GDN Collaborative Vulnerability & Carbon Monoxide Allowance (VCMA)

Project Eligibility Assessment (PEA)

Raising CO Awareness using Augmented Reality

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Gas Network Vulnerability & Carbon Monoxide Allowance (VCMA) Governance Document - Project Eligibility Criteria

Section 1 - Eligibility criteria for company specific projects (other than condemned essential gas appliance repair and replacement) In order to qualify as a VCMA project, a project must:	
VCMA Eligibility Criteria	**Criteria Satisfied (Yes/No)**
a) Have a positive, or forecasted positive Social Return on Investment (SROI), including for the gas consumers funding the VCMA project;	**Yes**
b) Either: **i.** Provide support to consumers in vulnerable situations, and relate to energy safeguarding, or **ii.** Provide awareness on the dangers of CO, or **iii.** Reduce the risk of harm caused by CO;	**Yes**
c) Have defined outcomes and the associated actions to achieve these;	**Yes**
d) Go beyond activities that are funded through other price control mechanism(s) or required through licence obligations; and	**Yes**
e) Not be delivered through other external funding sources directly accessed by a GDN, including through other government (national, devolved or local) funding.	**Yes**
Section 2 - Eligibility criteria for company specific essential gas appliance servicing, repair and replacement projects In order to qualify as a VCMA project, unsafe pipework and essential gas appliance servicing, repair or replacement must meet the following criteria:	
a) A GDN has to isolate and condemn unsafe pipework or an essential gas appliance following a supply interruption or as part of its emergency service role;	**N/A**
b) The household cannot afford to service, repair or replace the unsafe pipework or essential gas appliance; and;	**N/A**
c) Sufficient funding is not available from other sources (including national, devolved or local government funding) to fund the unsafe pipework or essential gas appliance servicing, repair or replacement.	**N/A**
Section 3 - Eligibility criteria for collaborative VCMA projects In order to qualify as a collaborative VCMA project, a project must:	
a) Meet the above company specific and boiler repair and replace (if applicable) project eligibility criteria;	**N/A**
b) Have the potential to benefit consumers on the participating networks; and	**Yes**
c) Involve two, or more, gas distribution companies.	**Yes**

Gas Network Vulnerability and Carbon Monoxide Allowance (VCMA) Governance Document - Project Registration Table 2

Information Required	Description
Project Title	Raising CO Awareness using Augmented Reality
Funding GDN(s)	The GDN(s) which register(s) the VCMA project NGN Cadent SGN WWU
Role of GDN(s) ***For Collaborative VCMA Projects only**	The specific role(s) of GDN(s) participating in a collaborative VCMA Project NGN – Lead GDN Cadent, SGN and WWU – Participating GDNs
Date of PEA Submission	September 2023
VCMA Project Contact Name, email and Number	Steve Dacre/Stephanie Ord SDacre@northerngas.co.uk / 07778 733867 SOrd@northerngas.co.uk / 07704 545200
Total Cost (£k)	£80,000 - £20,000 per GDN
Total VCMA Funding Required (£k)	£80,000 Cadent - £20,000 NGN - £20,000 SGN - £20,000 WWU - £20,000
Problem(s)	Carbon Monoxide (CO) can pose a serious threat to human health and even fatality, with around 30 - 40 deaths caused by CO poisoning each year in the UK and 4,000 people treated in hospital as a result of CO poisoning. Lack of awareness of the risks of CO and ways in which to prevent CO harm are major contributing factors to the current number of CO-related deaths and injuries, with safety devices such as CO alarms available as a relatively low-cost item and widely accessible. Gas and CO safety research carried out collaboratively by all GDNs in 2020 showed awareness of CO poisoning fatality was significantly lower amongst younger people (82% for 16-24yr olds compared to 92% overall) and this age group is far less likely to have a working audible CO alarm (26% compared to 63% of 65 – 74yrs) and less likely to think it important to have gas appliances annually services (79% compared to 97% for 65-74yr olds). It also showed that nearly half (49%) of 16-24yr olds thought that CO had a smell. Engagement with safety awareness campaigns is often particularly low amongst young people (18-25). Competing for their attention is a difficult task even when imparting potentially lifesaving information. Students moving into rented accommodation, attending festivals and having barbecues and bonfires are however at increased risk from carbon monoxide poisoning.
Scope and Objectives	We aim to increase levels of carbon monoxide awareness within the university student population by creating a targeted campaign which is entertaining enough to compete for young people's attention and also incentivises them to engage with CO awareness training in the first place. **Objective** Our objective is to increase the student population's awareness of carbon monoxide poisoning through an engaging training course taken across campus coffee shops. We will measure the increase in awareness using short questionnaires at the start and end of the course and the number of users by tracking how many vouchers are produced. The system will also allow the user to socially share that the incentive exists and that they have taken the course to help promote the scheme across the student population.

