GDN Collaborative Vulnerability & Carbon Monoxide Allowance (VCMA)

Project Eligibility Assessment (PEA)

Preventing Harm from Environmental Exposure to Carbon Monoxide (PHECO) - E-Learning For Health

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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;	**i, ii and iii - 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	**Preventing Harm from Environmental Exposure to Carbon Monoxide (PHECO)**
Funding GDN(s)	**Cadent, NGN, SGN and WWU**
New/Updated (indicate as appropriate)	New
Role of GDN(s) *For Collaborative VCMA Projects only	The GDNs will provide specific industry guidance and support to the task and finish groups for each of the four project modules. Lead GDN: Cadent Other GDNs involved: SGN, NGN, WWU
Date of PEA Submission	TBC
VCMA Project Contact Name, email, and Number	Suzanne Callington, Suzanne.callington@cadentgas.com
Total Cost (£k)	£190,850 excluding vat
Total VCMA Funding Required (£k)	£190,850 excluding vat funding per GDN: Cadent: 49.80% = £95,043.30 +vat NGN: 11.56% = £22,062.26 +vat SGN: 27.07% = £51,663.10 +vat WWU: 11.57% = £22,081.34 +vat **TOTAL: £190,850.00 +vat**
Problem(s)	Awareness of the dangers of carbon monoxide (CO) poisoning, and how to ensure that those who are exposed are protected, is low amongst health and social care staff. This is particularly an issue when staff are working with the most vulnerable groups, including pregnant women and older people. CO symptoms can be non-specific and mimic other conditions. Health/social care staff need not only the knowledge and skills, but also the resources to support identification of CO poisoning. In 2020 the GDNs surveyed 8,000 people and only 42% had a working audible alarm. Within the CO in pregnancy study data to date is suggesting only about 65% have an alarm. There is a lack of robust pathways and protocols to ensure that those identified as potentially being exposed, receive any treatment required and are promptly protected from future harm, without leaving them vulnerable in other ways e.g. from cold and lack of cooking facilities. There is also a need to ensure that records accurately show when CO has been a contributing factor this ensures accurate reporting of deaths relating to CO. Following a death CO may not always be considered as a possible cause or contributing factor due to a lack of knowledge, or consideration of CO symptoms/poisoning.

Scope and Objectives	This project will develop a generic learning module to help a broad range of health and social care staff better understand the harm caused by exposure to carbon monoxide, how to identify those at risk and how to protect them from harm. Building on this generic learning module we will add further depth by developing short topic/ professional specific learning modules, those areas could include pregnancy, emergency department, care of older people, dementia care and medical examiners. These learning packages will be made available through the e-Learning for healthcare (elfh) platform. Formed in 2007 it [elfh] delivers a range of programmes of learning. It works in partnership with other organisations to develop e-Learning programmes to support the health and care sector workforce. It has over two million registered users and is now delivering or developing more than 450 e-Learning programmes in collaboration with organisations including Royal Colleges, Department of Health and Social Care, NHS England (NHSE), and the Office of Health Inequalities and Disparities (OHID). It also works with a broader group of organisations that support evidence based and high-quality practice in health and social care. iPiP (Improving Performance in Practice) have led or been involved in developing four elfh training modules. Considering those groups which might be most at risk and/or where the consequences may be greater it is suggested that the first two priority areas should be pregnancy and older people. Also, because of the concern that records should accurately show when CO has been a contributing factor or cause of a death, it will help medical examiners to have access to a module designed specifically to meet their needs. This will include coding/reporting exposure, how CO poisoning might present and the importance of recording its involvement in any death. The overall aims are to: 1. Ensure that NHS and social care staff have access to high quality, evidence based training, ensuring they are better able to identify those exposed or potentially exposed to carbon monoxide, and understand the appropriate actions to help protect those individuals and record incidence of poisoning to aid an understanding of the scale of the problem. 2. Ensure medical examiners have access to the knowledge required to consider if CO is a cause or contributing factor in a death. This includes how to code/report exposure, how CO poisoning might present and the importance of recording its involvement in any death. 3. Improve the relationships between gas distribution, health, and social care organisations to benefit the most vulnerable communities. 4. Support the development of pathways, protocols, and interventions to help ensure that when those from vulnerable groups are identified as potentially being exposed, they are supported to identify the source, safely remove the harm, and receive any required treatment. **Development process and key milestones:** **A codesign process** will be used, working closely with the experts within the required fields and the elfh design team. Both the pregnancy and vulnerable older people workstreams will have individuals/groups involved that represents the group we are wanting to better protect. **A stakeholder group** will be formed comprising of academic and clinical experts in CO and the target populations, along with representatives from other key agencies and charities such as CORGI, CO Research Trust (CORT), SANDS, Age UK **The module for medical examiners** will need to be developed with a separate team and group of partners because of the highly specialist nature of the work.

