maintenance of vending services in the associated supply chain” Steph Holmes, Head of Procurement, University of Sheffield*

## Contact

Webpage: <https://www.sheffield.ac.uk/procurement/suppliers-information/vendingservices>

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INNOCAT aims to bring together a group of public and private buyers to publish a series of tenders for eco-innovative catering products, services and solutions. The aim is to help encourage eco-innovation in the catering sector by providing a sizeable launch market for new solutions.

## 1 Introduction

The University will be re-tendering the contract for the delivery of a vending concessions service for students, staff and visitors in 2015 and are using this opportunity to fundamentally re-think vending requirements, contract structure, stimulate eco-innovation and explore alternative methods of service.

The University is committed to reducing its carbon footprint through its operations and in its supply chain and has joined forces with Johnson Matthey Fuel Cells (JMFC) as part of a European Project INNOCAT.

Together with JMFC and other project partners, the University has brought on board Universities, Technical Colleges, Hospitals and other organisations from a number of European Member States who are interested in increasing the energy efficiency and environmental sustainability of their automated vending provision and reducing carbon emissions that arise from vending operations. It is intended that the tender will be a public contract and so the contracted solution will be accessible for the organisations participating in the Buyers Group.

## 2 Market Engagement – Final Consultation Phase

A period of market engagement was launched in March 2014. This has involved:

- Market Sounding. Suppliers and stakeholders were invited to respond in writing to a short questionnaire (*ended September 2014*);
- Market Consultation. Suppliers and stakeholders were invited to attend a consultation workshop and site visit (*6 November 2014*).

A draft market engagement report was put together to provide a record of the market engagement process and findings and to provide an opportunity for suppliers and stakeholders to make final comments, corrections and additions to support the development of an effective procurement approach.

**This draft report was circulated to all suppliers who expressed an interest and / or attended the supplier consultation workshop, and to the wider stakeholder group.**

We invited suppliers and stakeholders to:

- COMMENT on the report, and / or
- PROVIDE additional information to support the development of an appropriate procurement strategy.

This final report will be used to inform the development of the procurement specification and strategy.

Thank you to everyone that contributed. If you have any further comments please email: [gaynor.whyles@jeraconsulting.com](mailto:gaynor.whyles@jeraconsulting.com)

### 3 Market Sounding

In March 2014, the University published a Prior Information Notice (PIN) in the Official Journal of the European Union on behalf of the Buyers Group to provide advance notice of this tender, indicate the wider demand for low carbon vending solutions and launch a period of pre-procurement market sounding and consultation.

Prior to beginning Market Sounding, the University and project partner JMFC carried out a review of current vending provision and identified that it needs to modernise its vending service to ensure that it is fit for the future in terms of environmental impact, energy efficiency, whole life cost and quality of service to users. In advance of launching a period of market sounding the University and Johnson Matthey consulted with the users of their vending services and with the wider buyers group to determine an Outcome Based Requirement.

The conclusion was that the University and wider buyers group needs a vending service that is low carbon, environmentally sustainable which demonstrates whole life cost savings and delivers a sound commercial opportunity for both the provider and the customer.

A Market Sounding Prospectus was published setting out the context and nature of the requirement and detailing the outcome that the customers require from the vending service. This document has provided the basis for dialogue with the supply chain.

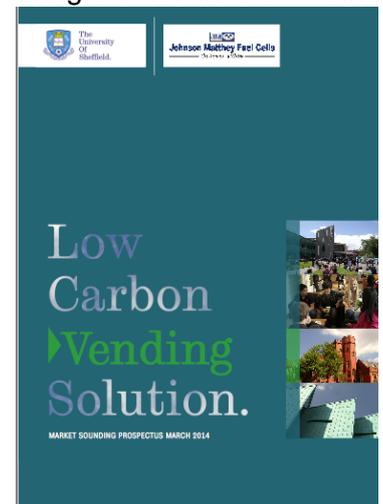
*The outcome based requirement and all other public documentation relating to this project can be found on the University Website (<http://www.sheffield.ac.uk/procurement/suppliers-information/vendingservices>).*

The market sounding concluded in September 2014 and the project team has been greatly encouraged by the responses they have received.

