

Cadent

Your Gas Network

Appendix 07.04.05

Tackling the theft of gas



This output case describes the way in which funding of theft detection and investigation activities could be taken forward by Ofgem and the GDNs during the RIIO-2 period.

If Ofgem accept our proposed option for a totex based incentive with a 60% customer / 40% Cadent sharing factor, during RIIO-2 we will:

- Be more proactive in identifying potential cases of gas theft through the following activities:
 - Establishing a Revenue Protection Unit.
 - Leverage data analysis to a greater extent in the identification of theft.
 - Explore the engagement of third parties to provide leads.
- We will also consider how we can go beyond ‘reasonable endeavours’ in recovering the full value of gas taken through the following activities:
 - Increasing the level of rigour in demanding full payment, whilst recognising the importance of protecting customers in vulnerable situations.
 - Undertaking greater use of legal recourse, including court action.

We will deliver:

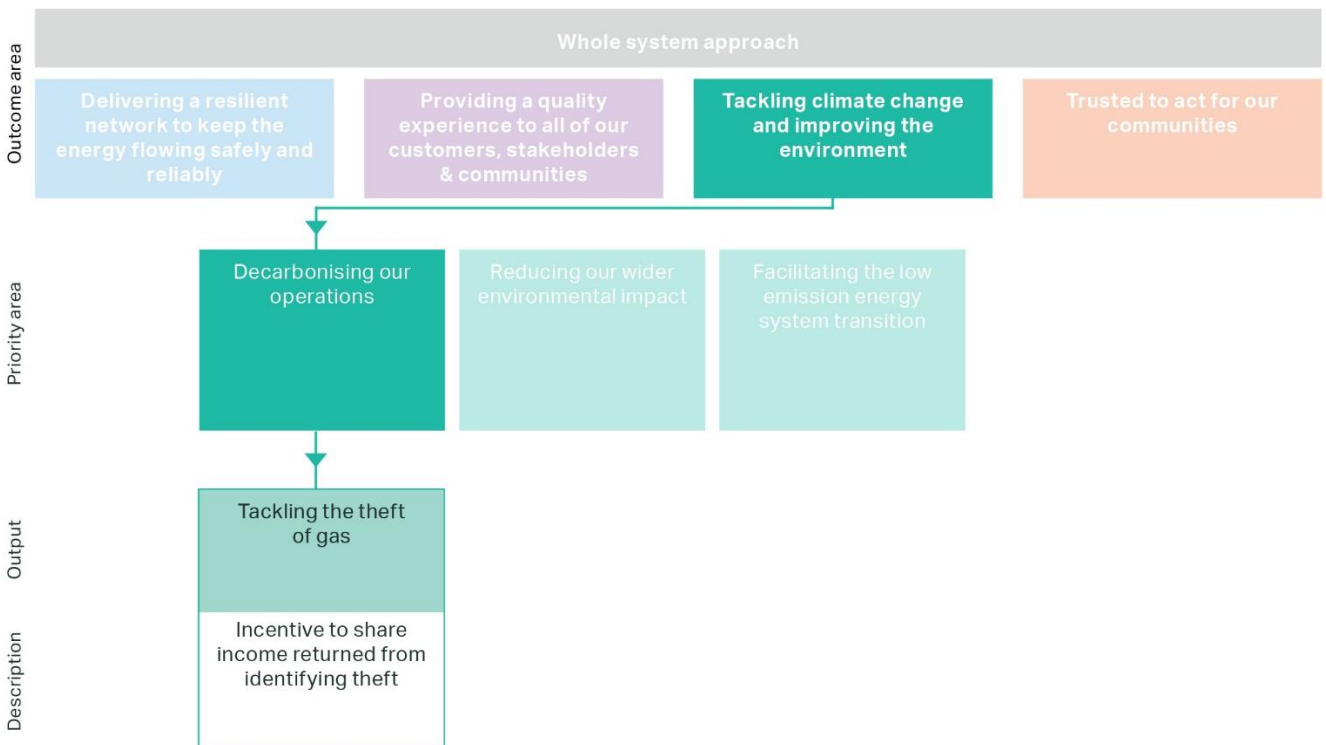


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How we have developed our proposals

1. **We considered the context** – Gas theft is an industry-wide concern that British Gas estimates costs between £220m and £400m per year². Tampering with gas meters and pipes can also present a serious safety risk to the public.
2. **We reviewed the current framework for recouping the costs of investigation of gas theft** – Monies are retained to cover transporter costs when it is confirmed that theft of gas has occurred and reasonable endeavours have been made to recover the value of gas taken i.e. Gas Distribution Networks (GDNs) are unable to recover the cost of investigations that do not lead to a confirmed case of gas theft. As it is often not possible to collect sufficient evidence to confirm that theft of gas has occurred or to invoice the customer concerned, GDNs are not incentivised to proactively investigate gas theft under the current framework.
3. **This provided us with a clear problem statement** – How can the regulatory regime better incentivise GDNs to proactively address the theft of gas?
4. **We looked at the frameworks applied to gas suppliers, and in the electricity and water sectors** – For example, gas suppliers provide funding to an 'incentive pot' and can either gain or lose through the scheme dependent upon their performance in relation to pre-defined theft detection targets. Electricity suppliers are subject to a similar scheme. In the water sector, water theft affects companies' leakage performance, which is subject to strong financial incentives and water companies are also encouraged to introduce bespoke performance commitments to manage void and gap sites.
5. **We considered previous Ofgem proposals** – In 2014, Ofgem consulted on an incentive scheme which would have allowed transporters to utilise the totex calculation and may have enabled transporters to retain around 63% of all revenues recovered.
6. **We considered our current performance in relation to gas theft investigations** – Cadent is the frontier performer amongst transporters in theft investigation and recovery of revenues. However, between 2014 and 2019, there was a funding shortfall of £840,000.
7. **We considered five options:**
 - Option 1 – maintain the status quo.
 - Option 2 – full funding (eliminates the current funding shortfall but wouldn't incentivise GDNs to go beyond Licence obligation).
 - Option 3 – part funded target plus incentive: a target would be based broadly on current performance and funded as now, but monies collected in excess of the target could be subject to an incentive. This would incentivise GDNs to be proactive, but the minimum standard could be missed if theft activity decreases.