	Step one Feb '24 – April '24 • Identify the key individuals and invite them to join a task and finish groups • Undertake literature and messaging reviews • Research the sessions audiences • Agree key learning outcomes • Create the e-Learning templates/structures **Step two – April '24 – May '24** • Review the evidence and messaging • Identify and agree overall structure • Identify use of animation and film • Agree content, written, animation and film • Identify pilot sites **Step three – May '24 - June '24** • Prepare the written content, including the session assessment • Prepare the guidelines for animation • Prepare scripts • Undertake filming • Review materials with task and finish groups • Review materials with key professional groups • Agree the required analytics **Step four – April '24 – Jan '25** • Work with elfh development team to build the sessions • Prepare the pilot sites for implementation • Prepare communication strategies **Step five – August '24 – Oct '24** • Sign off the module designs and content with the task and finish groups. • Implement within pilot sites **Step six – Nov '24 – Feb '25** • Review pilot implementations • Agree and undertake any changes/additional requirements • Launch sessions using agreed communication plans Development and piloting phase by December 2024, then with ongoing data to be provided up until April 2026.
Why the Project is Being Funded Through the VCMA	This project will benefit some of the most vulnerable groups across the UK by empowering front line health and social care professionals by: • Increasing their understanding of the dangers of CO poisoning • Enabling them to recognise potential sources of harm • Ensuring an understanding of the actions required to prevent or remove harm Those professionals will also be able to ensure that vulnerable clients/patients access the Priority Services Register (PSR) and that their carers and family understand potential CO harm and actions required to prevent harm. The work with medical examiners will help develop a better understanding of when CO has contributed to or caused a death. The E Learning for Health Platform is the key platform for e-Learning across health professionals. This allows a reach which is not possible via other platforms or methods. This partnership service goes above and beyond our core responsibilities as a Gas Distribution Network and is eligible under the VCMA funding criteria as it will provide energy crisis support, access to energy efficiency and CO advice, empowering vulnerable households to use energy safely, efficiently, and affordably.

	This partnership aligns to the GDNs commitment to deliver support services customers aligned to our four strategic pillars: 1. Services Beyond the Meter 2. Supporting Priority Customer Groups 3. Fuel Poverty & Energy Affordability 4. Carbon Monoxide Awareness This project aligns to strategic pillars 2 and 4.
Evidence of Stakeholder/Customer Support	The need for this work has been identified through the knowledge gained from work previously undertaken including; IPPCO study. This study aims to bring together information on expired CO levels in pregnant women recruited into the study, with information collected on exposure in their home and insights into pregnant women's knowledge and understanding of the harm and how to protect themselves and their babies. This study has just closed to recruitment and the analysis of data has just begun. There are early indications that pregnant women and maternity staff have a poor level of knowledge about the dangers of environmental CO, or the actions required to protect pregnant women and their babies. Representation from Maternity Voices Partnership as part of iPiPs wider work on environmental CO. The team receive regular requests for information and advice about how to identify and treat environmental CO poisoning. An evidence review and roundtable event, including a wide range of health professionals, GDNs and user voices. The aim being to bring together the literature regarding the level and types of harm and to begin the discussion about the roles of organisations in reducing that harm. The paper, Understanding and minimising the consequences of CO exposure during pregnancy (September 2022)1, shows the types and levels of harm of low level chronic exposure to the unborn baby. The roundtable attendees agreed a set of actions required to reduce harm, these included better training for health staff. **The efficient operation of regulation and legislation: An holistic approach to understanding the effect of Carbon Monoxide on mortality A Report for the CO Research Trust, February 2022**[2]. This highlighted the need for better identification of CO as a cause or contributory factor in cause of death. **Cognitive decline, dementia, and air pollution A report by the Committee on the Medical Effects of Air Pollutants**[3] Chairman: Professor Frank Kelly Chairman of Subgroup on Cognitive Decline and Dementia: Professor Robert L Maynar. This paper highlights the links with cognitive decline and the need for health and social care practitioners to have the knowledge and skills to identify and mitigate risks. **Understanding and minimising the consequences of environmental CO exposure during pregnancy**[4]**. A report for the CO Research Trust, September 2022 resulted in a** consultation with health and social care organisations including NHSE, OHID, UK Health Security Agency (UKHSA), Royal College of General Practice (RCGP) Recognition of need by E Learning for Health following submission to develop modules for the platform. UKHSA, in consultation with other key agencies, agreed the need for a CO algorithm to support healthcare professionals to better identify, treat and help remove sources of harm. This is in final draft and funding is being sort to test the algorithm in practice.