Method
Our method can be split into two sections:

Incentive
In our experience the best way to engage users, especially students, is to provide a small, instant incentive to engage with the content. Larger incentives, such as being entered into a competition for example, have a lower take up rate if the user is required to complete any kind of course. Therefore, we are proposing working with universities who the partner GDN's already have good relationships with to promote our CO awareness campaign in their campus coffee shops and cafes. The campaign would allow the user to claim a free drink from the coffee shop they are in if they complete the CO awareness course outlined below. This has the following benefits:

1. It is instant reward and is more likely to be taken up by the users than many other campaigns and offers on campus.
2. The reward is relevant to where the user is and what they are doing and therefore enhances the likelihood of take-up.
3. It is being offered in a place where the user is less likely to also be asked to do many other tasks. During Fresher's week and throughout student life, many areas of campus have offers and projects which compete for student's attention. Using a calmer place like coffee shops, where the student is more likely to have time to think about CO awareness and absorb the information given, maximizes the potential to reach the target demographic in a receptive mood.

Engagement
In order to ensure the user engages with the CO awareness training, it needs to be presented in an engaging way. We will produce coasters which are placed on the tables in the coffee shops which, when viewed through a smart device create augmented reality interactive animations. The animations will show the user the causes, dangers, affects and mitigations of carbon monoxide poisoning. These 3D models will appear on the table where the coaster has been placed and the user can zoom in and out and move around by moving their smart device. These models will take the user through the CO awareness training through an approximately 3 minute long AR video. An example can be seen by scanning the following QR code and using the below glyph to view a model house.

This innovative method of presenting CO awareness information will ensure continuous user engagement throughout the training, after which they will be provided with their voucher for a drink. When presenting this proposal to the NGN Young Innovators Council, it was met with overwhelmingly favourable responses from the same demographic as we are targeting with this project.

We have made early contact with the University of Birmingham Guild of Students to gauge potential interest in the project and they have given positive feedback around the feasibility and potential for the outline project.

Scope
The project can be split into the following deliverables:

1. Bespoke printed coasters are placed on tables in campus coffee shops with a QR code printed on one side and a glyph printed on the other. The coaster

will also have clear instructions of what it is for and how to use it (see below).

2. The coaster will explain that it is to help the student learn more about the dangers of Carbon Monoxide, how to spot the symptoms of CO poisoning, and what they can do to keep safe. Importantly, it will also inform them that if they complete the short interactive course, they will receive a voucher for a free drink at the coffee shop they are currently sitting in. We have found that this small, immediate incentive works best for maximising levels of initial engagement with a course.

3. Scanning the QR code on the coaster will take the student to a web page. The page will ask the user for permission to access their device's camera and instruct the user to turn the coaster over to reveal the glyph printed on the other side.

4. The webpage will use the glyph printed on the coaster, visible through the device's camera, to show the user a series of 3D models placed on the table in front of them using augmented reality. The user will be able to move their device around to see different angles of the models and move closer and further away to zoom in and out. The models can be animated and changed by the web page.