- Option 4 – totex based incentive scheme, similar to Ofgem’s 2014 proposals. This would provide the strongest incentive for GDNs, but could still result in a funding shortfall if the monies recovered do not cover costs.
 - Option 5 – competitive scheme: a scheme similar to the gas suppliers’ incentive where revenues / penalties are based on performance relative to other GDNs. However, this could stifle the sharing of best practice and may not eliminate the funding shortfall.
8. **We considered a range of research and analysis** – Feedback from customers reaffirmed our commitment to a more ambitious approach in tackling gas theft via a totex based incentive scheme. In our fourth customer forum, an incentive based approach (as opposed to the status quo or full funding) was by far the most popular amongst the 200 participants. In our business options testing, customers endorsed a 50/50 sharing factor for a gas theft incentive.
 9. **We finalised our proposal** – Our proposal is for a 60% customer / 40% Cadent sharing factor of the amount recovered from those who illegally take gas from our network (option 4 above).
 10. **We confirmed our proposal in our October plan** and have tested this along with other aspects of the plan in our acceptability-testing process.
 11. **We estimate that, under our proposals, £1.02m would be returned to customers compared to £0.73m under the status quo.** This is based on an assumption of a doubling of the current average recovery performance. Our CVP is based on the amount returned to customers.
 12. **What will the future look like after we embed our RIIO-2 commitments?** – Higher rates of gas theft detection with associated safety [and environmental] benefits.

The table below summarises our commitment in this area:

Output: Tackling the theft of gas	
Common / Bespoke	Common
Output type	ODI(F)
Comment	Totex incentive scheme across all GDNs with 60% customer / 40% GDN sharing factor.
Target	N/A
Cost implications (annual)	N/A
Incentive range	N/A
CVP	N/A

1. Defining Our Customers' Needs



Gas theft is an industry wide concern that British Gas estimate costs between £220m and £400m per year¹. This cost is ultimately paid for by customers.

Interfering with gas meters or pipes or inappropriately installing gas meters can also present a serious safety risk to the public: tampering can lead to gas leaks, fires and explosions.

While Cadent has been successful in targeting gas theft during RIIO-1, the regulatory regime could be changed to create an incentive for the GDNs to pursue more theft of gas.

This would help ensure GDNs are better placed to undertake proactive work to identify theft and investigate more cases of gas theft. This would lead to more money being returned to customers and could potentially reduce the safety risk to the general public and act as a greater deterrent to theft.

1.1. What insights are shaping our thinking?



Table 1 shows the engagement activities that have shaped our thinking. We have summarised each activity, the questions asked (where applicable), the numbers involved, and a robustness score based on the following criteria:

Criteria	Robustness score		Relevance
The score shown is based on a combination of the robustness of the source information (judged on whether it was recent, direct and representative) and the relevance to this area.	<1.5	One or zero criteria met	Limited relevance
	1.5 - 2.0	Two criteria met	Significantly relevant and contributory
	>2.0	All criteria met	Highly relevant and contributory

¹ [British Gas detailed response to tackling gas theft consultation](#)

Table 1 Engagement activities

Phase	Date	Source name	Source description	Questions asked	# of stakeholders	Score
Discovery	Nov-17	2017 regional stakeholder workshops	We held four workshops in different regions to seek feedback from key stakeholders on the early development of our business plan. Each workshop began with a short presentation, followed by roundtable discussions. Electronic voting was also used to ask stakeholders about preferred options.	The workshops explored a number of topics, including: safeguarding (e.g. PSR awareness, partnerships and innovation opportunities); the future role of gas and the decarbonisation of home heating. Cadent's general approach to its business plan was also discussed, for example the importance and coverage of the four outcome areas identified, the extent to which the plan should respond to the needs of specific customer groups or regions.	127	2.0
	Sep-18	Deliberative workshops	We delivered full day deliberative workshops in each of our regions to discuss what services customers find important, find our customer expectations of GDNs and gather feedback on our (at the time) four draft customer outcomes. The sessions began with information-giving and building knowledge of Cadent, then eliciting participants' views of services and priorities.	Participants were asked about their awareness of Cadent and expectations of a GDN. Participants were also asked for their views on the four draft outcomes in Cadent's business plan: keeping your energy flowing safely, reliably and hassle free; protecting the environment and creating a sustainable energy future; working for you and your community safeguarding those that need it most; value for money and customer satisfaction at the heart of all our services. The aim of the discussions was to shape these draft outcomes and identify any gaps.	206	2.0

Discovery	Oct-18	Domestic survey	We ran an online survey of a representative sample of our domestic customers (and non-customers). This aimed to test the findings of the earlier deliberative workshops and focus groups.	Participants were asked closed questions on 14 topics we could cover in the business plan (e.g. minimising leaks, affordability) and asked to rate how important they are. They were then asked more open questions about the level of importance and whether anything was missing from the list of 14. Finally, they were asked a multiple-choice question on their preferred engagement methods for the future.	2,332	2.0
	May-19	WWU regional community workshops	Wales & West Utilities (WWU) hosted a series of regional workshops to seek feedback from stakeholders on its current and future business activities. These deliberative workshops explored: stakeholder priorities, value for money, mains replacement and the theft of gas, future energy solutions and social obligations.	These deliberative workshops explored: stakeholder priorities, value for money, mains replacement and the theft of gas, future energy solutions and social obligations.	52	2.0
Targeted	Sep-19	Feedback from DNVGL	Brief feedback on our plan was provided by DNVGL who noted that references to hydrogen as a "renewable" gas were not accurate.	N/A	1	1.5
	Aug-19	Environment & Sustainability Commitments	We commissioned Enzen to compile a report on Cadent's environmental and sustainability commitments.	N/A	N/A	2.0

