



Gas and electricity suppliers, gas transporters, distribution network operators, Xoserve, Elexon and other interested parties

Promoting choice and value for all gas and electricity customers

Direct Dial: 020 7901 7067
Email: neil.barnes@ofgem.gov.uk

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Dear Colleague,

Overview of questionnaire responses on theft of energy

In August 2011, we published our Tackling Gas Theft consultation in which we consulted on three industry proposals to amend the current regulatory framework for tackling gas theft. We are now assessing responses to the consultation and will shortly publish our final proposals. To support our analysis, in December 2010, we issued a questionnaire to gas and electricity suppliers, gas transporters and distribution network operators (DNOs) to understand the performance of industry participants in tackling theft.

This document reports on the information provided by industry participants. The data we requested covered the period 2006 to 2010. In the information provided in the appendices, we focus on the last two years covered by the questionnaire, 2009 and 2010, as the quality of the data for the preceding years was poor from many respondents.¹

While for 2009 and 2010 the response rate² is more robust, responses were not received from all industry parties and industry parties did not provide data for all questions asked. This limits the conclusions that can be drawn from the data. To provide a measure of confidence in the aggregated data provided, each table includes the response rate for that specific question.

The information provided by industry indicates that more theft has been identified in the electricity market than in the gas market. Table 1 below shows that for 2009 and 2010 combined, electricity suppliers detected 37,870 cases of theft, whereas for the same period, gas suppliers detected 5,812 cases of identified theft.

¹ The majority of respondents indicated they were unable to retrieve the data requested in the questionnaire for the years 2006 to 2008.

² The response rate is a measure of the aggregate number of customers supplied by the provided that responded to a question divided by the total number of customers in that market.

Table 1: Total amount of theft identified by parties in the gas and electricity markets

	2009	2010	Total
Gas suppliers	2,933	2,879	5,812
Gas transporters	63	125	188
Electricity suppliers³	21,156	16,714	37,870
DNOs	11,444	10,108	21,552

Source: Ofgem analysis 2012

In 2009, suppliers estimated the volume of electricity stolen was 172GWh and in 2010 was 159GWh⁴. In comparison, gas suppliers estimated that 57GWh was stolen in 2009, whilst in 2010 this decreased to 53GWh. It is unclear why there is such a significant difference in the level of theft between the two markets, however it should be noted that electricity suppliers estimated that 55.5GWh and 51GWh (for 2009 and 2010 respectively) was illegally taken from cases of theft related to cannabis farms.

The amount of theft in the gas and electricity markets is reflected in suppliers' efforts to detect and prevent theft. In 2010, electricity suppliers employed 237 full time equivalents⁵ (FTEs) to tackle theft, whilst the number in the gas market is lower at 91 FTEs. The higher theft detection and prevention efforts in the electricity market may be one of the reasons that the average length of theft is shorter when detected in electricity (at 1 to 1.4 years) than in gas (at 2.3 to 2.7 years).

Information provided by the industry informed our analysis of industry proposals to tackle gas theft. We expect to use this information to support our understanding and analysis of theft impacts in the electricity market. This work is planned for later in the year.

We expect that the publication of this letter may be a useful resource for the industry and other interested parties. If you have any questions please contact Cesar Coelho (cesar.coelho@ofgem.gov.uk) or Andrew Wallace (andrew.wallace@ofgem.gov.uk).

Yours faithfully,

Neil Barnes,
Head of Smarter Markets Strategy

³ Whilst it is clear where the responsibility lies for investigating theft in the gas market, when we issued the questionnaire some electricity suppliers and DNOs expressed concern about which party was responsible for taking action on electricity theft. In this context, we note that some data may have been reported by both DNOs and electricity suppliers. There is therefore the potential of double counting if both of these data sets were to be summed together.

⁴ Due to the difference in price per kWh between gas and electricity, the difference between the volume of gas and electricity stolen may not provide an accurate assumption on the level of gas and electricity theft.

⁵ FTE is a way to measure the resources allocated to a specific task or project. An FTE of 1.0 means that the person is equivalent to a full-time employee.

Appendix 1 – Overview of questionnaire responses from gas suppliers

Suspected, investigated and identified theft

The reported sources of leads on gas theft varied significantly between suppliers. Table 1 below shows that there is no clear pattern and some suppliers have used the “other” category where they were not able to provide an accurate breakdown. The low figure for data analysis suggests that some suppliers are not proactive in theft detection. However, we consider that, in practice, this figure may be slightly higher as thefts generated by revenue protection officers,⁶ and recorded under the “other” category will, to some extent, be data driven.

