British Gas Report to Ofgem in response to Ofgem's open letter on Supplier Complaints Handling dated 26th September 2014



Introduction from Ian Peters Managing Director British Gas

One of British Gas' strategic priorities is to "Deliver Great Service" and therefore we maintain a continuous focus on improving the service we provide. However, despite our best efforts, sometimes things go wrong for our customers and they complain to us.

Although the number of complaints received is not a measure of customer service alone (given they can be affected by a range of factors, including price events, political and media focus); we do take customer complaints seriously. Specifically, we use complaints as important indicators of customer satisfaction and to highlight areas where we can improve our service. We therefore have policies and procedures in place that aim to ensure we capture, manage and resolve complaints in line with The Gas and Electricity (Consumer Complaints Handling Standards) Regulations 2008 (the 'Complaint Handling Standards').

This report

This report has been prepared in response to Ofgem's open letter to British Gas dated 26 September 2014¹ and further to our letter to Ofgem dated 24 October 2014², to explain how we are satisfied that we meet the Complaint Handling Standards in the areas of: (i) complaint resolution; and (ii) communicating to a customer the status of their complaint.

The report has been prepared in relation to our complaint handling within British Gas Residential Energy (BGRE) and British Gas Business (BGB). We have undertaken a review of our policies, procedures and internal controls for complaints handling with particular focus on how we resolve complaints and how we communicate the resolution of the complaint to customers. Section 2 of this report provides an overview of our complaints handling processes. Section 3 contains a more detailed breakdown of our activities relating to the closure of complaints and how we communicate the status of the complaint to our customers. Section 4 gives details of how we assure our complaint handling performance.

For this report, we have considered the status of complaints received in the two week period from 1 to 14 September 2014 (the "Sample Period") and our performance in relation to these complaints in the period 1 September to 31 October 2014.

Improvements

In our letter of 24 October, we highlighted some of the key improvement activities for complaints that we had delivered during 2014. These included:

- investing an extra £5m in additional Customer Service Advisors in BGRE to meet unforeseeable peaks in call volumes;
- investing, on average, 8 hours training per month per Customer Service Advisor in BGRE. This includes complaints handling and other core processes and skills with the aim of improving customer service;
- continuing to work on our major transformation initiatives in BGRE for Direct Debit and Home Move, our two most problematic customer experiences;
- achieving a 20% reduction year to date (Jan Sept 2014) in BGB customer complaints compared to the same period last year, while migrating our business customers to a new billing platform.

I would also like to take this opportunity to highlight improvement actions that we are progressing which will help to ensure we address the five areas of significant concern highlighted in Ofgem's letter. These form part of our systematic approach of ongoing monitoring and remedial activity:

- Being proactive in BGRE we are doubling the size of our Root Cause Analysis Team, investing an additional £0.5m per year in this area. Across both businesses we will also utilise a more holistic set of insight-led analytics, combining complaints data, agent feedback, Net Promoter Score (NPS) data and other operational metrics to drive improvements in service and to help us proactively identify issues before they become complaints.
- Taking ownership of complaints completing our organisational moves to create Complaints Centres of Excellence
 in our Leeds (BGRE) and Leicester (BGB) sites, aiming to drive consistency and sharing best practice. In addition we
 appointed a Head of Complaints Strategy in BGRE in May this year, to drive our Complaint Improvement Programme
 with their equivalent in BGB.
- Communicating the next steps and timings in BGRE we have appointed a Customer Journey Complaints Manager who is responsible for reviewing and enhancing the end to end customer experience for complaints. In BGB we introduced a streamlined complaints model to improve the effectiveness of complaints handling and will continue to build on this in 2015, working with our Customer Journey Team so that improvements aimed at preventing future complaints are rolled out effectively.
- Empowering our staff to take decisions there and then across both businesses our training plans and online tools will continue to support improvements in both the technical and behavioural skills of our people.
- Speed of resolution with the aim of resolving complaints at point of contact across both businesses we are continuing
 to invest in digital technology such as web chat, and we're improving the complaints process on our website.
 In addition, we are undertaking greater engagement with other industries to benchmark and share best practice to
 improve our current approach to investigation and resolution.