[1] Understanding and minimising the consequences of environmental exposure during pregnancy. A report for the CO Research Trust, Beth Cheshire, June 2022
[2] The efficient operations of regulation and legislation. A report for the CO Research Trust, Isabella Myers, February 2022
[3] Cognitive decline, dementia and air pollution. A report by the Committee on the Medical Effects of Air Pollutants, Prof Frank Kelly, Independent review by UKHSA, published 25 July 2022
[4] Understanding and minimising the consequences of environmental exposure during pregnancy. A report for the CO Research Trust, Beth Cheshire, June 2022

	The APPCOG '**Prepare, Practice, Protect – Improving carbon monoxide safety in heath and care services'[5] report** (July 2023) states that in relation to health and social care professionals "awareness of the risks of carbon monoxide is very low, and most people associated carbon monoxide with death only, and anticipated that exposure would lead to an 'all or nothing' outcome for those poisoned". The first recommendation from the report says "Authorities may find it beneficial to examine the potential economic and public health benefits of subsidising or providing grants to support training, events, and the development of national resources for health and social care professionals (ideally specific to their role) and their employers to embed learning and support good practice in carbon monoxide safety."
Outcomes, Associated Actions and Success Criteria	**Outcomes** **Within the project, four e-Learning modules will be developed in order to;** • Provide education to health professionals • Empower education from healthcare professional to patient/clients • Identify potential CO poisoning, chronic and acute • Remove risk from home environments • Reduce harm to individuals and unborn babies • Access schemes supporting those in fuel poverty • Improve identification of CO as a cause/contributing factor to a death **The core (generic) module will enable those participating to**; • Describe the harms caused by carbon monoxide • Discuss the potential sources of carbon monoxide with clients/patients • Identify those being exposed or at risk of exposure • List the signs and symptoms of exposure to CO • Evaluate the potential risk of individuals within their care **Modules two and three will focus on pregnancy and vulnerable older people.** They will provide more detail about the harm for that specific group, how to identify those at risk and the actions necessary to protect individuals, recording and coding of incidence and an understanding of referral pathways and treatment and support. **Module four will focus on the needs of medical examiners.** For these medical examiners the module will assist them in: • Scrutinising the chain of causation of death and recognising when CO exposure might be implicated, particularly low-level • Identifying cases for further review under local mortality arrangements and contribute to other clinical governance processes **Knowledge checks and assessments** Each section will end with the identification of key learning points. At the end of the module participants will be asked to complete a short multiple-choice assessment with a pass rate of 80/90% required. **Analytics** The system will be developed to allow the collection of data which will identify region, type of organisation, clinical area, and professional group and engagement with the modules. Integrated care systems are being introduced into the healthcare system. This will allow information to be collected on a sub-regional basis which will enable better matching to GDN footprints.

[5] Prepare Practice Protect, improving carbon monoxide safety in health and care services, Laura Fatah, Policy Connect & APPCOG, published 17 July 2023

The assessment will **measure their pre and post session knowledge** of what CO is, understanding of sources of harm, how to identify and prevent potential harm and the professional group of each profession.

Overviews of access and outcomes will be available to the funders during the pilot and the national roll out.