It was clear from the market sounding responses that some suppliers are actively engaging with the requirement to provide goods and services that address the global carbon emissions challenge and are able to offer solutions that will lead to progressive reductions in operational carbon. Some suppliers are looking at the carbon footprint of their service provision, for example through smart logistics and low emission vehicles.

Less evident in the responses was consideration of embedded carbon in the supply chain, although there are some promising indications from a handful of suppliers. In many cases the default option was to simply propose carbon off-setting. The responses suggest that the supply chain needs to do more work in this area to demonstrate a commitment to reducing embedded carbon, managing carbon in its supply chain, and moving to low carbon operations.

Overall it was evident that part of the supply chain is keen to distinguish their offering on eco and quality criteria but that they need to be convinced the customer is serious and able to value this outcome.



### 3.1 Summary of Market Sounding Feedback

This summary was collated from the responses received in market sounding in response to the following questions:

- What is your company's or organisation's area of expertise or interest?
- What solutions, goods or services are **currently** available from the supply chain that would contribute to delivering the required outcomes?
- What innovative solutions, goods or services **could become available** from the supply chain that would enable these improvements to be made?
- Are there barriers or problems (practical, legislative, commercial, technical etc) that will need to be overcome?
- Would a "forward commitment" be useful in enabling the supply chain to deliver a solution? What difference would it make to the supply chain?

#### Profile of respondents

A directory of all the organisations that responded to the market sounding was published on the website in October 2014.

#### Solutions that would contribute to delivering the required outcomes

The following tables summarise the content of the market sounding responses.

Eco Features
Energy rating A+ and A++ vending machines potentially A+++
Energy Management Systems/ power down / intelligent timing and programming / time events and standby modes
LED lighting
Logistics, route planning
Carbon off-setting
Recyclable machines
Fair trade, organic and other environmental standards for vended goods
Flash boilers
Insulation
Environmentally friendly refrigerants
Use of public transport and electric vehicles
Energy efficient operations
Manufactured from recycled materials
Flash cooling technology
Cup sensor allowing use of own cup
Low carbon vending machines using fuel cells
Recyclable machine components
Remote monitoring, programming and upgrading
More efficient heating and cooling systems



<b>Other Features</b>
Bespoke customer vending
Healthy options
Cashless vending
Use of own cup
Allergy information
Design and aesthetics
Live monitoring of use
Service options e.g. Self fill or full service
Digital communication with user
Card/key or smartphone cashless solutions
Healthier snacks and ethically sourced
Advanced touch screen and media technology
Remote monitoring, programming and upgrading
Credit card payments
Telemetry devices

<b>Barriers identified</b>
Smartphone solutions in early stages involving usual add on costs
Legislation failing to drive innovation
Costs and investments out of reasonable payback
Security and logistics barriers for new technology e.g. fuel cells
Increased manufacturing costs until sufficient demand to drive large scale production

<b>Other comments</b>
Need a genuine customer demand for healthy options
Forward commitment would enable development of innovative solutions and progressive improvements
Longer term contracts would support greater innovation and delivery of objectives
Are customers willing to change habits?
Demand is needed to drive innovation
Need to serve high footfall areas with no catering option
Low footfall or take up areas - not environmentally or economically sustainable