Our transparent reporting of BGRE complaint handling performance is evidence of our commitment to addressing the level and causes of complaints. We have recently published our Quarter 3 2014 (1 July to 30 September) complaints report, as well as our 2014 annual complaints report (1 October 2013 to 30 September 2014), both of which provide further details of our performance and the steps we are taking to make improvements.

To access these reports go to: www.britishgas.co.uk/howwearedoing

Conclusion

Our review has concluded that the design of our policies, procedures and internal controls is compliant with the requirements of the Complaints Handling Standards and help support us in working towards our strategic goal to "Deliver Great Service".

We are confident that the ongoing improvements we are making, including a multi million pound investment in new processes and our billing and complaint handling systems will reduce the number of complaints we receive, enabling us to improve the way we handle and resolve complaints and deliver a significant improvement in any future Customer Satisfaction Survey.

We have asked Deloitte LLP to undertake a limited assurance review of our complaints handling processes with specific focus on complaints resolution and communication to customers described in Sections 2 to 4 of this report. Their work has been carried out under the International Standard for Assurance Engagements (ISAE 3000) and their report is attached as Appendix A.

Ian Peters

Managing Director

In Peters

British Gas

28 November 2014

2. British Gas Complaints Handling Overview:

Our complaint handling processes within both BGRE and BGB are governed by The Gas and Electricity (Consumer Complaints Handling Standards) Regulations 2008 (the 'Complaint Handling Standards').

For this report we have considered the status of complaints received in the two week period from 1 to 14 September 2014 (the "Sample Period") and our performance in relation to these complaints in the period 1 September to 31 October 2014. The performance data has been extracted from our customer service and complaint handling systems and includes BGRE and BGB³ customer contact and complaint data. The basis of our reporting is summarised in Appendix B.

In order to put our complaint handling resolution performance into context, we have set out below an overview of the design of our complaint handling process as at the date of this review. There are five steps in our process:

1. Identifying a Complaint:

When we identify that a customer expresses dissatisfaction with our products or services, we log this as a complaint. Complaints can be received across multiple sites, channels and brands, and by third parties dealing with customers on our behalf.

During the Sample Period, BGRE and BGB received over 800,0004 customer contacts, of which approximately 67,000 (8%4) were complaints that we recorded in our complaints handling systems.

2. Recording a Complaint:

We record and categorise complaints based on the information provided by the customer. Complaints received by telephone are recorded at the point the complaint is received. For written complaints, e.g. complaints received by letter, we aim to update the required information on our systems by the end of the next working day. If we identify that the complaint relates to a matter which we had previously considered to be resolved, i.e. a repeat complaint, we link the new complaint to the previous case in our systems and apply the date of the original complaint.

Approximately 86% of the complaints in the Sample Period were received by telephone with a further 10% received by email or online. Of the total complaints received in the period, approximately 11% were identified by the advisor as relating to a previous matter and were recorded as repeat complaints.

3. Investigating a Complaint:

Telephone complaints are investigated by the advisor who receives the complaint. Written complaints are allocated to the appropriate team and we aim to investigate the complaint by the end of the next working day.

During the Sample Period we closed 76% of complaints as resolved on the same or the next working day. If we are not able to resolve the complaint at the point that it's received, we often need to investigate the complaint in more detail.

The advisor managing the complaint is required to keep the customer informed of their progress. In BGRE this will be every 14 days (unless otherwise agreed). In BGB our process is to agree with the customer on a case by case basis the frequency of their updates. As at 31 October 2014, 84% of the complaints were closed within 14 calendar days and 96% of complaints were closed within 56 calendar days (8 weeks).

4. Escalating a Complaint:

If the advisor dealing with the complaint is unable to resolve it, or if the customer asks for a complaint to be escalated, the advisor is required to escalate the complaint to ensure it is dealt with by a manager, more senior members of the team, or by the teams specialising in complaints handling within our dedicated centres of excellence.