<p>Business Options Testing</p>	<p>Jun-19</p>	<p>Cadent customer forum, round 4, Traverse</p>	<p>We held our fourth customer forum in Ipswich, London, Birmingham and Manchester to get customers' views on their priorities on a range of issues. This cross section of customers discussed with us various options (some proposed by us, some suggested by them) in a deliberative style session. Key topics discussed included: customer service, replacing pipes, reinstatement, interruptions, fuel poverty, carbon monoxide, decarbonising energy and becoming carbon neutral.</p>	<p>Participants were asked questions about a range of topics. On customer service, we explored what "great" looks like. We also asked about timeliness and communication with respect to reinstatements. We also tried to understand the level and type of service customers want during an unplanned interruption, including views on provisions, length of time without gas, and timeslots for getting the gas turned back on. We also asked for views on our options for addressing fuel poverty and carbon monoxide.</p> <p>With regards to resilience, we sought to understand what risks customers prioritise when replacing mains pipes and how this is influenced by bill impact as well as views on minimum standards of service.</p> <p>On the environment, we discussed: whether the theft of gas should be a priority (and who should benefit from successful recovery), whether connecting off-grid communities was a good way to decarbonise (and who should pay for this) and customer views on our plans to make our business operations carbon neutral.</p>	<p>200</p>	<p>3.0</p>
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Acceptability Testing	Oct-19	Phase 4 - Business interviews and surveys	We commissioned Traverse to test the acceptability and affordability of Cadent's proposed plan amongst business customers. This consisted of an on-line / face to face survey of 504 business customers and in-depth qualitative telephone interviews with 45 business customers. This showed that the plan had achieved high levels of acceptability and affordability from a business customer perspective.	Business customers were asked about the acceptability and affordability of Cadent's overall plan. If they said that the plan was unacceptable, they were asked to explain their response. If they said that it was neither acceptable nor unacceptable, they were asked what they would like to see in order to find it acceptable. Business customers were also asked to rate the acceptability of the outcome areas (environment, quality experience and resilience). Then, having learnt about the outcome areas, customers were asked as "informed customers" to rate the overall acceptability and affordability of the plan.	549	2.5
	Oct-19	Acceptability testing - final survey report on domestic customers,	We commissioned Traverse to test the acceptability and affordability of Cadent's proposed plan amongst domestic customers. This consisted of surveying 4,446 domestic customers through on-line and face to face methods. This showed that the plan had achieved high levels of acceptability and affordability amongst domestic customers, including those who are fuel poor.	Customers were asked about the acceptability and affordability of Cadent's overall plan. If they said that the plan was unacceptable, they were asked to explain their response. If they said that it was neither acceptable nor unacceptable, they were asked what they would like to see in order to find it acceptable. Customers were also asked to rate the acceptability of the outcome areas (environment, quality experience and resilience). Then, having learnt about the outcome areas, customers were asked as "informed customers" to rate the overall acceptability and affordability of the plan.	4,446	2.0

Acceptability Testing	Oct-19	Acceptability testing - focus groups with the general population	We commissioned Traverse to explore the acceptability of our plans and commitments in each of the three outcome areas (environment, quality experience and resilience) with 79 members of the public in regional focus groups. Participants were supportive of our plans for quality experience and resilience, but no consensus was reached on our environmental plans.	A group discussion was facilitated to discuss views on Cadent's plans in each of the three outcome areas and participants were also asked to complete a survey to rank levels of acceptability and affordability.	79	2.0
	Oct-19	Acceptability testing - customer forum	We commissioned Traverse to explore the acceptability of our plans and commitments in each of the three outcome areas (environment, quality experience and resilience) with 109 customers who had attended previous customer forums. Overall, participants found our plans to be both acceptable and affordable.	A group discussion was facilitated to discuss views on Cadent's plans in each of the three outcome areas and participants were also asked to complete a survey to rank levels of acceptability and affordability.	109	2.5
	Oct-19	Acceptability testing - focus groups with future customers	We commissioned Traverse to explore the acceptability of our plans and commitments in each of the three outcome areas (environment, quality experience and resilience) with 20 "future customers" (16-18-year olds) in 2 focus groups. Participants were supportive of our plans for the environment and resilience but questioned whether helping vulnerable customers was part our remit.	A group discussion was facilitated to discuss views on Cadent's plans in each of the three outcome areas and participants were also asked to complete a survey to rank levels of acceptability and affordability.	20	2.5
	Oct-19	Acceptability testing - interviews with CIVs	We commissioned Traverse to explore the acceptability of our plans and commitments in each of the three outcome areas (environment, quality experience and resilience) by interviewing 20 CIVs. Overall, our plans were supported, and all found the plans affordable.	Throughout the interviews the CIVs were explained the elements of the plan, asked to comment on whether they found each outcome acceptable, which particular elements were important to them, and whether they had any additional comments. They were also asked whether the new business plan was affordable.	20	2.0

Acceptability Testing	Oct-19	Acceptability testing - fuel poor focus groups	We commissioned Traverse to explore the acceptability of our plans and commitments in each of the three outcome areas (environment, quality experience and resilience) with 35 customers in fuel poverty in regional focus groups. Overall, participants were supportive of our plans in all three areas.	A group discussion was facilitated to discuss views on Cadent's plans in each of the three outcome areas and participants were also asked to complete a survey to rank levels of acceptability and affordability.	35	2.5
	Oct-19	Verve business plan consultation	We commissioned Verve to gather views on our plans to reduce our carbon footprint from 25 customers. We did this through an online forum with customers and stakeholders to discuss the key components that we shared on our EAP. This included our intentions to support our employees to make a positive difference to tackling climate change.	Participants were asked about their awareness of cadent, discussed the three outcome areas (environment, quality experience and resilience), discussed the bill impact breakdown (both at present and as a result of the plan), risks and uncertainties and innovation funding.	25	2.0

1.2. How Engagement Has Shaped Our Thinking

Prior to undertaking our own research, we assessed the findings of Wales and West Utilities' (WWU) May 2019 stakeholder workshops with 52 participants. At these events, there was a good deal of support for WWU's proposals to include a financial incentive ODI on detecting gas theft on the network.

When asked to vote, 49% 'strongly agreed' and 43% 'agreed' with this approach. Stakeholders considered that it is unfair that customers are paying for those who steal gas. Respondents also observed that this theft has a safety implication which could put other customers at risk.

It was also noted that the amount of money that could be recouped was substantial and that this could even form part of a discrete fund to help those in vulnerable situations (such as the proposed Community Fund) rather than simply being used to reduce prices for all customers.