### 3.2 Questions raised in Market Sounding

Question	Answer
<b>Who is the current supplier?</b>	This is currently split between 3 suppliers: Wilkes Vending Solutions Ltd, Coca-Cola Enterprises, Pelican Rouge
<b>What quality of drinks is required?</b>	This would be subject to further research and discussion during Competitive Dialogue to establish market needs, options, costs and benefits. One of the outcomes identified is to meet changing needs of the customer base over time.
<b>What is the scope and scale of the contract?</b>	The tender will be for supply to the University and those organisations that wish to join the buyers group. The mechanism for the inclusion of this wider market is still being discussed.
<b>Would we consider single or multiple suppliers?</b>	We would consider one or more suppliers
<b>What are the preferences for service (e.g. self fill)?</b>	At this point we are open to considering alternative models of service that can deliver the outcomes we have set out and the relative merits of different options will be discussed during the Competitive Dialogue.
<b>What is the current footfall and number of machines?</b>	The University of Sheffield and the University of Sheffield Students' Union has a combination of 70/75 machines. There are over 32,000 students and staff.
<b>Can we have a copy of the site map and usage figures?</b>	This information will be added to the website
<b>What are the details of the Buyers Group and the scale of opportunity?</b>	University of Birmingham, The Rotherham NHS Foundation Trust, Bedford College, University of Huddersfield, University of Bradford, University of Sheffield Students' Union, University of Leeds, The University of Manchester, Swindon University Technical College, University Hospital of North Staffordshire Dublin Institute of Technology, The Central Procurement Company of Lombardy Region. We are still gathering information on the size of the wider market in the Buyers Group although responses so far suggest in that they operate well in excess of 400 machines.
<b>How many/type of machine are needed?</b>	We are looking for a solution that delivers the outcomes and have no fixed view on the number of machines. We would look to suppliers to propose what is required to deliver the outcomes.
<b>What is the product requirement (foodstuff/drinks)?</b>	Combination of cold, hot drinks and foodstuffs and ability to meet customer needs as they change over time.
<b>As final consumers, are we ready to change our habits?</b>	Delivering a vending service that meets the needs of customers will require an understanding of the breadth of needs and preferences and creativity in presenting and marketing alternatives. The findings of the survey indicated that there was an appetite for options such as fair trade, organic, allergen free etc.
<b>Do you have any information on the current energy efficiency of your vending machines?</b>	Currently very little. During late summer 2014, we monitored the energy consumption of a small sample of (indoor) vending machines at the University and found that the consumption per day ranged between 3.4Kwh and 6.4Kwh (depending on whether it was a hot beverage, cold drink or snack machine). This is not likely to be representative as it was carried out during student holidays and would increase dramatically during term time. The age of machines varies across the site and a proportion of our current vending machines are refurbished, hence we would anticipate a diversity in their energy efficiency. More data collection may be needed.

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## 4 Market Consultation

### 4.1 Workshop and Site Visit

A supplier consultation workshop and site visit was held on 6 November 2014 at The University of Sheffield, facilitated by JERA Consulting.

The supplier consultation meeting aimed to facilitate a deeper discussion and dialogue with the supply chain in advance of the formal procurement process beginning. It also provided an opportunity for suppliers to meet the project team and representatives of the wider Buyers Group.

The meeting was well attended with representatives from across the supply chain. A list of participants can be found in Annex A.

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### 4.2 Workshop Agenda

09.30 Registration and refreshments

10.00 Welcome and introduction to the day – Jessica Osowski, Category Manager

10.10 The Low Carbon Vending Services Project – Steph Holmes, Head of Procurement

The INNOCAT Project and Procurement Process – Gaynor Whytes, JERA

Questions and discussion

11.00 Workshop session, feedback and discussion

12.00 Closing address - Mrs Pat McGrath- Director of Accommodation and Commercial Services

The workshop was followed by networking and a site visit.

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### 4.3 Workshop Presentations

The presentations provided the supply chain representatives with background and context of the project and helped to clarify the University's requirement and approach to procurement.