Table 1: Sources for theft detection (weighted average by number of theft cases found)

	Supplier 1	Supplier 2	Supplier 3	Supplier 4	Supplier 5	Average
Data Collector	22%	2%	0%	27%	22%	19%
MAM/MAP⁷	3%	6%	0%	0%	0%	3%
Gas Transporter /Xoserve	9%	91%	51%	28%	13%	20%
Analysis	12%	0%	0%	2%	15%	9%
Other*	54%	2%	49%	42%	21%	49%

* Revenue Protection Officer self-generated, tip-off, housing association, police, new tenant

Source: Ofgem analysis 2012

Table 2 below reports the total number of suspected theft cases. This information is broken down by consumption category and shows that the number of suspected cases is highest in the domestic Smaller Supply Point⁸ (SSP) category.⁹

Table 2: Suspected theft

	2009	2010	Response rate 2009	Response rate 2010
SSP – D	7,893	7,265	84%	84%
SSP – ND	575	493	67%	76%
LSP¹⁰	647	683	62%	62%
Total	9,115	8,441		

Source: Ofgem analysis 2012

Table 3 below shows that almost all reported suspected theft in 2009 and 2010 was followed up by an investigation¹¹ (respectively 98% and 96% of the suspected cases were investigated).

⁶ These are the field forces that investigate theft (and potential other sources for lost revenue).

⁷ Meter asset manager/meter asset provider.

⁸ An SSP is a supply point with an annual consumption of less than 73,200kWh (2,500 therms).

⁹ In our tables, SSP – D refers to domestic sites in the SSP market and SSP – ND refers to non-domestic sites in the SSP market.

¹⁰ A supply point with an annual consumption greater than 73,200kWh (2,500 therms).

¹¹ These are investigations conducted after the ECV, where it is assumed that the case of theft falls under the responsibility of suppliers.

Table 3: Investigations after the ECV¹²

	2009	2010	Response rate 2009	Response rate 2010
SSP – D	7,751	6,981	84%	84%
SSP - ND	518	430	67%	76%
LSP	638	677	62%	62%
Total	8,907	8,088		

Source: Ofgem analysis 2012

Table 4 presents the number of cases of theft found by suppliers. This data relates to thefts after the ECV which are the suppliers' responsibility. The 8,907 investigations conducted in 2009 led to 2,933 theft cases being found, which represents a conversion rate of 33%. The conversion rate has improved slightly in 2010 to approximately 36%.

Table 4: Identified theft after the ECV

	2009	2010	Response rate 2009	Response rate 2010
SSP – D	2,567	2,443	100%	100%
SSP - ND	167	141	67%	76%
LSP	199	295	62%	62%
Total	2,933	2,879		

Source: Ofgem analysis 2012

Table 5 reports suppliers' analysis on the estimated volume of gas abstracted from the thefts that they detected. The 2,879 cases of theft identified in 2010 lead to 53GWh of gas being illegally taken by customers. The average amount of gas taken per case of theft varies significantly across suppliers, ranging from 2MWh to 23MWh.

Table 5: Estimated volume of gas illegally taken (GWh/Year)

	2009	2010
Total	57.0	53.3
Response Rate	78%	75%

Source: Ofgem analysis 2012

Table 6 below shows the average length of time that suppliers estimate that a theft has occurred when it is discovered. Suppliers have indicated that on average, theft by an SSP domestic customer occurs for approximately 2 years and 4 months. The length of theft is slightly higher for theft by SSP non-domestic customers, at around 2 years and 7 months, and also for theft by LSP customers, at 2 years and 9 months.

Table 6: Average length of theft (Years)

	2006 - 2010	Response rate
SSP – D	2.3	67%
SSP - ND	2.6	67%
LSP	2.7	67%

Source: Ofgem analysis 2012

¹² The ECV is a valve which limits the supply of gas to an individual Supply Point.

Resources allocated to tackling theft

Suppliers have provided data on the human resources allocated to tackling gas theft. Table 7 shows the total number of full time equivalents (FTEs)¹³ across all suppliers that reported data for 2009 and 2010. One supplier accounts for approximately 85% of all FTEs (both in 2009 and 2010).