Communications
During the development phase we will work with the key stakeholders and e-Learning for healthcare team to develop and implement a communication strategy. This will include:

- Speaking at key health/social care events
- Articles in professional journals
- Using social media and podcasts
- Messaging key agencies, royal colleges, and professional organisations
- Messaging users on the elfh platform

The resources developed during this process will also be able to be utilised in other ways, for example we use extracts from some modules within virtual and face to face training sessions.

There will be a specific communication strategy for the other nations to ensure the key people are aware and have access to all resources on the platform.

Reach
Within the pilot phase the training will be utilised within a variety of relevant organisations, with each GDN area having at least one organisation taking part.

For the generic/pregnancy modules we will engage with one maternity service and one health visiting service
For the generic/vulnerable older people modules we will engage with one home care and one district nursing service

The module for medical examiners will be focused on the approximately 870 clinical specialists. The pilot will be undertaken with specialists in one Integrated Care System.

Pilot Reach

Group	**Numbers**
Midwives/midwifery/support workers	95
Health Visitors	50
Obstetricians	10
Home Carers	60
District Nurses	50
Medical Examiners	20
TOTAL	285

Following the pilot, there will be a national roll out with all modules made widely available to health care staff. The generic module will be suitable for all health staff, for the topic specific modules the initial focus will be on those that can have the greatest impact.

The elfh platform is accessible to all those with an NHS email account or an Open Athens account (from all four nations). Others can apply for access to the system directly or via Open Athens, these include those that offer services under contract with the NHS and social care providers.

Materials developed for this platform can be shared with organisations, such as Royal Colleges, if they consider the materials being on an internal platform would increase the reach within their profession.

Target Population figures

Although the pilot phase will be completed across each GDN footprint within England. Once role out commences, engagement across the other nations will be undertaken to broaden the take up of the e-Learning packages, therefore increasing the reach. Healthcare professionals relevant to each module category from Scotland and Wales will be invited to review and feedback on all modules developed prior to any roll out across the UK.

Estimates of target populations (within England)
Based on the number of customers within the UK in our target groups, we've calculated the number of customers within each target group in England alone as follows;

Pregnancies (2021/22) = 595,948 (midwifery)
With the implementation of the new algorithm, developed by UKHSA, considering environmental CO as a potential source of harm for the unborn baby will become part of all pregnancy booking visits. The level of conversation will vary depending on the results of an exhaled breath test (completed for all pregnant women) but with the support of the algorithm and new e learning, CO should be raised as a potential source of harm with all women.

Given the above the 50% of midwives who will complete the training, will have a conversation with all of the women they engage with, that is **297,974** conversations.

Children births (2021/22) = 580,000
Potential population for health visitors to have a conversation at a new birth visit will be population of 174,000 (this number is a third of the new birth population each year) Post training health visitors should consider environmental CO in all the conversations undertaken in the homes. We estimate that meaningful conversations regarding CO are likely to occur in approximately 10% of those contacts. We have used 10% because some of these patients will have been spoken to by their midwife earlier on in the pregnancy. That is **17,400** conversations.

People aged 75+ = 4,504,000 (community nursing)
We estimate reaching 15% of the professionals who have contact with this group within GP surgeries and the community, therefore they have the potential to reach 675,600 individuals. We estimate that they will actually have a meaningful conversation with 10% of this group, that is **67,560** conversations.

Total customer conversations: 382,934
Estimate of completion **within England;**
Estimates below of e-Learning completion are conservative, as this is an emerging area and there are no previous modules around CO/air quality that would provide an indication. We expect higher completion rates within midwifery and medical examiners;

1. Midwifery because there is an algorithm process being developed to support the identification and treatment of pregnant women exposed to environmental CO, which will be shared widely with all midwifery services across England.
2. Medical Examiners because the module for this profession will be developed in collaboration with this relatively small group of health professionals.

Some other groups not named may also be interested in elements of the training including social care staff working within homes and staff working in emergency departments. This broader engagement will be monitored and may identify other specific groups which require targeted modules.