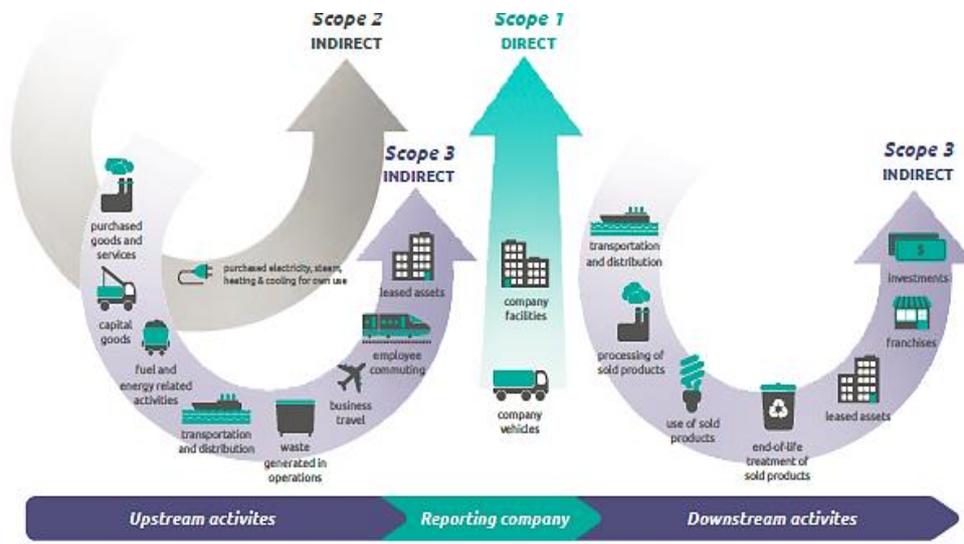
The presentations can be found on the project webpage:

<https://www.sheffield.ac.uk/procurement/suppliers-information/vendingservices>

Key points from the presentations:

- The University of Sheffield and the wider buyers group are keen to demonstrate a commitment to low carbon solutions.
  - The University of Sheffield has a challenging carbon reduction target of 43% by 2020 and are involved in a number of carbon reduction schemes
  - The University is a signatory to the Towards Zero Carbon Catering Compact, led by the Department for Business, Innovation and Skills and the Prince of Wales UK Corporate Leaders Group on Climate Change.
  - We are asking the supply chain to reduce embedded carbon i.e. look beyond operational carbon and look to making progressive improvements over the life of the contract
  - We aim to provide an opportunity for the supply chain to differentiate themselves on factors other than price
  - This project has taken the innovation procurement approach as existing solutions and “business as usual” approaches will not deliver what is needed
  - The public sector approach to innovative procurement has developed the Forward Commitment Procurement tool in which to stimulate, encourage and enable innovation.
  - Key features of FCP include user consultation, pre-procurement market engagement, use of outcome based specifications, pro-innovation procurement processes, whole-life costing
- The workshop was concluded by a closing address from the University of Sheffield, Accommodation and Commercial Services Director, Mrs Pat McGrath.

- Key points from Pat McGrath
  - Pleased and encouraged by the number of participants and response to the market engagement process.
  - The University of Sheffield is committed to procuring environmentally sustainable goods and services
  - By re-thinking the way that we buy and by understanding our carbon consumption, we can play our part in addressing global issues and be ambitious in asking our suppliers to work with us.
  - This is a significant project for the University and thanked everyone for their attendance which shows how significant it is for the supply chain too.
  - She hoped that the information that they had received would motivate the supply chain to address our needs and consider how they could contribute to the challenge.
  - Pleased to see the developments and commitment from the supply chain in tackling carbon emissions and she looks forward to the outcomes of the procurement exercise.



Map of direct and indirect carbon emissions (provided by Best Foot Forward), see presentation by Gaynor Whyles on project website.

#### 4.4 Workshop Discussion Session

The workshop discussions among small groups of suppliers provided a forum for exchange and debate. The participants were invited to consider the following questions ahead of the workshop:

- What are the opportunities for carbon reduction in the supply of vending services?
- What are the barriers to delivering a low carbon vending service?
- What would support the supply chain to deliver a low carbon vending service?
- How can our procurement process support on-going supply chain innovation to deliver progressively lower carbon vending services?
- What business model would you propose for this contract?