However, some felt that the gas supplier should take more of an active role in this area and that advances in technology, such as smart meters, should be put to better use to detect cases of gas theft.

We also asked Enzen to undertake research into the issue on our behalf. In their August 2019 research report, Enzen note that Scottish Power Energy Networks has an initiative that aims to clarify the benefits of co-joining information from their network monitoring and metering data to identify customers with exceptional trends, detect fraud, facilitate more targeted investigation and identify whether there is nontechnical loss reduction value in widespread network monitoring.

Having studied these research insights, we chose to further assess straightforward approaches to gas theft for RIIO-2 that encourage GDNs to be more proactive in investigations by allowing GDNs to recover reasonable costs while maximising the amount returned to customers.

2. Assessing the Measurement Options



2.1. How is theft of gas currently measured?

Gas suppliers and gas transporters both have licence and Supply Point Administration Agreement (SPAA) obligations to investigate and resolve suspected theft in instances where it is deemed to be their responsibility (demarcation of responsibility is outlined within the SPAA Theft of Gas Code of Practice).

Cadent's licence obligation, Standard Condition 7 (SLC 7), requires us to investigate instances of gas theft and to make reasonable endeavours to recover the value of gas taken where we become aware of such occurrences or potential occurrences; this is essentially a 'reactive' obligation.

Under the terms of SLC 7, transporters can keep a proportion of the revenues recouped to cover their own investigation costs and must return the remaining monies to shippers (through reduced transportation charges). This is then returned to customers through lower bills. Monies are retained to cover our own costs when it is confirmed that theft of gas has occurred, and reasonable endeavours have been made to recover the value of gas taken.

2.2. How does the current measure deliver against customer outcomes and priorities?

Our experience over recent years indicates that in a large number of cases it is not possible to collect sufficient evidence to confirm that theft of gas has taken place, nor is it possible to collect sufficient details to invoice a consumer (in line with the reasonable endeavours obligation). This situation creates a funding shortfall which Cadent is currently unable to avoid since our licence only allows us to recover costs in confirmed cases of theft (i.e. any investigation that does not lead to confirmed theft is not funded).

Specific examples of the difficulties we encounter, which result in us undertaking less investigative work than we otherwise could, to avoid stranded costs, include:

- Evidence being removed prior to access being gained.
- A lack of meter readings.
- An inability to match meter readings across time periods.
- The inability to identify a perpetrator as a result of issues including:
 - Frequent tenancy changes.
 - Unwillingness for agencies to provide tenant details (GDPR).

2.3. Assessing good practice

A number of initiatives have been developed and implemented over recent years which both incentivise and assist gas suppliers to investigate and resolve instances of the theft of gas. While data shared between GDNs tells us we have performed better than the majority of transporters with respect to theft investigation and recovery of revenues, we recognise the importance of continuous improvement.

Gas Theft Detection Incentive Scheme

Gas suppliers (i.e. not transporters such as Cadent) are incentivised to investigate theft of gas through a supplier incentive scheme. The details of the scheme are outlined within SPAA Schedule 39 and are administered by Electralink. Suppliers provide funding to an 'incentive pot' and, based on whether they have met pre-defined theft detection targets, will either gain or lose through the incentive scheme.

TRAS

The Gas Theft Detection Incentive Scheme operates in conjunction with the Theft Risk Assessment Service (TRAS).

TRAS is a dual-fuel data analytics service provided to suppliers which helps them better proactively target theft investigations. The TRAS identifies supply points with lower than expected consumption and assesses this alongside other socio-economic data to provide 'leads' to suppliers to consider investigating.

Electricity Theft Detection Incentive Scheme

Electricity suppliers have a similar incentive scheme to that of the Gas Suppliers. The scheme is outlined in Distribution Connection and Use of System Agreement Schedule 30 and is also administered by Electralink.

While gas theft is acknowledged to be an industry-wide issue, much of the focus on improving detection rates has fallen on suppliers. Transporters do not have similar incentives to be more proactive in identifying potential incidences of theft of gas and are not party to the TRAS scheme.

In 2014, Ofgem consulted on an incentive scheme which would have allowed transporters to use the TOTEX calculation and may have enabled transporters to retain approximately 63% of all revenues recovered. Transporters generally did not favour the proposed scheme, given that their theft investigation activities were under-developed at the time and the perceived risk in removing the backstop licence funding under SLC 7 was deemed to be too great.

Following a consultation process,² Ofgem indicated that it would not take forward the proposal for the RIIO-1 period but would include transporter reporting within RRP. Within the letter³, Ofgem also indicated that they were keen to include an incentive within the RIIO-2 arrangements that was consistent with the electricity-theft arrangements.

² https://www.ofgem.gov.uk/sites/default/files/docs/2014/02/gas_theft_consultation_21feb14.pdf

³ https://www.ofgem.gov.uk/sites/default/files/docs/2014/10/gas_theft_consultation_decision_letter_0.pdf

Incentivisation of water theft investigation in England and Wales

Estimated leakage reflects the difference between estimated water entering water companies' networks and estimated consumption into the system. As a result, it is not only true leakage that feeds a company's leakage statistics but also water that is stolen or unbilled.

The number of unauthorised connections to water mains has increased significantly in recent years and may be partly to blame for a stagnation in water companies' ability to reduce leakage since 2000. Thames Water has revealed that the number of unauthorised connections within its London and Thames Valley licence area soared from 33 in 2011 to 734 in 2017, resulting in a loss of between 2 million and 3 million litres of water each year. In June 2017, the company was penalised £8.55m under the performance commitment regime for missing its leakage reduction targets for the year⁴.

Water companies are tackling water theft in a number of different ways, including encouraging public tip-offs, regularising temporary access, introducing new technologies such as smart meters, and having a greater willingness to prosecute. The consequence of a water company not billing gap sites (not on the company's system) or voids (properties erroneously classed as vacant) appropriately is that other customers are charged more. Therefore, retail water businesses have a financial incentive to bill voids and gap sites: to avoid losing out on revenue allowed through their retail control.

As part of PR19, Ofwat has considered different ways to strengthen water companies' incentives to manage voids and gap sites appropriately.