Healthcare Professional	Estimated Number in England	Assumed Completion %	Estimated Number of healthcare professionals educated
Midwives	40,000	50%	20,000
Health Visitors	5,979	30%	1,794
Community Nursing Staff	82,000	20%	16,400

General Practitioners	36,432	10%	3,643
Nursing Staff within General Practice	23,421	20%	4,684
Medical Examiners	870	70%	609
TOTAL TOTAL minus Medical Examiners (870)	188,702 187,832	24.7% 24.7%	46,609 46,395

Total healthcare professional reach
As a medical examiners role is to ensure correct categorisation on cause of death rather than educate patients, we have excluded this profession when considering the number of customers educated on CO. This exclusion means that **46,395** healthcare professionals will be available to educate patients (24.7%).

If we are reaching 24.7% of the potential professional audience, we can reasonably expect that they will be able to reach a similar % of the customer base.

Summary of reach (customer and healthcare professional)
Customer reach: 382,934 (consistent with conversation reach detailed above)
Professional reach: 46,395 (i.e. 24.7% of 187,832)
TOTAL reach: 429,329

Estimates of target populations (within Scotland and Wales)
The table below shows the estimated numbers of professionals and population within the target groups. iPiP do not have the experience of services in Scotland and Wales to the extent they do in England so at this stage are unsure about the level of reach. It is anticipated that further information will become available from partner organisations during the process of development and testing so reach in Scotland and Wales can be estimated more accurately.

	Scotland	Wales
Number of pregnancies	**44,557**	**26,565**
Number of live births	**45,061**	**27,420**
Number of 0 - 4 year olds	**187,379**	**117,258**
Number of 75+	**526,600**	**320,487**
Midwives	**3,612**	**2,236**
Health visitors	**2,300**	**817**
Community nursing staff	**56,000**	**34,000**
General Practitioners	**5,209**	**2,324**
Nursing Staff within General Practice	**1,540**	**1,000**
Medical Examiners	**54**	**N/A**

Project Partners and Third Parties Involved	Improving Performance in Practice (iPiP) E Learning for Healthcare (a division of Health Education England). CO Research Trust (CORT) NHS England (NHSE) Office of Health Inequalities and Disparities (OHID) UK Health Security Agency (UKHSA) Royal College of Midwives (RCM) Royal College of Nursing (RCN) Royal College of General Practice (RCGP) Coroner's Office Royal College of Pathology (RCPath)
Potential for New Learning	This project will increase the understanding of how those working in the NHS and Social Care can: 1) Support the identification of those who are/have been exposed or potentially exposed to carbon monoxide. 2) Protect the most impacted and most vulnerable from the effects of CO poisoning. 3) Help identify and support those living in fuel poverty. 4) Support the understanding of the scale of the problem.

<table>
<tr><td></td><td></td></tr>
<tr><td>Scale of VCMA Project and SROI Calculations, including NPV</td><td>The Funding Licensee(s) should justify the scale of the VCMA Project – including the scale of the investment relative to its potential benefits. As part of this it should provide the SROI calculation.

<table>
<tr><td>Project cost:</td><td>£190,850</td></tr>
<tr><td>5 year forecast gross social value</td><td>£3,747,068.80</td></tr>
<tr><td>5 year forecast social net present value (minus project cost)</td><td>£3,556,218.80</td></tr>
<tr><td>5-year net SROI figure per £1 spent</td><td>£18.63</td></tr>
</table>

Until such time that the industry wide SROI framework tool is completed, Cadent’s SROI calculator developed in support with Sia Partners was used to calculate this projects SROI figures. The calculation is based on the number of avoided (as a result of CO education being provided) CO deaths, A&E visits, long term hospital stays and cost of time off work due to injury. Once the new industry standard SROI framework is rolled out and in use this forecast will be recalculated, and the PEA updated accordingly.</td></tr>
<tr><td>VCMA Project Start and End Date</td><td>January 2024 – April 2026.

Development and piloting phase by December 2024, then with ongoing data to be provided up until April 2026.</td></tr>
<tr><td>Geographical Area</td><td>Development, pilot, and early implementation across England, with engagement across all four Nations at the review stage prior to UK wide roll out.</td></tr>
<tr><td>Internal governance and project management evidence</td><td>Description of GDN(s) review of proposal and project sign off, with details on how the project will be managed

The project will be led by the Director and overseen by a multi-agency steering group including the GDNs. Each element of the work will have a nominated lead who will be supported by a small group of key professionals that will form task and finish groups for each module. The leads will report to the Director and the task and finish groups will report into the steering group.</td></tr>
</table>