Table 7: FTEs allocated to tackling gas theft

	2009	2010
Total	83.3	91.3
Response Rate	84%	84%

Source: Ofgem analysis 2012

Table 8 presents the aggregate overhead costs¹⁴ that suppliers have reported that they incurred in tackling theft of gas.

Table 8: Overhead costs with activities to tackle gas theft

	2009	2010
Total	£3,028,100	£3,707,998
Response Rate	69%	69%

Source: Ofgem analysis 2012

Costs of tackling theft

Table 9 shows the total reported retail value of the gas illegally taken. This value has increased in 2010, despite a slightly fewer number of cases of gas theft having been found that year and a lower volume of stolen gas being reported. It is unclear why this is the case.

Table 9: Retail value of the volume of gas illegally taken

	2009	2010
Total	£2,781,015	£3,722,420
Response Rate	69%	69%

Source: Ofgem analysis 2012

Table 10 shows that the costs incurred by suppliers with investigations have increased from £2m in 2009 to approximately £2.7m in 2010.

Table 10: Investigation costs

	2009	2010
Total	£2,000,393	£2,697,064
Response Rate	68%	68%

Source: Ofgem analysis 2012

Table 11 shows the total costs incurred by suppliers from disconnection, reconnection and meter replacement costs associated with gas theft. It shows that suppliers have incurred

¹³ FTE is a way to measure the resources allocated to a specific task or project. An FTE of 1.0 means that the person is equivalent to a full-time employee.

¹⁴ These are the costs suppliers incurred in running the activities related with tackling theft of gas, but that are not directly linked to tackling specific theft cases. One example of an indirect cost is employee's salaries.

additional costs of £375k with disconnecting, reconnecting, or replacing the meter when theft is found in 2009, and of £337k in 2010.

Table 11: Disconnection, reconnection and meter replacement costs

	2009	2010
Total	£375,042	£337,166
Response Rate	61%	61%

Source: Ofgem analysis 2012

Table 12 presents information about the number of warrants executed by suppliers. A supplier may apply to a magistrate or its equivalent in Scotland for a warrant which would grant rights of entry to inspect the premises and to disconnect supply where an offence has occurred. A warrant would be required where, for example, the customer did not allow access to a meter for inspection.

Table 12: Number of warrants

	2009	2010
Total	956	848
Response Rate	50%	50%

Source: Ofgem analysis 2012

Suppliers have also indicated that in 2010 they have successfully pursued one criminal conviction of a customer that had stolen gas. According to the information supplied provided by suppliers, no criminal convictions were conducted in 2009.

Benefits from tackling theft

Table 13 shows the aggregate recovered charges from customers (including charges for investigation and metering costs). Suppliers have indicated that this level of recovery represents about 60% of the amount billed to customers that have stolen gas (including the value of the gas and any investigation and meter disconnection, reconnection and exchange costs). However, the response rate for this question is low at around 57%.

Table 13: Revenue recovered from cases of theft

	2009	2010
Total	£1,652,485	£1,587,094
Response Rate	57%	57%

Source: Ofgem analysis 2012

Appendix 2 - Overview of questionnaire responses from gas transporters

Some respondents were unable to breakdown the information provided between SSP domestic and non-domestic sector and LSP consumption categories. Where necessary, to maintain consistency we have grouped together the SSP and LSP consumption categories.

Suspected, investigated and identified theft

Table 1 below reports the total number of suspected theft cases before the ECV, assumed to fall under the responsibility of the gas transporter. The data shows that the number of suspected cases increased by 9% in 2010.

Table 1: Suspected theft before the ECV

	2009	2010	Response rate 2009	Response rate 2010
SSP and LSP	371	408	96%	96%

Source: Ofgem analysis 2012

Table 2 below shows that all suspected cases of theft before the ECV in 2009 and 2010 were subsequently investigated by gas transporters. Gas transporters are required to investigate suspected theft of gas that originates upstream of the ECV.¹⁵

Table 2: Investigations before the ECV

	2009	2010	Response rate 2009	Response rate 2010
SSP and LSP	371	408	96%	96%

Source: Ofgem analysis 2012

Table 3 presents the number of cases of theft found by gas transporters. This data relates to thefts before the ECV which would be the gas transporters' responsibility to investigate. The 371 investigations conducted in the SSP and LSP category in 2009, led to 63 theft cases being found, which represents a conversion rate of approximately 17%. The conversion rate improved in 2010 to approximately 31%.