If we are not able to resolve the complaint at 8 weeks, we send the customer a letter to make them aware of their rights to escalate their complaint to the Energy Ombudsman, and provide details on how to contact them.

BGB data includes micro business and non micro business sites. The Gas and Electricity (Consumer Complaints Handling Standards) Regulations 2008 (the 'Complaint Handling Standards') apply only to micro business sites, but BGB uses the same complaints handling process for all customer complaints. The scope of the assurance provided by Deloitte excludes amounts and percentages related to customer contacts.

5. Resolving and Closing a Complaint:

Our approach to resolving and closing a complaint takes one of five paths, described in more detail in Section 3. When recording the outcome of a complaint we use one of the following three closure statuses:

Required or Agreed Actions Complete

- The required actions are complete and the customer has confirmed they are satisfied their complaint is resolved.
- In BGB, where the customer has confirmed in advance that we can close their complaint when the agreed actions have been completed.
- In BGRE, where the customer has written to us by letter through general enquiries, or through our online 'contact us'
 enquiry web form and the advisor considers this to be a straight forward, easy to fix request and we have identified
 dissatisfaction. The required action has subsequently been taken and the advisor considers the complaint to be
 resolved.

For the Sample Period, over 92% of complaints were closed using one of the above methods.

No Contact Process Followed

• We have taken the complaint as far as we can and believe it to be resolved, or we need more information to resolve the complaint, but we have been unable to make contact with the customer.

For the Sample Period, over 7% of complaints were closed in this way.

Deadlock or Final Position Process Followed

• We have not been able to agree a resolution with the customer; we have exhausted our internal escalation process and have reached a final or "deadlock" position.

For the Sample Period, fewer than 1% of complaints were closed in this way.

If a customer contacts us after the complaint is closed and advises us that their complaint is still not resolved; our process is to open a new complaint and link this to the original. We will update the new complaint to show the original complaint received date and signpost the customer to our complaint handling procedure.

3. Resolving a complaint and communicating the resolution:

In this section, we provide further detail on the design of the processes we have established to handle the resolution and communication aspects of complaints. The relevant extracts of the Complaint Handling Standards, are as follows:

Regulation 2

"complaint" means any expression of dissatisfaction made to an organisation, related to any one or more of its products, its services or the manner in which it has dealt with any such expression of dissatisfaction, where a response is either provided by or on behalf of that organisation at the point at which contact is made or a response is explicitly or implicitly required or expected to be provided thereafter

"consumer complaint" means a complaint, other than a network outage report, which is made against a regulated provider either (a) by a person in that person's capacity as a relevant consumer in relation to that regulated provider; or (b) by a person acting on behalf of such a relevant consumer;

"resolved complaint" means a consumer complaint in respect of which there remains no outstanding action to be taken by the regulated provider and which has been resolved to the satisfaction of the relevant consumer who made that consumer complaint or on whose behalf that consumer complaint was made.

Regulation 4

- (1) "Upon receipt of a consumer complaint a regulated provider must record in a written, electronic format the following details:"
 - g) "whether the consumer complaint has become a resolved complaint and if so, the basis upon which the regulated provider considers that the consumer complaint is a resolved complaint;"
- (2) "Where any subsequent contact is made with the regulated provider in relation to an existing consumer complaint that the regulated provider must, upon receipt of that subsequent contact, record:"
 - f) "whether the consumer complaint has become a resolved complaint and, if so, the basis upon which the regulated provider considers that the consumer complaint is a resolved complaint;"

Our policies and procedures are designed with the aim to support the resolution of complaints, in line with the sections of the Complaint Handling Standards mentioned above, and require our advisors to communicate to the customer, either orally or in writing, the outcome of their complaint. Depending on the nature of the complaint, and our ability to address the issue, we follow one of the five resolution paths below:

The required actions are complete and the customer has confirmed they are satisfied their complaint is resolved. Following successful resolution of a complaint our process is to confirm, in writing or by telephone, the actions we have taken to resolve the complaint. Our advisors are also required to confirm with the customer that they are satisfied their complaint is now resolved.