2.4. Responsibility for Addressing Gas Theft

Suppliers and Transporters have a very clear demarcation of responsibilities when it comes to theft of gas investigation. This means that our activities do not impact on incentives for suppliers to investigate theft and our role, and those of suppliers, are complementary and not in conflict.

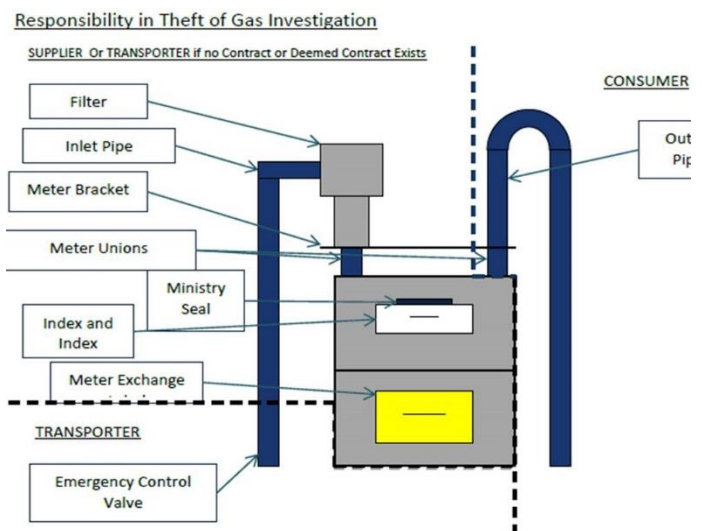
Transporters are required to investigate gas theft in the 'course of conveyance'. This relates to gas that has been taken or stolen either upstream of the Emergency Control Valve (ECV) or downstream of the ECV where there is no registered Shipper/Supplier.

Suppliers, by contrast, have a responsibility to investigate theft downstream of the ECV which would often be undertaken by tampering or bypassing the meter.

The 'Theft of Gas Code of Practice' (Schedule 33 of the Supply Point Administration Agreement (SPAA)), that Suppliers and Transporters must abide by, outlines this demarcation of responsibilities between Suppliers and Transporters:

"Where a Supplier has a contract or deemed contract with the relevant Consumer it is responsible for dealing with any investigation and arranging to rectify the situation. Where no such contract or deemed contract exists between the Supplier and relevant Consumer, or the incident occurs upstream of the Emergency Control Valve (ECV) the Transporter is responsible for dealing with any investigation and arranging to rectify the situation."

Figure 1 Responsibilities in the Investigation of Theft of Gas for Domestic / Small Business Customers



⁴ [Investigation into Thames Water's failure to meet its leakage performance commitments, Ofwat.](#)

3. Assessing Performance Levels



We have been very successful in recovering monies related to gas theft over the past five years and the majority of the funds recovered have been returned to customers through their bills. However, if enabled to do so, we can perform better in RIIO-2. Figure 3 shows the relative success our efforts have made on behalf of customers. However, Figure 2 highlights the scale of the shortfall in funding we have received.

Figure 3 Money recovered and returned to customers (£m)

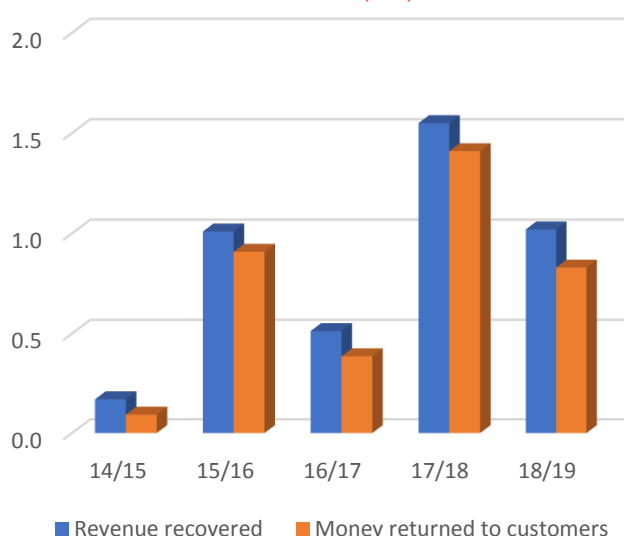
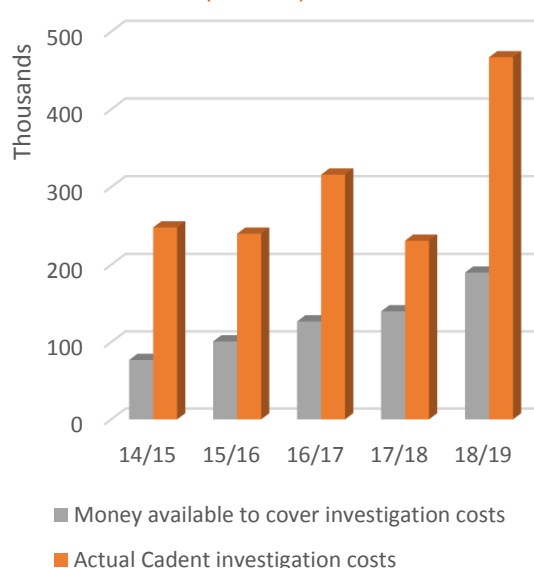


Figure 2 Shortfall in investigation costs (£1000s)



As we are required to spend costs upfront to investigate theft (Actual Cadent investigation costs) but are only permitted to recoup costs where we can confirm cases of theft (money available to cover investigation costs), we are left with a funding shortfall. This shortfall was £840k between 2014 and 2019. The full detail of costs is provided in Table 2.

Table 2 Historic gas theft costs

Year	Revenue recovered	Number of investigations	Total investigation costs	Recoverable investigation costs	Money returned to customers	Funding shortfall
14/15	£0.170m	Data not captured	£0.248m	£0.077m	£0.093m	£0.171m
15/16	£1.01m	1007	£0.240m	£0.101m	£0.909m	£0.139m
16/17	£0.513m	Data not captured	£0.316m	£0.127m	£0.386m	£0.189m
17/18	£1.55m	591	£0.231m	£0.138m	£1.410m	£0.093m
18/19	£1.02m	561	£0.467m	£0.219m	£0.830m	£0.248m
Total	£4.26m	-	£1.50m	£0.662m	£3.6m	£0.84m

3.1. What Options have we Considered?

We have identified a number of options regarding the funding of theft detection and investigation activities that Ofgem and GDNs could take forward during the RIIO-2 period. These range from the current funding arrangements (the status quo) through to funding via incentive arrangements only.