Table 3: Identified theft before the ECV

	2009	2010	Response rate 2009	Response rate 2010
SSP and LSP	63	125	96%	96%

Source: Ofgem analysis 2012

Table 4 reports gas transporters' estimate of the volume of gas abstracted from the thefts that they detected. The 63 cases of theft identified in 2009 lead to 8.7GWh of gas being illegally abstracted. The volume of gas illegally abstracted in 2010 increased by approximately 64%. Given that gas transporters were unable to split figures, it is not possible to provide an exact view on the average amount of gas taken per case of theft.

Table 4: Estimated volume of gas illegally taken before ECV (GWh/Year)

	2009	2010
Total	8.7	23.9
Response Rate	96%	96%

Source: Ofgem analysis 2012

¹⁵ See SLC 7 of the Gas Transporters Licence.

Table 5 shows the average duration of theft before the ECV. Only one gas transporter responded to this question. In addition, this respondent was unable to provide a complete assessment based on all records. However it provided an assessment of theft duration based upon a representative sample from 2010. This sample represented 11% of domestic and 26.7% of non-domestic cases valid cases notified to Xoserve in 2010.

Table 5: Average length of theft (Years)

	2006 - 2010
SSP – D	2.3
SSP – ND	2.2

Source: Ofgem analysis 2012

Resources allocated to tackling theft

Gas transporters provided data on the human resources allocated to tackling gas theft. Table 6 shows the total number of internal and external FTEs across all gas transporters that reported data for 2009 and 2010. One gas transporter accounted for all of the FTEs in 2009 and 2010, this number remained the same for 2006 to 2008. This transporter stated that this is an estimate of the aggregate internal resource-time utilised for reactive investigation of theft of gas matters, where the transporter is responsible for investigation. Another gas transporter stated when instances of theft investigation are required, this is undertaken by operation staff in addition to their usual duties.

In addition, one gas transporter stated that they did not have a dedicated resource to specially deal with theft cases, although noted that they had six FTEs in a call centre which specifically dealt with incidents on their networks. As it is not clear to what extent these deal with theft incidents, we have excluded it from the table below.

Table 6: FTEs allocated to tackling gas theft

	2009	2010
Total	3	3

Source: Ofgem analysis 2012

Costs of tackling theft

Table 7 shows the estimated value of transportation charges for the gas that suppliers have identified as being illegally taken before the ECV. There was a large increase in 2010 due to the increase in the amount of theft cases being found when gas was being illegally taken before the ECV.

Table 7: Transportation charges for gas illegally taken before the ECV

	2009	2010
Total	£286,223	£785,099
Response Rate	96%	96%

Source: Ofgem analysis 2012

Table 8 represents the value of transportation charges for gas illegally taken after the ECV. The amount increased by 34% in 2010. We note that the relatively low figures when compared to charges for theft prior to the ECV. This may result from limited instances where transporters levy transportation charges for theft found after the ECV. For example, this may be limited to LSP sites.

Table 8: Transportation charges for gas illegally taken after the ECV

	2009	2010
Total	£1,199,043	£1,811,499
Response Rate	96%	96%

Source: Ofgem analysis 2012

Table 9 represents total amount of money paid to gas suppliers under the Reasonable Endeavours Scheme (RES)¹⁶ (SLC7) during the year.

Table 9: Total amount paid to Shippers under the Reasonable Endeavours Scheme

	2009	2010
Total	£48,750	£136,625
Response Rate	96%	96%

Source: Ofgem analysis 2012

Other costs with Revenue Protection activities

Only one gas transporter responded to this question. This respondent estimated that between £20,000 to £30,000 per annum is spent on locksmith services to gain entry to properties suspected of theft of gas incidents.

Percentage of total amount billed estimated to have been recovered

Only one respondent provide evidence for this question. This respondent stated that between 2004 and 2005, 38 cases of theft of gas were invoiced with charges amounting to £148,000. A total of £75,000 was received from 17 of these 38 cases.

Due to a lack of data provided, we are unable to provide meaningful summaries for the following questions:

- Investigation costs incurred by gas transporters
- Disconnection, reconnection and meter replacement costs
- Number of warrants applied for and issued by gas transporters
- The number of successful convictions for the theft of gas
- Revenue recovered from actual cases of theft

¹⁶ Under SLC7 gas transporters have to put in place a compensation arrangement – the RES – as directed by the Authority. This compensation arrangement allows suppliers to recover part of the costs they faced when they made reasonable efforts to find a theft, but have been unable to identify the offender or recover any charges.

