



Discretionary Reward Scheme Submission 2018-2021

PURPOSE OF THIS DOCUMENT

This document demonstrates considerable progress over the last three years, 2018-2021, in how we make strategic decisions and deliver robust, integrated action on environmental, social and CO safety outputs.

Our submission starts with an introductory section on our overall '**Evolved, Integrated and Values-Driven approach**', with examples of tools/frameworks that support strategic decision making, benchmarking and progress monitoring across all three output areas. This is followed by individual sections on:

- Protecting our communities against the dangers of **carbon monoxide**
- Supporting the **fuel-poor and safeguarding customers in vulnerable circumstances**
- Providing business leadership on **net zero, environment and future energy**

Whilst we've sought to structure this document through these three key themes, in delivery we always seek to design initiatives that deliver multiple, cross-cutting benefits.

For example, many projects that help those in vulnerable circumstances on fuel poverty and energy efficiency issues also help the same customers with CO safety advice.

CONTENTS

AN EVOLVED AND INTEGRATED APPROACH 1

PROTECTING OUR COMMUNITIES AGAINST THE DANGERS OF CARBON MONOXIDE 1

Our approach

A regional Carbon Monoxide ambassador network

Raising awareness with high impact groups - educating future generations

Spreading the word in innovative ways to targeted groups and places

SUPPORTING FUEL POOR CUSTOMERS AND THOSE IN VULNERABLE CIRCUMSTANCES 3

Our approach

Improving and applying knowledge of vulnerable customers

Fuel poverty connections

On the front line for affordable warmth

Reaching remote areas of need: Pop-up Warm Hubs

Supporting the vulnerable during the pandemic

A BUSINESS LEADER ON NET ZERO, ENVIRONMENT AND FUTURE ENERGY 5

Our approach

Environmental impacts, operations and net zero progress

Innovation enabling rapid leakage resolution

Shaping a net zero carbon future and lasting energy solutions

Further examples of environment outputs that go above and beyond what is required



AN EVOLVED AND INTEGRATED APPROACH

Our strategic approach on social, environmental and safety outputs has matured and advanced considerably since the last DRS period. As issues such as net zero have come to the fore, we have further developed our ambitions and actions in response, linked to development of our RIIO-2 proposals and a strategic decision to embed these in advance so that we are 'RIIO-2 ready'. We have strengthened our systems and monitoring to ensure robustness and widened our partnership working within and beyond the sector. For example, as an anchor organisation, we've worked closely with local partners and organisations to understand how we can contribute to the places that we work in and their economies – as an employer, through supply chains and by collaborating with communities.

We've adopted a triple bottom line approach to deliver greater value in the decisions we make and to drive social wellbeing, environmental responsibility and safety across our activities. This approach helps interlink our customer, vulnerability, social, environmental and energy strategies, and our five Community Promises identifying where we can make a lasting difference to quality of life:



PROTECTING OUR COMMUNITIES AGAINST THE DANGERS OF CARBON MONOXIDE

Raising awareness of Carbon Monoxide (CO) risks and symptoms saves lives and is fundamental to keeping the communities we serve safe. Every day, we and our partners deliver essential safety messages via initiatives targeted and tailored to meet the diverse needs of our customers and communities.

Our approach

Data-led and strategic

We have **transformed the way we use data**, bringing it together to inform our approach, track progress and maximise the impact of our CO work as part of a holistic approach that recognises complex and intertwined vulnerabilities. We commissioned:

- network-wide research to test customer understanding of CO;
- social indicator mapping assessing vulnerability factors; and
- a tool that maps all data to visualise where our CO and vulnerability hotspots are.

Examples here show how we use this package of intelligence to make informed decisions, pinpoint investment and join up action through our strategic partners to support our most vulnerable and hard to reach groups and communities.

Positive proactive partnerships

We collaborate with community groups and charities to strengthen our reach and impact. Our **trusted network of nine strategic partners** span our geography and demographics, and has moved us from transactional, grant based engagement to strategic relationships. These partners provide vital insights that inform our decisions and routes to help customers we could not reach on our own. For example, through Highfield Co-Op in Bradford we are targeting a known CO hotspot, in an area of high deprivation, where English is often not the first language; and through Community Action Northumberland, we reach isolated off-grid rural communities where CO risks from coal fired heating are high.

Our Community Partnering Fund (CPF) as described in the supporting fuel poor and vulnerable customers section of this submission, supports sustainable projects via an extended and diverse network of over 80 community partners, providing further reach, and delivering tailor-made projects that address our social objectives, including promoting gas safety.