5. Following a similar storyboard and design aesthetic to the NGN Carbon Monoxide Hero campaign, the web page will use these augmented reality models to demonstrate and inform the user about carbon monoxide. It will first ask a number of questions to measure the user's current CO knowledge. Following that it will run through a series of animated 3D videos which appear on the table to explain and inform the user about carbon monoxide:
    1. A small area of grass will appear on the table with 40 headstones explaining that around 40 people a year die from carbon monoxide poisoning.
    2. The grass will be replaced with a hospital building stating that 4,000 people a year are admitted to hospital with CO poisoning.
    3. A series of domestic appliances such as boilers, cookers, barbecues etc will appear alongside an explanation of how CO is produced.
    4. A human body appears with cut-away sections to show the affects CO has on their body and how to spot the physical signs.
    5. Flames, flues and windows will appear to show how to spot the signs of carbon monoxide.
    6. A house, a barbecue, a campfire with tent and a boat will appear. The user clicks on each in turn to find out about the dangers and what to avoid (never taking a barbecue into a tent, ensuring CO alarms are fitted and working, taking a CO alarm with you on travels etc).
    7. What to do if you suspect CO will be the final series of models

6. The user will then be tested again to see if their CO awareness has improved. This improvement metric will be stored by the system, but personal details of the user will not. By using a different QR code for each location, the system could also register where the session was taken.

7. The user will then be provided with a voucher for their free drink. This is most likely to be via an email which can also carry all the pertinent information about CO and what to do with the voucher.

Through the two sets of questions, we will be able to measure increase in CO awareness across the target student demographic and which aspects of CO awareness are lowest. These insights will be provided to the partner GDN as an ongoing deliverable.

	We will run the campaign for as long as the supply of coasters is available, depending on how many are printed (an initial run of 1000 can be added to on demand). We will print an initial 1000 coasters each of which can be used many times. For scale, a university such as the University of Leeds has more than 38,000 students, Birmingham has 28,000, Edinburgh has 49,065 and Cardiff has 33,000. The vast majority of students will regularly use the catering facilities on campus and the immediate areas. Therefore, the potential customer reach is in the tens of thousands and potential for CO awareness surveys is in the many thousands. If for example we assumed 20% of students used a coffee shop, visibility numbers would be 7,600 at University of Leeds, with support and communications from the appropriate teams, we might expect a 5% engagement with the tool which would equate to 380 CO awareness surveys in that coffee shop. In terms of reach the project aims to engage with: • Birmingham University - 280 • Leeds Beckett University - 380 • University of Edinburgh- 491 • Cardiff – 330 The project will be split into the following milestones: 1. **Storyboard development**. This is where we agree on the flow of the video, the messages delivered, and the models associated with each section. **Deliverable:** agreed storyboard. **Funding:** £2,500 2. **Development of the 3D models used in the course.** This will include all animation and text which will appear alongside the models. **Deliverable:** a complete set of 3D models ready to be used in the web app. **Funding:** £10,500 3. **Development of the web app platform.** This is to include the questionnaires, the 3D model placement and the method to produce vouchers. We will also user test the platform on a number of popular mobile devices for functionality and accessibility requirements. **Deliverable:** A fully functioning web app hosted on a live web server and which can be accessed via a QR code. **Funding:** £22,000 4. **Design and printing of the coasters / MarComms channels.** We will work with the partner GDN Marketing and Communications Team to produce an on-brand coaster which serves as both a messaging tool but also holds the QR code and glyph required to make the platform work. **Deliverable:** 1000 printed coasters per GDN **Funding:** £2,500 per GDN (£10,000 total) **Incentive scheme.** We will work alongside the partner GDNs to engage with universities and their estates teams and providers to agree on the incentive scheme for each university. Coasters will then be provided to each outlet participating in the project. **Deliverable:** a number of participating outlets.
Why the Project is Being Funded Through the VCMA	This project meets the criteria for VCMA in the following ways: **1.Have a positive, or a forecasted positive, Social Return on Investment (SROI) including for the gas consumers funding the VCMA Project;** Raising awareness of CO in the student community will not only provide those young people with life-saving information for the future, but it will also help them to identify potentially dangerous appliances in their accommodation, reducing the risks for future tenants.