Appendix 3 - Overview of questionnaire responses from electricity suppliers

Suspected, investigated and identified theft

The reported sources of leads on electricity theft varied significantly between suppliers. Table 1 below shows that there is no clear pattern and some suppliers have used the "other" category where they were not able to provide an accurate breakdown. The low figure for data analysis suggests that some suppliers are not proactive in theft detection. However, we consider that, in practice, this figure may be slightly higher as thefts generated by revenue protection officers, and recorded under the "other" category will, to some extent, be data driven.

Table 1: Sources for theft detection (weighted average by number of theft cases found)

	Supplier 1	Supplier 2	Supplier 3	Supplier 4	Supplier 5	Average
Data Collector	21%	39%	1%	61%	11%	26%
MOP¹⁷	10%	25%	52%	2%	21%	21%
DNO	18%	6%	1%	1%	10%	7%
RPS	0%	11%	19%	21%	24%	14%
Analysis	9%	2%	5%	12%	0%	8%
Other*	42%	17%	22%	4%	34%	24%

* Revenue Protection Officer self-generated, tip-off, housing association, police, new tenant and other third parties
Source: Ofgem analysis 2012

Table 2 below reports the total number of suspected theft cases identified by suppliers or their agents or notified to suppliers by third parties and DNOs. This information is broken down by consumption category and shows that the number of suspected cases is highest in the Non Half-Hour (NHH) category.¹⁸

Table 2: Suspected theft

	2009	2010	Response rate 2009	Response rate 2010
NHH	63,925	66,082	99%	99%
HH	45	38	33%	33%
Total	63,970	66,120		

Source: Ofgem analysis 2012

Table 3 below shows that most of the reported suspected theft in 2009 and 2010 was followed up by an investigation¹⁹ (respectively 78% and 70% of the suspected cases were investigated).

¹⁸ This represents supply points whose meters are read with a frequency above half-hour. Supply points with meters that are read every half-hour are Half-Hour (HH) supply points. In our tables, NHH - D refers to domestic sites in the NHH market and NHH - ND refers to non-domestic sites in the NHH market.

¹⁹ These are investigations conducted after the ECV, where it is assumed that the case of theft falls under the responsibility of suppliers.

Table 3: Investigations by suppliers

	2009	2010	Response rate 2009	Response rate 2010
NHH	49,563	46,421	100%	99%
HH	32	26	33%	33%
Total	49,595	46,447		

Source: Ofgem analysis 2012

Table 4 presents the number of cases of theft found by suppliers. This data relates to thefts which are the suppliers' responsibility. The 49,595 investigations conducted in 2009 led to 21,156 theft cases being found, which represents a conversion rate of 43%. The conversion rate dropped to approximately 36% in 2010.

Table 4: Identified cases of theft

	2009	2010	Response rate 2009	Response rate 2010
NHH	21,150	16,706	100%	99%
HH	6	8	33%	33%
Total	21,156	16,714		

Source: Ofgem analysis 2012

Table 5 presents the number of cases of theft found by suppliers which were related to cannabis farms. Although the number of identified cases of theft decreased from 2009 to 2010 by 21%, the number of theft cases related to cannabis farms has increased slightly. In 2009, the number of thefts related to cannabis farms was 10% of the total cases of theft, and in 2010 this increased to 14%.

Table 5: Identified cases theft related to cannabis farms

	2009	2010	Response rate 2009	Response rate 2010
NHH	2,137	2,463	100%	99%
HH	5	4	20%	20%
Total	2,142	2,467		

Source: Ofgem analysis 2012

Table 6 reports suppliers' analysis on the estimated volume of electricity abstracted from the thefts that they detected. The 16,714 cases of theft identified in 2010 lead to 158.6GWh of electricity being illegally taken by customers. Our analysis estimates the average amount of gas taken per case of theft varies significantly across suppliers, ranging from 6MWh to 21MWh.

Table 6: Estimated volume of total electricity illegally taken (GWh/Year)

	2009	2010
Total	171.9	158.6
Response Rate	100%	99%

Source: Ofgem analysis 2012

Table 7 presents the estimated volume of electricity illegally taken relating to cannabis farms. In 2009, 33% of the total volume of electricity estimated to be stolen was related to cannabis farms. This decreased slightly to 32% in 2010.