- **18 out of 35 projects supported by our CPF during 2018-2021 included CO safety and awareness messages.**

Over the last three years, we've adopted recognised frameworks to help us clearly monitor our performance, communicate it and benchmark against others. Examples that demonstrate this include:

- We use the international **UN Sustainable Development Goals** to set targets and track progress, and we benchmark performance and share our results publicly through the Support the Goals initiative and website. Assessment via this in 2020 awarded NGN a 4-star rating, only achieved by 12% of companies worldwide at the time. Other GDNs are now using the framework and NGN has led the work to set collaborative goals and produce a collaborative report (see page 1, part 1 of collaborative submission).
- In 2019, we signed up to the **Business in the Community (BITC) Responsible Business Tracker** setting out actions environmentally and socially responsible businesses should take and benchmarking performance aligned to the UN goals. Our first BITC report in 2020 assessed NGN as leading our benchmarking group on Net Zero Carbon and Inclusive Growth. It identified sustainable procurement as a new priority, which we are now taking forward.
- We use an innovative '**Value Framework**' to factor environmental and social impacts into decision making. This puts monetary values on factors such as CO2, plastics, pollution and health impacts using accepted best practice and norms (e.g. HMT Green Book) and combines them with customer values and financial data in calculating social/environmental return on investment for different options. We have applied the tool to major investments since 2019 – including our RIIO-2 submission. For example, our commitment to planting 40,000 trees was informed by calculating the benefits for recreation, biodiversity, flood prevention, air quality and carbon reduction.

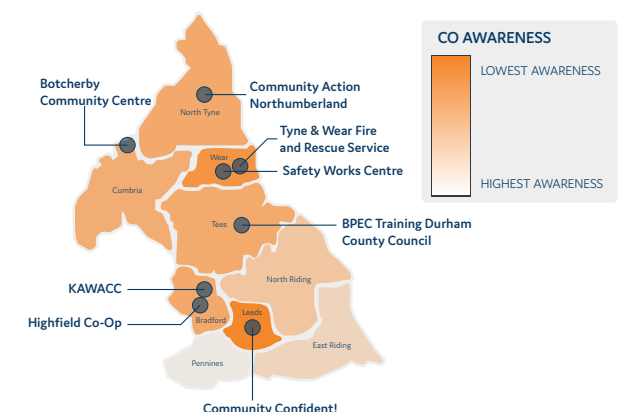
Education

We continuously **educate people on the symptoms and dangers of CO** and monitor our impact. All front-line emergency engineers are trained to deliver customer awareness information on the doorstep as part of our 'make every contact count' strategy and we have embedded Safety Seymour – the GDN cartoon superhero who educates children on the dangers of CO – into business as usual because we know it is effective in reaching young people as a high impact group. Through our partnerships, we are **training CO ambassadors** to reach many more people with life-saving messages. We remain the only GDN to be an accredited BPEC training provider.

- **We have BPEC-trained nearly 70 people via 5 partner organisations, helping us so far reach over 5,700 people.**
- **6,314 CO awareness briefings delivered to customers on the doorstep, equivalent to 1,578 hours, with awareness rising from 7.3 out of 10 before the briefing to 9.2 after.**

A regional CO ambassador network

We use our BPEC accreditation to train our own staff and a network of community CO ambassadors who raise awareness and deliver essential safety messages on our behalf, targeted in the areas where this is most needed. We know awareness of CO across our network varies from 7.83 out of 10 in our Pennine patch to no more than 7.42 in Wear, Bradford, North Tyne and Tees, and down to 7.11 in Leeds; and that vulnerability is often concentrated in the same hotspots. By working with the right partner in the right place as shown on the map, we are acting to tackle this.



- Bradford’s Central Ward has high levels of deprivation, high numbers of CO incidents and low CO awareness levels. **Our strategic partnership with Highfield Co-Op is supporting people in this vulnerable community.** In 2018, we trained 17 people from the local Sudanese and Kurdish communities to become CO awareness trainers, who went on to reach 870 people with CO advice. And, during Covid-19, we supported the Co-Op to distribute food parcels to 310 highly vulnerable people, recruiting 10 new volunteers to their 19 strong team, and used this as an opportunity to raise awareness of the dangers of CO, to distribute CO detectors and to provide energy saving and Priority Services Register (PSR) advice.

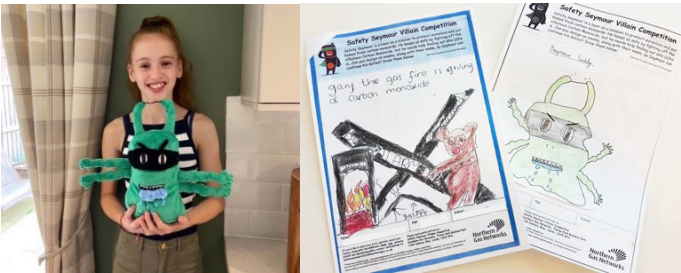
“The CO training was very informative, and I will tell my family and friends about how dangerous CO is.” Monir

- [NEW]** Our data shows that CO and fuel poverty issues are widespread in West Yorkshire. In 2018/19, we worked with National Energy Action to trial our **‘train the trainer’ approach**, equipping 760 colleagues in the West Yorkshire Fire and Rescue Service to spot signs during home fire safety visits and to offer advice and referrals. Advice was provided to 228 homes, including more than 100 with vulnerable residents, proving we can extend reach by working in partnership.
- Based on this success, **we partnered with Tyne & Wear Fire and Rescue Service to BPEC certify their staff to deliver CO safety messages.** 19 firefighters now deliver gas safety and CO awareness as part of home safety visits – at full capacity reaching 11,000 homes per year. While Covid-19 has impacted outputs, 3,801 homes have been visited since the training in February 2020. In October, we BPEC-trained a further 10 education officers to deliver CO messages to children, young people and vulnerable communities at their Safety Works Centre in Newcastle. Alongside agencies such as the fire and police services, NGN uses a mock kitchen to demonstrate gas safety in action as part of an interactive tour. Combined with our own delivery at the Centre, since August 2019, there have been 22 gas sessions, reaching 892 people, with focus on Year 6 pupils and refugee communities.