The workshop sessions focussed on three themes:

- Where is the carbon and opportunities for reduction?
- How can our procurement process support on-going supply chain innovation to deliver a progressively lower carbon vending services?
- What business model would you propose for this contract?

The following is a record of the points captured from the workshop sessions and feedback.

#### **Where is the carbon and opportunities for reduction?**

##### **Equipment**

- Converting to less harmful gas in the refrigeration process, currently testing the use of CO2
- LED lighting
- Intelligent storage
- Give customer the option to use their own cup...not just for hot drinks but cold drinks too!
- Energy management systems
- Insulation
- Telemetry – right stock levels – no wasted visits
- Old inefficient machines replaced by new efficient units
- Right machine for the location – why 2 machines when a single combi will cover the need?
- CSR team within manufacturers to ensure embedded carbon is monitored and reduced
- Fuel cell technology rather than mains power generated by fossil fuels
- Effective filtering to remove lime scale – which causes inefficient heating in boilers
- Use of one large machine that holds multiple stock
- Pop-up stand/trolley to replace low volume machines
- Look at where the machines are manufactured (overseas vs UK)

## Operation

- Environmental controller – Temperature and Timers
- Preventative maintenance
- Fully managed vs Self fill
- Multi-skilled workforce
- Pick-up/drop-off points for components needed to repair/service the machines
- Location of vending machine has to be viable. Can other options be used for low footfall areas?

## Transport

- Clean transport
- Smarter transportation
- Route management
- Alternative modes of transport (walking, cycling, electric vehicles)
- Charge points for electrical devices/vehicles
- Sheffield is a congested city – less transport good for carbon and business

## How can our procurement process support on-going supply chain innovation to deliver a progressively lower carbon vending service?

- Longer contract term required for return on investment
- Use a higher weighting on sustainability in the award criteria
- Single source for all vending (hot drink, cold drinks, confectionery) would result in less vehicles on site
- Buyer to contribute towards, or pay the full costs of new vending machines
- Customer needs to value outcomes and not evaluate on finances alone

## What business model would you propose for this contract?

There was general agreement from participants that the University would need to consider alternative business models and contracting approaches to enable suppliers to deliver the required outcomes.

For example:

- A longer-term contract would be needed to enable investment in innovative solutions such as more carbon efficient machines.
- Customer purchase of some or all machines
- Alternatives to vending in low footfall areas
- Transparency of income and costs i.e. an “open book” accounting methodology to enable a partnership approach to the contract.
- On-going review process and KPIs on progressive improvements
- Flexibility – to enable the contract to adapt to changing needs and circumstances
- Communication and improvements processes in place
- Variable rather than fixed returns
- Win – win attitude and partnership approach



## Discussion, questions and comments

This is a summary of the comments and questions discussed in the Q&A and group feedback sessions.

- Why can't vending machines be more attractive?
  - Attractive vending machines are available but tend to be limited to what are considered high specification environments
  - There should be no reason why attractive vending machines and good design costs more
  - Suppliers need to understand the relative importance to the customer of features such as design and aesthetics versus advertising and sales
  - It is a question of what is most suited to the environment rather than one size fits all
- How can we deal with low footfall areas? Running a machine for small weekly takings does not make sense environmentally or economically, but hard to convince people to lose their vending machine. What are the alternatives? Do we need to understand their needs better?
  - Sometimes it can be appropriate for the supplier to say 'no' to requests for machines in unsuitable locations
  - We would expect that going forward this sort of issue would be addressed within regular contract, innovation and improvements review meetings
- It would be beneficial to move away from a 'competition' with other catering outlets and look at how we can work together to meet the customer's needs.
  - This comment will be taken to the internal project team for discussion.
- How is the current concession operated?
  - Our current providers install vending machines at their cost. The University determines the number and location and type of vending supplied. Depending on the footfall the provider installs a range of machines i.e. new and used.
  - The University pays for the electricity to run the machines and any income received from them is split between the provider and the University. The provider is responsible for maintaining, repairing and restocking the vending machines.
  - *NOTE: This account of the current situation is given for information and should not be assumed to be the preferred model for future contracts.*

- Do you have information on the student population breakdown? – we need to be able to meet the needs of a wide student population (see tables below).