Table 7: Estimated volume of electricity illegally taken relating to cannabis farms (GWh/Year)

	2009	2010
Total	55.5	51.0
Response Rate	100%	99%

Source: Ofgem analysis 2012

Table 8 below shows the average duration of theft. The data below suggests theft in the NHH domestic and NHH non-domestic sector may be similar. However the discrepancy in the response rate limits the level of confidence in this conclusion.

Table 8: Average length of theft (Years)

	2006 - 2010	Response rate
NHH - D	1.4	82%
NHH- ND	1.4	51%
HH	1.0	13%

Source: Ofgem analysis 2012

Resources allocated to tackling theft across

Suppliers have provided data on the human resources allocated to tackling electricity theft. Table 9 shows the total number of internal and external FTEs across all suppliers that reported data for 2009 and 2010. One supplier was unable to state the number of external FTEs that they employed, however it spent approximately £790,000 in 2009, and £820,000 in 2010 on external third parties used for revenue protection activities.

Table 9: FTEs allocated to tackling electricity theft

	2009	2010
Total	238	237
Response Rate	100%	99%

Source: Ofgem analysis 2012

Table 10 presents the aggregate indirect costs²⁰ that suppliers have reported that they incurred in tackling theft of electricity. From 2009 to 2010, overhead costs increased by approximately 13%.

Table 10: Overhead costs with activities to tackle electricity theft

	2009	2010
Total	£5,574,000	£6,395,000
Response Rate	62%	62%

Source: Ofgem analysis 2012

²⁰ These are the costs suppliers incurred in running the activities related with tackling theft of gas, but that are not directly linked to tackling specific theft cases. One example of an indirect cost is employees' salaries.

Costs of tackling theft

Table 10 shows the total reported retail value of the electricity illegally taken. This value has decreased in 2010. We consider this reflects the decrease in the estimated volume of total electricity illegally taken in 2010 in comparison to 2009.

Table 10: Retail value of the volume of electricity illegally taken

	2009	2010
Total	£21,719,285	£19,116,506
Response Rate	100%	99%

Source: Ofgem analysis 2012

Table 11 shows that the reported costs incurred by suppliers associated with theft investigations increased from £7.6m in 2009 to approximately £8.4m in 2010.

Table 11: Investigation costs

	2009	2010
Total	£7,620,402	£8,412,092
Response Rate	80%	79%

Source: Ofgem analysis 2012

Table 12 shows the total costs incurred by suppliers from disconnection, reconnection and meter replacement costs associated with gas theft. These costs have decreased slightly in 2010. This could be due to the approximate 4,500 reduction in identified theft cases.

Table 12: Disconnection, reconnection and meter replacement costs

	2009	2010
Total	£2,815,486	£2,433,315
Response Rate	82%	82%

Source: Ofgem analysis 2012

Table 13 presents information about the number of warrants suppliers applied for during 2009 and 2010. A supplier may apply to a magistrate or its equivalent in Scotland for a warrant which would grant rights of entry to inspect the premises and to disconnect supply where an offence has occurred. A warrant would be required where, for example, the customer did not allow access to a meter for inspection.

Table 13: Number of warrants

	2009	2010
Total	3,400	3,256
Response Rate	86%	87%

Source: Ofgem analysis 2012

One supplier indicated that in 2010, 74 theft cases resulted in successful criminal convictions.

Benefits from tackling theft

Table 14 shows the aggregate recovered charges from customers (including charges for investigation and metering costs). One supplier indicated that the revenue lost through illegal abstraction is recovered by incorporating it within any existing balance and does not record this separately. This supplier further stated that the data they provided only represents the monies recovered through re-connection fees paid directly to the supplier.

In addition, one supplier stated that the data they provided for the domestic consumption category are the amounts of money added to bills on prepayment meters. This supplier noted that it was unable to identify how much of this is recovered.

Table 14: Revenue recovered from cases of theft

	2009	2010
Total	£12,635,012	£8,967,134
Response Rate	100%	99%

Source: Ofgem analysis 2012

Appendix 4 - Overview of questionnaire responses from Distribution Network Operators (DNOs)

When considered the data in this appendix and the relationship with the electricity supplier data, we note that there is the possibility of double counting in the data between these two data sets for example in the number of suspected theft cases. This is because, in some instances DNO and electricity suppliers considered that there was some ambiguity over this time period on which party was responsible for tackling theft.