Raising awareness with high impact groups - educating future generations

Children are more susceptible to the effects of CO poisoning, but they also easily absorb CO messages and share them at home and in the community. This makes them a high impact group for our awareness raising work.

- We have embedded **Safety Seymour – the GDN CO superhero** – into our operations. Between February and March 2020 for example, we commissioned a team of art experts to deliver 3-hour interactive workshops in 30 Year 2 and 3 classes, reaching 900 children in total. During the first Covid-19 lockdown, we were not able to deliver sessions in schools but wanted to proactively continue reaching young people with essential safety messages. We designed a digital Safety Seymour activity pack and emailed it to 240 primary schools in the North East – a route to 67,680 children. We will continue to use digital channels to extend our reach with this key group.
- [NEW]** In 2019, **NGN trialled a new national competition to engage young people more powerfully in CO safety messages** as the existing joint GDN competition was gaining low numbers of entries and not reaching this high impact group. Young people were challenged with designing a CO villain for Safety Seymour to fight, with the winning design brought to life as a cuddly toy and prizes worth £500 to the winners’ schools. We partnered with the Primary Times magazine to promote the competition to a national audience of teachers, parents and pupils. Through this investment of just £3,000, we reached **10 million parents and children with CO safety messages and received 543 entries - a 5,000% increase on entries to the other competition!** We shared our learning with the other GDNs to incorporate this proven impactful approach into joint CO safety campaigning to inspire and engage children.



Kayla in Year 6 at Glendale Middle School in Northumberland won the 8-11 category with her Beymour Sickly villain

Spreading the word in innovative ways to targeted groups and places

We are harnessing the power of our data, strategic partnerships and extended network of grassroots organisations to target essential CO safety awareness at known high impact groups and CO risk hotspots in innovative ways including:

- [NEW]** Four languages (besides English) are spoken widely across our area – Punjabi, Urdu, Bengali and Polish. These are concentrated in places we know via our data to be CO hotspots and areas of deprivation, with language and literacy key factors of vulnerability and barriers to effective communication with our customers. In Keighley, a large town in the borough of Bradford, we worked with Keighley Association Women & Children’s Centre (KAWACC) to make a **safety video translated into Urdu and Punjabi** to use in their community; and are planning to work with Hull Children’s University to do the same in Polish, given its widespread use locally. One Urdu speaking single parent told KAWACC that seeing the video in her own language had helped her understand what to do and who to contact should she face any problems.
- [NEW]** **The Community Confident! project run by our strategic partner DIAL in Leeds**, is a disabled people’s user-led organisation. With a grant of £5,764 from our Community Partnering Fund (CPF), they trained 15 local people to become community influencers in issues around gas and CO safety, fuel poverty and the PSR. In 2020, 11 weeks of pop-up sessions directly benefitted 44 people, recruited 4 new volunteers, created 3 jobs and secured 3 additional grants/donations.
- Community Action Northumberland’s Warm Hubs target off-grid, isolated communities** where CO dangers are heightened by the use of coal fires. We provide detectors and advice because we know these communities are at greater risk given their limited access to services and the time taken for support to arrive. We are **going above and beyond our core gas remit to deliver CO awareness here and have saved lives as a result.**

Maureen, aged 83, attended a Warm Hub and received a CO monitor. Shortly after, she was woken by the CO alarm going off. She fell getting out of bed, but managed to reach her mobile and rang emergency services who took her to hospital, later to be diagnosed with CO poisoning. The monitor saved her life!

- [NEW]** In Carlisle, **Botcherby Community Centre** is helping us to **reach adults with learning difficulties.** The centre brought together seven adults with learning difficulties to discuss, script, perform and produce a short film to inform others about the dangers of CO when camping. It has been viewed on YouTube over 230 times and reached over 320 people at training sessions in community centres.
- [NEW]** Community media partners **Kirklees TV and Bradford Community Broadcast (BCB)** helped us reach two key communities with language barriers and respond to evidence that fewer than half of households in the North know the gas emergency number. We were able to tap into Kirklees TV’s 180,000 video views per month and reach BCB’s 3,000 listeners to raise CO awareness during Gas Safety Week 2020.

SUPPORTING FUEL POOR CUSTOMERS AND THOSE IN VULNERABLE CIRCUMSTANCES

Fuel poverty and other forms of vulnerability – social, economic and health related – are intertwined. Tackling these challenges is central to our values, and our response is practical and targeted to where it matters most.