Table 3 Options for gas theft funding

Option 1: Maintain the status quo			
Elements	Description	Pros	Cons
Funding	Continuation of the current funding arrangements.	<ul style="list-style-type: none"> No further process/system development required. 	<ul style="list-style-type: none"> Will lead to a shortfall for Cadent We could try to mitigate this by either reducing theft activities or targeting investigations only where evidence of theft is strongest or most likely to lead to revenue recovery No incentive for gas networks to be more proactive in identifying and investigating theft.

Option 2: Full funding			
Elements	Description	Pros	Cons
Funding	Transporters set dynamic targets for both the number of investigations and revenue recovered. These would be reviewed annually. Full funding would be provided regardless of the outcome of an investigation.	<ul style="list-style-type: none"> Closes the current funding shortfall. 	<ul style="list-style-type: none"> Would not provide an incentive to go 'above and beyond' Licence obligation as it would simply provide funding to cover costs.

Option 3: Part funded target, plus incentive			
Elements	Description	Pros	Cons
Funding	This solution would be a 'halfway house' between the status quo and a full incentive scheme. A target could be set broadly in line with current performance (revenue recovery of approximately £900k per year). Cadent could be required to meet this target and receive (part) funding as per the current SLC7.	<ul style="list-style-type: none"> Broadly retains the current monies passed back to customers. 	<ul style="list-style-type: none"> Would tie gas networks into meeting a minimum standard which could be difficult to maintain if actual theft activity decreases.
Incentive	Any monies collected in excess of the set target could then be eligible to be passed through the totex arrangements and would incentivise Cadent to be more proactive.	<ul style="list-style-type: none"> Provides an opportunity for transporters to proactively pursue additional revenue recovery to the benefit of themselves and customers. This option may also be more palatable to shippers.⁵ 	

⁵ During the previous Ofgem Transporter Incentive arrangements consultation, BG indicated that any additional funding "must be accompanied by additional output requirements i.e. by placing stronger obligations on GDNs to take appropriate action to better manage theft and unregistered sites and requiring further improvements regarding theft and unregistered reporting."

Option 4: Totex-based incentive scheme			
Elements	Description	Pros	Cons
Incentive	This would mirror the incentive scheme, mentioned in section 2.3, offered to the transporters in 2014.	<ul style="list-style-type: none"> Provides the strongest incentive on transporters to be more proactive in identifying, investigating and stopping the theft of gas. Incentivises transporters to maximise revenue recovery which would benefit consumers by removing the safety risk theft of gas poses and reducing their overall bill. Simplest option to administer. 	<ul style="list-style-type: none"> Removal of current 'backstop' funding (albeit only partial funding). Potential funding shortfall if the value of gas recovered did not meet investigation costs.

Option 5: Competitive scheme			
Elements	Description	Pros	Cons
Incentive	As per the supplier incentive, a scheme similar to the Suppliers Gas Theft Incentive Scheme could be developed in which revenue/penalty would be based on an individual transporters performance relative to the others.	<ul style="list-style-type: none"> Rewards leading or frontier performers. 	<ul style="list-style-type: none"> This solution may also not solve the issue of being correctly funded to fulfil our obligations. Would stifle the sharing of best practice between transporters. No credible mechanism exists to administer this kind of scheme.

Table 4 Options appraisal against objectives

	Option 1: Status quo	Option 2: fully funded	Option 3: Part funded, plus incentive	Option 4: totex based incentive	Option 5: competitive scheme
Encourage GDNs to be more proactive in our investigations, which would likely lead to an increase in revenues recovered and passed back to customers	Yellow	Yellow	Light Green	Green	Green
Allow Cadent to recover reasonable costs from investigations	Yellow	Green	Green	Light Green	Red
Maximise the amount passed back to customers via shippers	Yellow	Yellow	Light Green	Green	Yellow
Retain a simple approach to reporting and sharing recovered funds	Light Green	Light Green	Light Green	Green	Red

No delivery	Weak delivery	Some delivery	Delivery	Strong delivery
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3.2. What level did we propose to customers and why?

We took three of our five options to customers as proposals. These were:

- Proposal A: continue with the current funding arrangements (45% of costs), this aligns with Option 1 outlined in our initial scoping exercise above.
- Proposal B: fully funded, this aligns with Option 2 outlined in our initial scoping exercise, and
- Proposal C: Cadent can receive an incentive (50% of recovered revenue) which aligns with option 4 outlined in our initial scoping exercise.

We did not test options 3 and 5 with customers due to the complexity of the proposals and the lack of adequate mechanisms for their delivery.

In particular, we do not think that any mechanism to administer a competitive scheme (Option 5) exists. It would also not drive the right behaviours to address this industry-wide challenge. Such an option could lead to overbearing cost recovery attempts towards vulnerable customers who have failed to pay their gas bill due to wider financial problems. It could also lead to companies being penalised for good performance, based on the relative position of others. Therefore, we have discounted this as an option.

Our preferred option (Option 4) leads to the highest amount being returned to customers (under the assumptions we have made), over £5m for the five years of RIIO-2 (described below in section 5.1). It also closes the current funding shortfall for Cadent. This relies on the strong incentive to increase the amount of revenue recovered.

The customer benefit depends on the extent to which recovery increases under any new incentive.

In our business options testing engagement with customers, we explain that the benefits arising from different approaches to the theft of gas were uncertain.

4. Customer Testing



Business options testing

At our fourth customer forum, the 200 participants were presented with the three proposals with respect to the treatment of theft of gas that were informed by our initial scoping exercise and previous customer engagement. Proposal C, which would allow Cadent to incentivise gas recovery, was by far the most popular when participants voted – in both locations it scored more than Proposals A and B combined.

Some participants suggested a ‘Proposal D’ instead of the available options, these suggestions ranged from charging the thief for the cost of recovery to prioritising preventative action. Some participants, however, felt that not being able to fully recover costs would encourage Cadent to take pre-emptive or preventative action to stop it happening in the first place. There was some pushback from other participants, who questioned how realistic it was to expect Cadent to prevent gas theft.