	This project has a positive forecasted SROI of £3.51 **2. Provide awareness of the dangers of CO** Using a unique incentive scheme to ensure engagement with the course maximises the likelihood that the information will be absorbed and used by the users. The content of the course and the nature of the 3D videos are designed to appeal to that demographic and deliver the important CO awareness content in an easy to understand and digest way. **3. Have defined outcomes and the associated actions to achieve these** We will be able to measure the number of students reached by the number of vouchers produced by the system and the increase in CO awareness by measuring the difference in responses to the questionnaires at the start and the end of the course. **4. Go beyond activities that are funded through other price control mechanism(s) or required through licence obligations** We believe project goes beyond other CO awareness campaigns by using innovative, cutting-edge technology and a unique incentive method to directly target the student and young person community. **5. Not be delivered through other external funding sources directly accessed by a GDN** No other external funding is being used by the GDN
Evidence of Stakeholder/Customer Support	**NGN Young Innovators Council feedback** In order to test our aims and objectives with an appropriate audience, we introduced the project to the NGN Young Innovators Council (YIC) in February 2022. This group consists of 26 young people of high school through to university age and represent a good cross section of the target demographics for this project. The YIC had previously identified augmented reality as a potential method for CO awareness which demonstrates the potential acceptance and engagement for the project. We drew on that feedback and combined it with an incentive system which we think will appeal to the demographic to create a short presentation and demo for the YIC. We demonstrated the 3D model using a mock-up of a coaster and a basic house model and explained the incentive ideas. There was then a number of breakout sessions during which the YIC members were invited to provide feedback and ideas for the project. Their feedback was overwhelmingly positive – 94% of the group would 'definitely', 'probably' or 'potentially use the app' with only 6% saying probably not. The ideas for the app which the YIC came up with during the breakout sessions were very exciting and many will be incorporated into the project. The ideas included rolling it out further to other venues and locations such as bus tickets etc and tailoring the incentives to different locations and audiences. They also thought the system could work to help increase knowledge over time by allowing participants to do the course several times with the information tailored to their initial level of knowledge (as measured by the first questionnaire). This feedback demonstrates that the YIC clearly thought this project had potential and a shelf life beyond this initial pilot project. The YIC ideas also highlighted the need for the app to be accessible and not to store private information about the user, which we will ensure is incorporated into the development of the web app. Being able to share the messaging and availability of the tool through social media was also highlighted and we will work with NGN Marketing and Communications to work up these channels during the development phase and throughout the project being live. We have made early contact with the University of Birmingham Guild of Students to gauge potential interest in the project and they have given positive feedback around the feasibility and potential for the outline project.
Outcomes, Associated Actions and Success Criteria	Total number of universities is 4 – one per GDN. The number of coffee shops may vary for each university, with a minimum of 1 per university (to be confirmed once each university is engaged with).