Our approach

Ambitious, company-wide and externally validated

Our commitment to tackling fuel poverty and supporting and safeguarding vulnerable customers runs from senior leadership, led by our customer experience director, to frontline colleagues. To ensure it is stretching and robust, we sought and secured BS 18477 ‘Inclusive Service Provision’ accreditation in 2019 and 2020 which demands a service that is accessible and usable by all customers equally.

Strategic and integrated

Responding to fuel poverty and social needs is part of our triple bottom line approach. Our stakeholder-led Vulnerability Strategy drives action on five vulnerability types - physical, mental wellbeing, financial, rural and temporary, which has been overseen by our head of social strategy.

Going beyond the meter

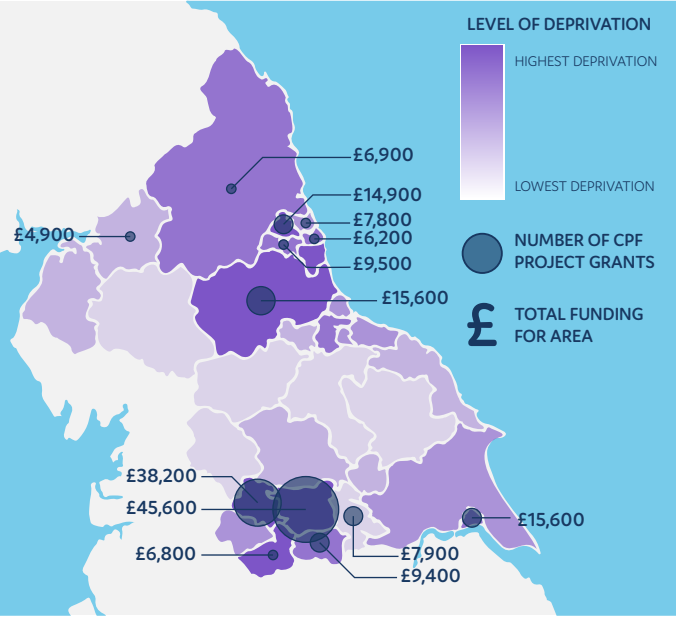
Our holistic approach helps customers whether or not they are on the gas grid – including gas connections and alternative solutions for those who are not.

Collaborative

We work with community groups, charities, businesses, housing providers and public agencies to widen and strengthen our impact – including through our network of community partners.

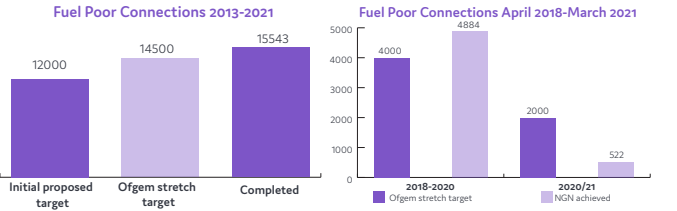
Improving and applying knowledge of vulnerable consumers

[NEW] In 2019, we commissioned **social indicator mapping** to assess 23 vulnerability factors across our 31 local areas to provide data on the issues covered in our vulnerability strategy and how they vary by geography. We have used this, together with knowledge gained through our long-term partnerships with grassroots community groups, to guide investments to where they are needed most. In 2020, we built on this with tailored work to identify Covid-19 vulnerability risks and hotspots across our area to inform our response. Across our activity, we adopt an evidence-based approach that utilises knowledge of our customers, learns from data and experience, and tests then rolls out new approaches. The map shows how investments such as our Community Partnering Fund grants dovetail to areas facing greatest deprivation.



Fuel Poverty Connections

Over the RII0-1 period we helped 15,543 eligible off-grid, fuel poor households through new gas connections, with homes targeted where benefits for the fuel poor and vulnerable would be greatest. That is well beyond our initial proposed target of 12,000 and our voluntarily raised Ofgem target of 14,500. For the first two years of the DRS period (April 2018-March 2020), connections were **22% above the Ofgem target** and also exceeded our internally set stretch target. Although Covid-19 made connections difficult in 2020/21, our internal stretch target of 16,000 connections for the whole RII0-1 period spurred on progress well past the 14,500 required by Ofgem.



[NEW] Innovative and holistic help for households without a connection

We have worked with Communitas Energy CIC (CE) to develop an approach that **helps vulnerable households** eligible for Fuel Poor Gas Connections to save energy and money, whether or not they get a connection. In the new project, CE puts in place the best solution for the customer, considering all available options. That could be a gas connection where viable or – in deprived or off-grid remote areas of the North East and East Riding of Yorkshire - an alternative such as an air source heat pump system. CE covers up-front installation costs so that families get a warm home and lower bills immediately, and recoups its investment long-term from Renewable Heat Incentive payments. NGN provided support to get the scheme up and running and ongoing office support and space for CE, and it is now a self-sustaining operation. The project installed 76 heat pumps in the last 3 years - saving households up to £1,470 each and an estimated £72,960 annually in total.