This feedback from customers reaffirmed our commitment to a more ambitious approach to tackling gas theft in RIIO-2 via a totex based incentive scheme.

This proactive approach will increase the level of deterrent against theft, thereby addressing the concerns of some customers that Cadent could be undertaking more pre-emptive actions to prevent theft while addressing customers’ main concern, more effectively than in RIIO-1, that the thief should pay for stolen gas.

Acceptability testing

As part of the Traverse quantitative acceptability testing of business customers (October 2019), 85% of business customers surveyed said that they found the environmental aspects of Cadent’s business plan important and 83% found the proposals acceptable. The results of the domestic testing were similar with 83% of those surveyed found the environment section of the plan acceptable.

Participants in our acceptability testing customer forum generally did not think gas theft belonged in the environment section of the plan. They think Cadent should tackle this issue, but they do not think it reduces emissions i.e. even if the gas is properly paid for it will still release emissions upon use.

While participants in our acceptability testing focus groups with future customers agreed that it was beneficial to reduce the theft of gas, several participants felt that this was more about saving Cadent money than improving the environment and, as such, was out of place in this outcome.

Participants at our acceptability testing focus groups with those in fuel poverty generally had not heard about gas theft before and were happy that this was being tackled.

5. Our Commitments



We have included the following action in our Environmental Action Plan (Appendix 07.04.00).

Table 5 Our commitments

Output commitment / EAP Action	Measure definition	Benefits to current customers	Benefits to future customers	SROI/WTP value over RIIO-2 period
We will maximise the benefits to customers and stakeholders from a theft of gas incentive, and commit to recover at least £8m over the RIIO-2 period.	Increase in cost recovery	<ul style="list-style-type: none"> Returns more gas theft related costs to customers Acts as a deterrent to gas theft, thereby positively impacting customer safety Acts as a deterrent to gas theft, which may result in reductions in gas usage and consequently reduce emissions 	<ul style="list-style-type: none"> On-going targeting of gas theft will continue to return funds to customers and act as a deterrent with consequential safety and emissions benefits 	£1.29m

Based on the strong customer preference for our Proposal C and our preference to be ambitious, we have decided to pursue a full incentive option as outlined in option 4 above.

Ofgem previously proposed a similar regime for RIIO-1 and it is acknowledged as the simplest option to administer and report on. However, there is a (small) risk for Cadent of not recovering sufficient funds to cover our cost exposure.

Our preferred option leads to the highest amount being returned to customers (under the assumptions we have made), around £5m for the 5 years of RIIO-2. It also closes the current funding shortfall for Cadent. This relies on the strong incentive to increase the amount of revenue recovered.

The customer benefit depends on the extent to which recovery increases under any new incentive.

Our proposal is for a 60% customer / 40% Cadent sharing factor of the amount recovered from those who illegally take gas from our network. This is an enhanced return to customers than the proposed 50/50 split endorsed by customers during BOT.

We propose a sharing factor in the firm belief that we can meet our ambition to significantly increase the amount of gas costs recovered. By doing so we will ensure that the level of funds returned to customers remain constant or increase. However, since BOT we have increased the proposed percentage return to customers to provide even more assurance that customers will be better off under this new measure.

The figures provided in this output case are conservative in that regard, demonstrating no change in the return to consumers. However, we believe during the RIIO-2 period we could recover larger amounts than those forecast in this case.

Over time increased activity to reduce gas theft will also create a greater deterrent for those who avoid paying gas bills and will also reduce the safety risks associated with gas apparatus tampering.

In the long term this is expected to reduce gas theft. However, it will also act to reduce the potential quantum of recovery. For this reason, we have retained a modest annual increase in return of double our current average return.

We acknowledge our customers' feedback regarding the limited environmental benefit resultant from a reduction in the theft of gas. However, we have chosen to retain the commitment within the environment section of the plan for two reasons. The first is pragmatic, as acknowledged by our CEG, theft of gas does not sit comfortably in any priority area. The second is that, while our more proactive approach to tackling gas theft is intended to increase cost recovery and may not result in a change in gas usage, there is a possibility that the additional deterrent leads to a reduction in gas use and some consequential emissions reductions. In addition, those who take gas from our network without paying have no incentive to reduce their consumption, which has a further negative impact on the environment.

5.1. Cost Assessment

With the exception of the first year in which the data was collated, 2014/15 (Table 2 Table 2 Historic gas theft costs), Cadent has consistently recovered more in the value of gas taken than it has incurred in total investigation costs; this has been achieved against a backdrop of a 'reactive' licence obligation and in the knowledge that we are only part funded for carrying out this obligation.

During 2018 (Jan to Dec) Cadent recovered £929,823 of which about £800k was passed back to consumers. During the same period, Cadent identified further gas that was potentially stolen, which was the starting point for our reasonable endeavours to recover the value of gas taken. Due to the difficulties described previously and, given that if we went beyond reasonable endeavours to recover the value of gas taken our 'unfunded' costs would be likely to increase, we were unable to recover the potential full value of gas taken.

In addition to the potential to recover greater revenue from our current activities (as outlined above), with additional funding, we would also be in a position to proactively identify greater numbers of theft of gas incidents, which would also lead to greater revenues recovered.

It is difficult to estimate performance in the future. We would expect that, given the correct funding and incentive, we would be able to significantly improve our current rate of revenue recovery. A doubling of the current average recovery performance is a reasonable assumption.