	We expect to reach approximately 5,000 students per participating University, 20,000 in total, who will be made more aware of the dangers of CO and how to keep themselves and others safe. We'll be asking participating students to complete a pre and post CO awareness questionnaire, and we're expecting around 5% of students to complete this questionnaire. This should give us approx.1000 CO surveys that will help us to understand the impact of this project and innovative method of engagement, particularly with the student demographic. The questionnaire can only be completed by students with an email address ending in '.ac.uk'. The planned and measurable outcomes for this project are: • Coffee shop coasters developed to provide CO safety information to students from 4 universities • Students that complete the Augmented Reality videos/model will have increased awareness in CO safety advice/guidance as well as identifying potential CO risks in homes • Vulnerable students are more aware of the dangers of CO, reducing their own risk of CO harm • Approx.1000 CO surveys completed by students Success Criteria: • We will be able to measure the number of students reached by the number of vouchers produced by the system • Increase in CO awareness by measuring the difference in responses to the questionnaires at the start and the end of the course. • The coasters are accessible and easy to use • Reducing risk of CO in the student population
Project Partners and Third Parties Involved	We will partner with individual Universities and their vendors for the location of the mats and providing the incentive. **Lead VCMA Funder:** NGN **Supporting VCMA Funders:** Cadent, SGN and WWU **Delivery Partners:** EGNIDA – are a technical consultancy specialising in vulnerability in the energy sector.
Potential for New Learning	There are two significant points of learning; how best to engage hard-to-reach student audiences with carbon monoxide awareness and how augmented reality can be used in training objectives. Both of these are relevant across the gas sector and DNOs are likely to have similar awareness requirements for students and could benefit from augmented reality training systems. Using AR as a training method has the potential to revolutionize training across the sector. Whilst this is a simple early trial, designed to work on as many devices as possible, more complex, immersive training tools could be created for public and staff which allow interaction with virtual items in the real world. We think this is a simple low risk place to trial this technology but are excited about where else augmented and virtual reality training could lead.
Scale of VCMA Project and SROI Calculations	The cost of the project is £80,000 (pilot) - £20,000 per GDN. 1000 coasters will be printed for each GDN. We worked with WWU and their SIRIO Social Value model to forecast the social value and SROI for this project. Using proxies aligned to CO education and the wellbeing and financial benefit they provide, we've forecasted a positive net SROI of £3.51, and an NPV of £275,432.46
VCMA Project Start and End Date	Development will start upon approval. The trial will be timed to coincide with either the warm weather when festivals and barbeques become more prevalent or Fresher's week, depending on approval timescales. We expect the project development and engagement with universities to begin during October 2023.
Geographical Area	There is no geographic constraint to the project, other than the coasters need tables to be on and a good data connection. Campus wifi is ideal but for non-campus

	locations, coffee shops usually offer wifi to their customers or a 4G data connection would also work. This project however will focus on campus coffee shops of universities who already have relationships with the partner GDNs as follows: Cadent – Birmingham University NGN – Leeds Beckett University SGN – University of Edinburgh WWU – Cardiff University.
Remaining Amount in the Allowance at Time of Registration	Remaining funding left in the Licensee's/ Licensees' funding pot. Amount before this project: TBC Project costs: TBC Remaining following this project: TBC

Gas Network Vulnerability and Carbon Monoxide Allowance (VCMA) Governance Document - PEA Control Table

In order to ensure that a VCMA project is registered in accordance with the Ofgem VCMA governance document (incl. project eligibility assessment), the below table should be completed as part of the project registration process.

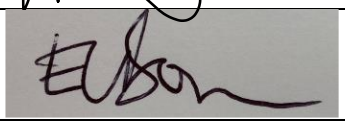
Stage 1: GDN Collaboration Group PEA Review
Meeting date review completed: 08.06.2023
Review completed by:

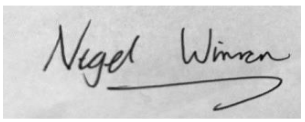
GDN:	Name:	Job Title:
Cadent	Suzanne Callington	Customer Safeguarding Specialist
NGN	Stephanie Ord	VCMA Project Coordinator
SGN	Dan Edwards	Social Impact Programme Lead
WWU	Sophie Stone	Communities & Partnerships Officer

Stage 2: GD2CVG Panel Review
Meeting date sign off agreed: 14.09.2023
Review completed by:

GDN:	Name:	Job Title:
Cadent	Phil Burrows	Head of Customer Vulnerability Social Programme Delivery
NGN	Steve Dacre	Vulnerability Innovations Lead
SGN	Maureen McIntosh	Director of Customer Services
WWU	Nigel Winnan	Head of Customer and Social Obligations

Step 3: Participating GDN individual signatory sign-off

GDN	Name:	Job Title:	Signature:	Date:
Cadent:	Phil Burrows	Head of Customer Vulnerability Social Programme Delivery		29/09/2023
NGN:	Eileen Brown	Customer Experience Director		17/10/2023

SGN:	Rob Gray	Director of Stakeholder & Communications		11/10/2023
WWU:	Nigel Winnan	Head of Customer and Social Obligations		06/10/2023

Step 4: Upload PEA Document to the Website & Notification Email Sent to Ofgem (vcma@ofgem.gov.uk)
Date that PEA Document Uploaded to the Website: 19/10/2023
Date that Notification Email Sent to Ofgem: 19/10/2023