On the front line for affordable warmth

Action on fuel poverty and vulnerability has been innovative and extensive. We have teamed up with community groups, charities and local authorities who identify those in need, are trusted by them, and can help them to save energy, cut bills and stay safe.

[NEW] Energy Health Checks by Green Doctors

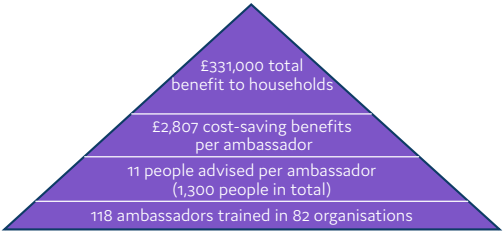
We work with Groundwork Leeds to provide practical help to households, targeting areas with the greatest fuel poverty across a growing proportion of our area. Local agencies refer appropriate households for a ‘Green Doctor’ visit covering energy efficiency, the PSR and money saving measures such as fuel switching. They install simple measures like draft excluders, low energy light bulbs and CO alarms there and then, provide advice on larger energy saving measures, and refer people for Warm Homes Discount where applicable. The scheme includes Northern Powergrid and Yorkshire Water and so offers an all-utilities approach. It has worked via phone during Covid-19 and won the CSR international ‘champion of champions’ award in 2019.

| 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021+ |
|---|---------------------------------------|---|--|--|
| Bradford only 325 homes | All of West Yorkshire 432 homes | As 2019/20 + Hull & East Riding 539 homes | As 2019/20 + Tees Valley 645 homes | As 2020/21 + all of the North East |
| Benefits over 3 years <ul style="list-style-type: none">1,616 home visited/helped2,762 beneficiaries£107,051 household savings6,918 measures installed£295,426 + 449,689 Kg CO2e lifetime savings from measures | | | | |

Reaching out with energy advice

To extend our impact and safeguard our most 'in-need' customers and communities, we work through partners who already **engage with fuel poor and vulnerable households** in other ways. In March 2020 we funded our strategic partner, Yorkshire Energy Doctor CIC, to run a three-year co-designed course to train front line staff in organisations across our area (e.g. charities, councils, health bodies, the refugee council, Age UK) to become community energy ambassadors. This provides them with knowledge of energy efficiency and gas safety measures that they can pass on to vulnerable people alongside the other support they provide. Benefits for households have included fuel switching, Warm Home Discounts and ECO funding for heating and insulation improvements. A complementary approach delivered by Groundwork in Leeds allows different approaches to be tested and learning exchanged. Based on survey feedback from ambassadors, the benefits amount to over £300,000.

Year 1 Achievements (April 2020-March 2021)



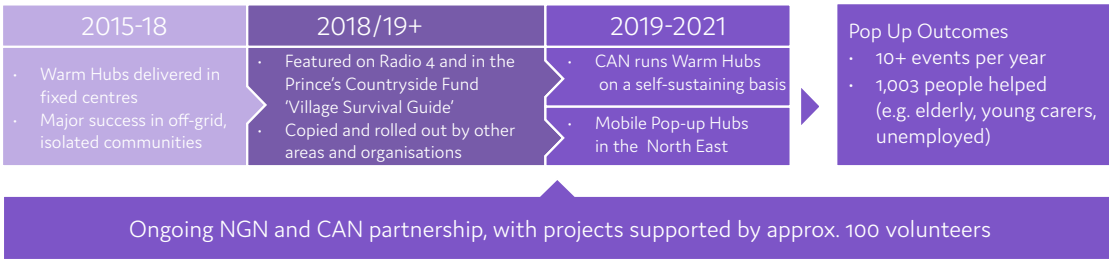
NEW Piloting a Managing Money Better approach

We supported a new approach in County Durham - an ideal testbed combining urban, rural and deprived areas – to see how effectively we could reach vulnerable consumers through local authorities, and whether our seed funding and BPEC training of 5 council officers could kickstart sustainable action. Focused on those identified by the council as needing support, the project has provided energy and money advice to 125 households since August 2020. Benefits include energy supplier switches and Warm Home Discount applications worth £10,587, PSR registrations, and CO safety information to 167 homes. **Piloting this approach has proved the business case to Durham County Council which now plans to resource and run the work on a permanent basis itself.**

Reaching remote areas of need: Pop-up Warm Hubs

Flexible 'Pop-up' Warm Hubs have reached thousands of people in remote, off-grid and excluded areas. These build on the Warm Hubs model we co-developed with Community Action Northumberland (CAN), providing places for communities to come together, share a meal or drink, access energy efficiency information and more.

Because they are mobile, Pop-ups can reach many more people. Using venues such as food banks and employment hubs to reach those facing isolation and low incomes, they have demonstrated energy-efficient slow cookers that dish up healthy, affordable meals as a magnet to draw people in. They then pass on energy, PSR and CO safety advice in a friendly, informal way while the food cooks, and afterwards, people get slow cookers, recipe cards and energy tips to take away. The model was adapted for remote delivery during Covid-19, with slow cooker/energy advice packs distributed via food banks and has paved the way for roll out in urban areas.