<b>Non EU and International</b>	<b>FT</b>	<b>PT</b>
Number of Under Graduate students	3169	122
Number of Post Graduate students	2631	123
Number of Post Graduate Research students	981	38
<i>Sub total</i>	<i>6781</i>	<i>283</i>

<b>Home/EU</b>	<b>FT</b>	<b>PT</b>
Number of Under Graduate students	14578	663
Number of Post Graduate students	1237	1086
Number of Post Graduate Research students	1283	385
<i>Sub total</i>	<i>17098</i>	<i>2134</i>

<b>All Students</b>	<b>FT</b>	<b>PT</b>	<b>TOTAL</b>
Total number of Under Graduate	17747	785	18532
Total number of Post Graduate	3868	1209	5077
Total number of Post Graduate Research	2264	423	2687
<i>Total number of students</i>	<i>23879</i>	<i>2417</i>	<i>26309</i>



## Comments from supplier chain representatives and stakeholders

A comments and questions board was available for participants to post thoughts and ideas during the workshop and networking sessions:

- I found this event incredibly informative & stimulating
- If I wasn't already aware it is now abundantly clear to me that the Vending market is prime for major review, not only in terms of its' sustainability but from a commercial & simple 'image' perspective.
- The breadth of attendees and particularly, the spread of interests on my table gave great balance to the event.
- I listened to, and engaged with, suppliers ranging from the mega Coca Cola, to a Spanish machine manufacturer, to a vending consultant, to a small supplier very keen to enter the sector, provided huge insight to the challenges, drivers and ethos of the marketplace.
- Accepting that there are good examples of excellent design and cashless vending, the standout comment for me was from a University of Sheffield employee who commented that "Through the eyes of most of the public vending machines haven't changed very much for many years" – I sign on to that comment in that the physical shape is more or less the same, the same energy usage challenges are there, issues regarding stock outage and change availability etc still exist in the manner they did 50 years ago !
- The University of Sheffield Procurement Departments Vending Sustainability project hits all the spots.
- This is exactly what suppliers need – clear and early notification of a customers needs.
- The idea of speaking to suppliers before tender is a good one - of great benefit to us and we hope useful to the University.



## Annex A

### Market Consultation Workshop - Participants

Company / organisation	Participants
Border Vending NW Limited	Amanda McDonagh
Coca Cola Enterprises	David Ridley, Steve Fernley
Coffetek Limited	Ian Johnston, Stuart Neal
Jofemar	Vassilis Gotsis
Livewell Vending	Jo Watson
LTT Vending Group	Rishi Ladva, Robin Turver
Lucozade Ribena Suntory	Gareth Jones
Parcel Holders	Edward Fraser, Monika Douglas
Pep Vending	James Oladujoye, Ben Kistell
Refreshment Systems	Sandy Rankin
Thirst Link Consulting Limited	Andy Stephenson
The Upton Group	David Elsey
Wilkes Group	Stuart Worth , Mark Booth
Internal Project Group: The University of Sheffield	Gavin Brown, Peter Anstess, Steph Holmes, Jessica Osowski, Caryn Masters, Phil Riley, Pat McGrath
The University of Birmingham	Jane Colbourne, Louise Sherratt
North Eastern Universities Purchasing Consortium	Glyn Evans
JERA Consulting	Gaynor Whyles (workshop facilitator)