Suspected, investigated and identified theft

Table 1 below reports the total number of suspected theft cases identified by a DNO or its agent or separately notified by suppliers or any other party.²¹ This information is broken down by consumption category and shows that the number of suspected cases is highest in the domestic NHH-D category.²²

Table 1: Suspected theft

	2009	2010	Response rate 2009	Response rate 2010
NHH - D	53,055	53,556	100%	100%
NHH- ND	3,489	3,804	52%	52%
HH	465	461	36%	26%
Total	57,009	57,821		

Source: Ofgem analysis 2012

Table 2 below shows that a relatively small proportion of suspected theft in 2009 and 2010 was followed up by an investigation by DNOs (respectively 22% and 20% of the suspected cases were investigated by the DNO). This discrepancy in the number of suspected cases versus investigations could result from suppliers taking, or being asked to take the lead in investigation theft in some DNO areas. We note that some parties consider that DNO are required to investigate suspected theft upstream of the cut-out, whilst others consider that this is largely a supplier responsibility.

Table 2: Investigations conducted by DNO

	2009	2010	Response rate 2009	Response rate 2010
Total	12,661	11,612	48%	48%

Source: Ofgem analysis 2012

Table 3 presents the number of cases of theft identified by DNOs. The 12,661 investigations conducted in 2009 led to 11,444 theft cases being found, which represents a conversion rate of 90%. The conversion rate decreased slightly in 2010 to approximately 87%.

Table 3: Identified cases of theft by DNO

	2009	2010	Response rate 2009	Response rate 2010
NHH and HH	11,434	10,108	83%	83%

Source: Ofgem analysis 2012

Table 4 below reports on DNOs' estimate of the volume of electricity taken from the cases of theft investigated by them. Of the 11,444 cases of theft identified in 2009, DNOs

²¹ We estimate that a significant number of the cases reported here have also been reported by electricity suppliers, as per the previous appendix.

²² In our tables, NHH - D refers to domestic sites in the NHH market and NHH - ND refers to non-domestic sites in the NHH market.

assessed that 190.8 GWh of electricity was illegally abstracted, whilst in 2010, 10,108 cases lead to 205.6GWh of electricity being illegally taken.

Table 4: Estimated volume of gas illegally taken (GWh/Year)

	2009	2010
Total	190.8	205.6
Response Rate	100%	100%

Source: Ofgem analysis 2012

Table 5 reports the average length of theft estimated by DNOs. In the NHH domestic and non-domestic sector, the average length of theft is approximately 1 year and a half. The average length of theft in the HH market is less than a month. This could potentially indicate that HH meters, which provide real time data back to suppliers, and in the future smart meters may be an effective way of tackling electricity theft.

Table 5: Average length of theft (Years)

	2006 - 2010	Response rate
NHH - D	1.6	83%
NHH- ND	1.6	57%
HH	0.1	36%

Source: Ofgem analysis 2012

Resources allocated to tackling theft across

DNOs provided data on the human resources allocated to tackling gas theft. Table 6 shows the total number of internal and external FTEs across all DNOs that reported data for 2009 and 2010. External FTEs accounted for 72% of all the FTEs allocated to tackling theft in 2009. This increased slightly to approximately 73% in 2010.

Table 6: FTEs allocated to tackling electricity theft

	2009	2010
Total	154	157
Response Rate	100%	100%

Source: Ofgem analysis 2012

Table 7 shows that the total costs incurred by DNOs in undertaking investigations. Costs include overhead costs, direct costs and costs associated with disconnection/reconnection.

Table 7: Total investigation costs

	2009	2010
Total	£5,923,883	£6,546,975
Response Rate	90%	90%

Source: Ofgem analysis 2012

Table 8 presents information about the number of warrants obtained by DNOs. A DNO may apply to a magistrate or its equivalent in Scotland for a warrant which would grant rights of entry to inspect the premises and to disconnect supply where an offence has occurred. A warrant would be required where, for example, the customer did not allow access to a meter for inspection.

Table 8: Number of warrants

	2009	2010
Total	2,011	1,864
Response Rate	79%	79%

Source: Ofgem analysis 2012

One DNO attempted 14 criminal convictions in 2009 and 12 in 2010, although these did not result in any successful convictions.

Benefits from tackling theft

No data was provided on potential benefits from tackling theft, including the revenue recovered from cases of theft.