NEW Supporting the vulnerable during the pandemic

Covid-19 hits the most vulnerable the hardest. Our response has combined the array of ways we support and safeguard fuel poor, vulnerable customers, including through grassroots groups, applying intelligence, and simply doing the right thing when and where it matters. Our responses include:

- Commissioning rapid research** into the spread of Covid-19 across our area, its impact on 20 vulnerability factors and potential response. The results informed action and we shared them with stakeholders and other utilities.
- Emergency response** - During the emerging crisis we allowed unlimited volunteering by NGN colleagues to help. More than 50 came forward and we assisted over 90 care homes and community groups to help those in need by buying and delivering iPads, PPE, food and toiletries (at a cost of £29,800).
- Providing £25,000 of no-strings **extra funding to community partners** to help them help the most vulnerable.
- Changing the way we do business** to carry on delivering services while keeping customers safe, including developing Covid-19 compliant procedures and e-learning courses on CO and PSR for use by NGN and our partners.

Community Partnership for Grassroots Action

In 2018, we teamed up with Northern Powergrid to extend our successful Community Promises Fund into a joint **Community Partnering Fund (CPF)** of double the scale, focused on fuel poverty and energy efficiency, CO safety, the PSR, STEM skills, and now recovery from Covid-19. NGN has invested £150,000 through the fund, which works with grassroots organisations to target and safeguard communities where fuel poverty and vulnerability are greatest, including those on low incomes, with low skills, BAME communities and disabled people.

CPF supported 35 projects between autumn 2018 and March 2021 and generates £2 or more of benefits for every £1 invested. Known and expected benefits include:

- 107,825 people benefiting overall (32,476 directly).
- 18,267 benefiting from improved home energy and living environments.
- 17 new jobs in community organisations.
- 670 people trained/improving skills.
- 103 new volunteers.
- 568 people signed up to the PSR.

Examples of CPF projects which demonstrate its reach and focus on deprived areas (see previous map) include:

- Radio Asian Fever CIC** researched and delivered 26 two hour shows in Hindi, Urdu, Punjabi, English and Mirpuri to reduce fuel poverty through home energy efficiency, including interviews with experts such as Age UK, Fuel Poverty Action and MEND (Muslim Engagement and Development). It reached an audience of 90,000 people.
- North East Windhill Community Association** employed a new worker to provide fuel advice and support through the winter to people in an area of Bradford with high levels of benefit claimants and family breakdown. After lockdown, they offered a phone service, emergency face-to-face sessions and home deliveries of food and medicine alongside energy advice. 2,200 people received support, 6 new volunteers joined, and the trust saw more people in the community coming together and thinking about how they can give back, creating an enduring legacy from an initial grant.

A BUSINESS LEADER ON NET ZERO, ENVIRONMENT AND FUTURE ENERGY

Our approach

Informed by over 500 stakeholders and colleagues, our **Environmental Strategy** 2018-2021 guides NGN's action on five of the UN Sustainable Development goals:

- Take action against climate change.
- Improve air quality.
- Use resources responsibly.
- Enhance life on land.
- Enable lasting energy solutions.

Our Environmental Action Plan will drive delivery from 2021, and we already have a rigorous system in place to chart progress against 24 targets and commitments.

Environmental impacts, operations and net zero progress

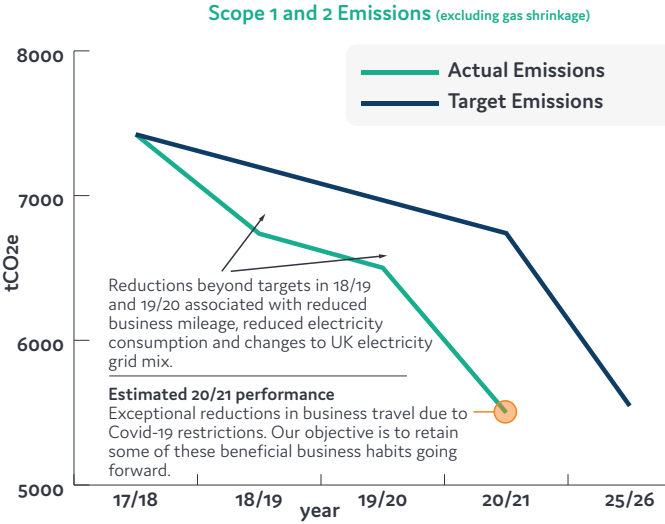
NEW Action on net zero, climate change and air quality

In winter 2018/2019, we became the first GDN to set carbon reduction targets up to 2050 using a pioneering approach amongst GDNs that aligned with a scientific methodology, supported by the Carbon Trust. We increased ambition further with a target of net zero operational carbon by 2031, to be achieved without any offsetting.

We took immediate action to start delivering against those targets, for example switching our electricity supply to 100% renewable where available; and sizeable reductions in carbon and travel over the two years to March 2020 - before Covid-19 cut travel/emissions even further. Our efforts resulted in:

- 12.4% reduction in carbon emissions (a cut of 917t CO2e, Scope 1 and 2).
- Business vehicle mileage down by 13% (607,785 miles).
- Air travel down by 58% (660,423 miles).