Based on this, we estimate the annual benefit to consumers would be as follows:

Table 6 Cost estimates

	Estimated amount recovered	Assumed investigation costs	Amount retained by Cadent	Amount returned to customers
Option 1 Status quo	£0.85m (the amount averaged over the last 5 years)	£0.30m (the amount averaged over the last 5 years)	£0.13m (44% of costs) NB: funding shortfall	£0.73m (amount recovered, minus Cadent share)
Option 2 Fully funded	£0.85m (the amount averaged over the last 5 years)	£0.30m (the amount averaged over the last 5 years)	£0.30m (full costs)	£0.55m (amount recovered, minus Cadent share)
Option 3 Part funded + incentive	£1.28m (50% increase on the amount averaged over the last 5 years)	£0.45m (50% increase on the amount averaged over the last 5 years)	£0.30m from funding (full costs of the presumed target set at the current performance level) £0.17m (40% sharing factor of the amount recovered over and above the presumed target set at the current performance level)	£0.81m (amount recovered, minus Cadent share)
Option 4 totex based incentive	£1.71m (double the amount averaged over the last 5 years)	£0.60m (double the amount averaged over the last 5 years)	£0.68m (40% sharing factor of the amount recovered)	£1.02m (60% sharing factor)

5.2. Funding Mechanism

Ofgem’s methodology for RIIO-2 highlighted that the current mechanism does not allow for the GDNs to pass-through costs associated with the investigation of gas theft. Their current policy (reflected in the licence) is that GDNs must not suffer any financial detriment or make any financial benefit as a result of the investigation of gas theft.

Ofgem’s decision is to retain the mechanism from RIIO-1 for RIIO-2 and widen its scope to allow for the recovery of the costs associated with the investigation of gas theft.

However, this will not completely remove the disincentive to proactively investigate cases of gas theft. Therefore, we are suggesting an alternative output to deliver a higher gas-theft detection rate.

Table 7 below outlines our consideration of the various funding mechanisms available.

Table 7 Regulatory treatment

Regulatory treatment	Criteria	Rating	Further explanation of assessment
Reputational ODI	This demonstrates that this is important to customers and/or stakeholders.		This supports our customers overriding priority for safety.
	This is funded elsewhere in our plan, or inappropriate for funding		There is an existing pass-through mechanism to recover some of the costs associated with our work on the theft of gas.
	It can robustly measure performance improvement		The amount recovered and returned to customers via shippers can be tracked and is the best measure of our performance.
Financial ODI	This demonstrates this is important to customers and/or stakeholders and they are willing to pay.		Supports our customers' overriding priority for safety.
	This is not funded elsewhere in our plan.		There is an existing pass-through mechanism to recover some of the costs associated with our work on the theft of gas.
	This can robustly measure performance improvement.		The amount recovered and returned to customers via shippers can be tracked and is the best measure of our performance.
Price control deliverable	This is a specific deliverable with a clear timeline and targets		This output does not have a specific, time-bound deliverable; it is an ongoing activity.
	There is a demonstrable benefit to customers, which they support.		This supports our customers overriding priority for safety.
Licence Obligation	This represents an absolute minimum, with significant customer harm if we do not deliver it.		While theft of gas has an impact on safety that should be an absolute minimum, our proposal aims for us to go over and above a minimum level and be more proactive.
	It is applicable to all GDNs		A similar measure could be applicable to all GDNs, although the level of targets and approach taken is likely to be different.

Regulatory treatment	Criteria	Rating	Further explanation of assessment
Business Plan Incentive	This adds to the quality of our plan but is not a specific deliverable or performance measure.		This is a specific performance measure (i.e. the amount recovered).
	This is funded elsewhere in our plan, or inappropriate for funding		There is an existing pass-through mechanism to recover some of the costs associated with our work on the theft of gas.

Does not meet criteria	Weakly meets criteria	Partially meets criteria	Meets criteria	Strongly meets criteria
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Based on this assessment, our proposal is for a financial ODI to incentivise a more proactive approach to investigating gas theft in RIIO-2.

5.3. Beyond RIIO-2

Our proposal would incentivise the detection of higher rates of gas theft and, we hope, prove a deterrent that results in lower rates of gas theft. Unfortunately, we anticipate that gas theft will continue to occur during RIIO-2 and therefore incentivisation should remain in place. If theft rates were to drop dramatically, a return to present RIIO-1 practice could be considered.

6. Delivering Our Commitments



If Ofgem accepts our proposed option, Cadent will focus on two areas to ensure greater revenues are recovered:

- We will be more proactive in identifying potential cases of theft by:
 - Establishing a Revenue Protection Unit.
 - Undertaking greater use of data analysis to identify potential theft.
 - Exploring the engagement of third parties to provide leads (similar to TRAS).
- We will also consider how we can go beyond ‘reasonable endeavours’ in recovering the full value of gas taken by:
 - Increasing the level of rigour in demanding full payment with less room for ‘negotiating a settlement’, while recognising the importance of protecting customers in vulnerable situations who may have failed to pay gas bills due to other complex needs or debt problems.
 - Making greater use of legal recourse, including court action.

While we do not focus upon it in our proposals, it is also worth noting that, in addition to directly reducing customer bills by returning revenues recovered via transportation costs, further reductions in overall industry costs could also be made if shippers’ exposure to ‘Unidentified Gas’ (UIG) costs were reduced. UIG is gas that is supplied to the gas network, but which, after correcting for the volume of gas lost in the network (e.g. through shrinkage), cannot be directly attributed to individual shippers and is therefore shared out between all shippers. High levels of UIG and the difficulty shippers have in forecasting levels of UIG from month to month leads to ‘risk premiums’ being added to customer bills to cover UIG exposure.

6.1. Protecting against Non-delivery

As outlined in section 2, Cadent is required under the terms of SLC 7 to try to recover the value of gas taken. A proportion of these revenues can be kept to cover our own investigation costs; however, this is only when it is confirmed that theft of gas has occurred and that reasonable endeavours have been made to recover the value.

Therefore, under the current licence requirement, there is no guarantee that customers will receive a financial benefit from the investigation of gas theft. For customers to benefit, monies recovered must outstrip Cadent's investigation costs.

Under our proposal for RIIO-2, there remains no guarantee that customers will receive a financial benefit from the investigation of gas theft, but customers stand to gain from a higher level of proactive theft discovery.

In addition, Cadent's investigation costs currently equate to approximately 45% of funds recovered. Therefore, under our proposed recovery model customers stand to receive a greater share of monies recouped, 60% rather than approximately 55%. Furthermore, greater proactivity from Cadent will result in customers receiving 60% of a much larger pot of recovered funds.

As this financial incentive will drive cost recovery, providing customers with a return equal to or greater than the returns during RIIO-1, we have chosen to include a conservative forecast of the additional benefit in our CVP calculations.