As a result we have exceeded our ambitions, meeting our scope 1 & 2 emissions targets five years early.



Using resources responsibly

We have made **reducing use of virgin aggregate** a KPI for our contractors and built on progress to push the proportion of waste we send to landfill to virtually zero - it is now two thirds lower than in 2018 at just 0.06%. Further achievements include:

- Over 210,000 tonnes (99.6%) of excavation spoil recycled in 2019/20.
- 101,000 tonnes of recycled aggregate used instead of virgin materials in 2019/20 (>90%).

NGN is leading work with other utilities and suppliers to move away from **single use plastic packaging** for utility fittings. We've written on behalf of all GDNs to ask both major pipe manufacturers to do so; and one has already responded positively. NGN has also been the lead network in a bid to Innovate UK for R&D funding to develop a sustainable, fish waste based, packaging alternative. Meanwhile, changes such as efficient stock management, paperless billing and printing less have helped cut office and depot waste by 25%

(239 tonnes) in just two years. And by providing every operational colleague with a re-usable water bottle we will cut the 51,336 two litre bottles per year that were previously wasted.

We have piloted then rolled out **innovative land remediation** methods. Those include the award-winning Sunshine on the Tyne project, which pioneered a carbon-neutral, solar powered process to remove coal tar contamination, now used at every appropriate site. Over 6,100 litres of toxic waste was recovered during 2017-2019 and another 1,400 litres have been removed at other sites since. We have further self-funded £20,500 for R&D into new decontamination solutions that biotreat rather than landfill cyanide enriched waste.

NEW Enhancing life on land

Launched in 2018, our **Homes for Nature** initiative helps wildlife and biodiversity to flourish on our infrastructure sites by working with maintenance contractors and local groups to deliver site specific measures such as creating habitats, installing bat and bird boxes, and even a nest camera for a bird watching club to observe peregrine falcons on a gas holder! We have taken action at 50 sites over the last three years and will do at 200 more over the next five. In 2020, we entered a five-year partnership with the Community Forest Trust to plant 40,000 trees in areas of our network with high air pollution. We will pay £400,000 for the trees and to fund a new project manager who started in February 2021.

NEW Sustainable procurement

Informed by our BITC assessment and internal gap analysis, we **launched a sustainable procurement strategy** in 2020 aligned with UN SD goals and ISO 20400 principles. We now ask potential suppliers about their waste, pollution, energy, carbon, biodiversity and other policies through our tendering process and, for contracts above £10,000, we will only buy from those who meet set standards and score thresholds. Additionally, we:

- work with our environmental and stakeholder teams to influence procurement exercises.
- have engaged with other utilities and best practice exemplars to inform our approach.
- have set targets to buy more from SMEs.

NEW Sustainability education and volunteering

Over the last two years, NGN volunteers have inspired 807 students to tackle sustainability issues through our **employee volunteering** scheme. We have partnered with social enterprise Solutions for the Planet to support their #BigIdeasProgramme, using STEM skills to shine a spotlight on sustainability issues of today and create solutions with future customers aged 11 to 14.

Despite the challenges of 2020, through face to face and virtual mentoring, our employees were able to support students in generating big ideas to solve sustainability challenges whilst building confidence, teamwork and STEM skills. It led to amazing design concepts being turned into creative business plans and projects, generating real solutions - including an air powered car. This year we've built on our partnership and worked together to set up our Young Innovators Council to help bring young people into our decision-making process.

"A truly inspirational experience." quote from mentored student

"The programme has given Harriet more confidence and re-enforced her desire to progress through school towards a STEM career." Jess Wright, Teacher, Royds School, Leeds

Innovation enabling rapid leakage resolution

We have reduced our gas leakage by 10.5% since 2017/18 through the continued use of 'real time' remote monitoring and pressure management. We also continue to invest in the outputs from the Network Innovation Allowance (NIA), applying innovation and technology to resolve gas leakage incidents far quicker and with positive impacts on the environment, on finances, and on operator and public safety:

- NEW** Since February 2020 **thermal cameras** have helped us to detect the sound of gas escaping from over 150 ft away, by displaying leaks on a screen in thermal image. We are using this on high-rise

surveys - of which we carry out between 300 and 350 per year - to inspect risers from ground level. This allows us to detect leaks far quicker, taking 15 minutes to survey a building; and at the same time delivering significant cost savings, improving health and safety for operatives, and reducing time on site and disruption to customers.

- **NEW** We started testing **main inspecting cameras** in November 2020 as a way to help us find leaks and water ingress faster. These cameras negate the need to dig numerous excavations by instead inserting a camera at a single shallow excavation that can travel up to 200 meters along the main to identify the leak or water from below ground. Reducing the need to dig also cuts volumes of spoil taken to landfill and the need for reinstatement work, both of which help save emissions.
- **NEW** **Inficon IRwin**: our new gas detection unit – was approved for use on our network in February 2021. Thanks to its high sensitivity, we can detect underground gas escapes within 10 minutes and without the need to bar hole. This cuts the time gas is leaking by one hour per escape, and cuts waste due to reduced excavations. Furthermore, current Gasco Seekers need to be recalibrated every month in depots, an average round trip travel time of one hour. IRwins on the other hand only need to be calibrated every 3 months, presenting a significant saving on fuel use and emissions.

Shaping a net zero carbon future and lasting energy solutions

We are committed to delivering whole system sustainable energy solutions that will benefit our customers and contribute to meeting the UK's net zero emissions by 2050 target. Our CEO and senior managers work at a regional and national level to promote the future role of hydrogen. The examples below show how we are at the forefront of making the case for decarbonising the gas network through a balanced scenario, where hydrogen plays a role alongside other technologies like electrification and district heat. They also demonstrate the scale of our ambition and the rapid progress we are making.

2018/19

- **NEW** As part of **H21** at Spadeadam, our partner DNV GL have constructed a HyStreet of three houses to test how hydrogen behaves compared to natural gas. We used NGN funding and partnerships to kit these out with everything from hydrogen boilers and appliances to furniture, carpets and paint. HyStreet is providing essential scientific research for H21 and, via additional NGN investment, is further demonstrating the potential of hydrogen in the home.

2019/20

- **NEW** NGN joined the **Hydrogen Task Force** in 2020, a coalition of the hydrogen industry's supply chain, to contribute expertise, influence government policy to create the certainty needed to underpin investment, and build the collaboration needed to underpin whole system conversion to hydrogen. The group's 2020 report 'The Role of Hydrogen in Delivering Net Zero' recommended that government prepare a national hydrogen strategy – an action that is now underway.

Further examples of environment outputs that go above and beyond what is required



Two hydrogen cars within our fleet demonstrate the technology

- Raised profile of hydrogen as a fuel.
- Over 13,500 miles fuelled by 100% green hydrogen, saving nearly 8 tonnes of CO2 emissions.



International knowledge exchange on net zero and lasting energy solutions

- Empowered staff, acting as ambassadors and thought leaders.
- Learning, sharing and collaborating to progress the future energy and decarbonisation agendas.



Independent waste audit and follow-on actions and commitments

- Innovations include hand jet washers that save water and carbon.
- Commitment to eliminate single use plastics in offices/depots by 2026.

- **NEW** Our customers told us they are concerned about the costs of conversion to hydrogen. In response, in January 2020, **we commissioned research to better understand the costs of producing hydrogen at scale** across production methods and compared to alternative forms of energy to support a just transition and to help meet the UK's net zero target. We then engaged the GDN network to incorporate the research into the **Gas Goes Green** programme, recognising it as valuable national evidence to inform government strategy on use of hydrogen at scale for energy, including widescale injections into the gas network. The Cost to Customer report was published jointly in May 2020, and updated in November 2020, identifying £159 billion needed to build a hydrogen economy including a zero carbon gas grid using hydrogen that could save British bill payers £116bn by 2050 if investment started now.
- **We are making it easier for biomethane producers to connect to our network** by shortening lead times for capacity studies; developing consistent process improvements and standards of service set out in a co-produced Biomethane Charter; and moving our Utonomy project to the point of trialling innovative remote control pressure kit as a solution to capacity restrictions. New connections at seven sites have further increased injection capacity to over 16,000scm/h, including by extending use of seasonal settings.

2020/21

- **NEW** At our **Customer Energy Village in Gateshead**, we are constructing nine houses to standards from 1910 to the present day. This allows us to undertake complex multi-utility energy system transition research, including how best to retrofit for energy efficiency, the role of smart technologies for customers and utility providers, and solutions to alleviate vulnerability to ensure fair and just transition.
- **NEW** In 2020, we invested £250,000 (matched by BEIS and Cadent) to build a **hydrogen show home** fully equipped with hydrogen appliances so people can see and feel the similarities of hydrogen as a fuel source. It also enables appliance manufacturers to test products in a real setting that they could not otherwise access, helping them achieve the 1,000 hour test time needed to provide evidence on safety, in-use emissions, and functionality.
- Our high-profile hydrogen programmes – InTEGREl, H21 and HyDeploy – have **catalysed a major step change in the hydrogen production market**. Between January 2020 and April 2021 alone, we entered dialogue with 24 stakeholders including gas producers and appliance manufacturers wanting to work with us to pilot hydrogen technologies or to blend hydrogen into our network. To date, this has led to 9 non-disclosure agreements and 4 project agreements including with Cadent and National Grid on decarbonisation opportunities linking the Teesside and Humber industrial hubs; and with BP's new UK-leading hydrogen production facility to maximise opportunities for industrial and domestic heat decarbonisation. These collaborations are kick-starting the hydrogen economy – providing partners with a means to test feasibility and safety, transport hydrogen and raise awareness, and helping us build a supply chain that is ready to act in support of our net zero journey.



we are
the network

a Northern Gas Networks
1100 Century Way, Thorpe Park
Leeds, LS15 8TU

t @NGNgas

f @northerngasnetworks

w northerngasnetworks.co.uk