The customer has confirmed in advance that we can close their complaint when the agreed actions have been completed. In BGB this happens when, for example, a customer calls to say their bill is estimated and they ask for a new bill using a meter reading to be sent and they confirm that once they get that new bill they will be satisfied that the agreed actions have been completed and their complaint is resolved.

The customer has written to us by letter through general enquiries, or through our online 'contact us' enquiry web form and the advisor considers this to be a straight forward, easy to fix request and we have identified dissatisfaction. The required action has subsequently been taken and the advisor considers the complaint to be resolved. In BGRE, when we receive a simple request by letter or email which we 'consider to be an easy to fix' request, for example "I'm disappointed to have received an estimated bill, please amend my bill to my reading and send me an updated bill", and it is clear to the advisor that by taking the appropriate action we are confident the customer will be satisfied with the actions we've taken and the complaint is resolved. Our process is to write to the customer informing them of the actions we've taken to resolve the complaint, confirm that we've addressed the issue raised and advise them that we have closed their complaint.

We have taken the complaint as far as we can and it is either resolved, or we feel we need more information to resolve the complaint; but we have been unable to make contact with the customer. For this situation we use one of the following processes to close the complaint:

• Where we have resolved a BGRE customer's complaint, we write to inform them of the actions we've taken to resolve the complaint, and we ask them to contact us within 14 days if they're not satisfied with what we've done. We advise that if the customer is satisfied with what we've done they do not need to do anything and we'll make arrangements to close the complaint after 14 days.

- Where we've been unable to resolve a BGRE customer's complaint as we don't have sufficient information, we write to the customer requesting the relevant information and ask the customer to contact us within 14 days. We advise the customer that if they don't need us to help, or if they are satisfied the complaint is now resolved, they don't need to do anything and we'll close their complaint after 14 days.
- For BGB customers, we use a number of ways to contact the customer before closing a complaint. Our process is to write to the customer asking them to get in touch with us within 14 days. During this period we aim to make two further attempts to contact the customer. Following this, if we have not heard from the customer by the end of this period, we send a further letter again asking that they contact us within 14 days. Having completed this and if we do not hear from the customer, we close the complaint.

We have not been able to agree a resolution with the customer; we have exhausted our internal escalation process and have reached a final or "deadlock" position. In this situation we confirm our final position in writing to the customer and inform them of their rights to seek independent help and advice through the Energy Ombudsman.

4. Control and oversight of our complaint resolution and handling performance:

We have established a range of processes, guidance, tools and systems which are designed to ensure effective handling of complaints, and we provide training and support to assist our Customer Service Advisors to understand how to resolve complaints in line with our policies. Our Standards of Conduct programme across BGRE and BGB provides independent oversight and challenge with the aim of ensuring our processes, including complaints handling, take into account our obligations to treat customers fairly.

The key aspects of our approach for ensuring that we meet our obligations for complaints resolution are as follows:

Tools, Guidance and Support for Customer Service Advisors:

Our core systems are configured to enable our advisors to have the necessary information to hand to resolve a complaint promptly. In addition, guidelines on how to manage complaints in accordance with our complaint handling policies and procedures are accessible to advisors via our intranet site if they need further support or information. These guidelines include letter and email templates to help communicate consistent and clear messages to our customers.

Our aim is to resolve complaints wherever possible at first contact. Managers, more senior members of the team, as well as our specialist teams are available to provide support in resolving initial queries and our dedicated centres of excellence handle our more complex complaints.

Training:

When we recruit new employees into customer-facing roles, we provide a modular based training programme focusing on how to identify, record, investigate, escalate, resolve and close a complaint.

During 2014 in BGRE we delivered refresher complaint handling training using a variety of delivery methods, including online and classroom to over 5,000 customer facing employees and this programme roll out (which includes a section on complaint resolution and closure) is planned to continue into 2015. We also delivered complaint handling training to over 1,200 customer facing employees in BGB and are currently developing the training programme for 2015 which will include complaint resolution and closure. In both businesses, we have introduced post training assessments and take action to address any residual training needs with the aim of ensuring that our training delivered achieves its intended outcomes.

Quality Assurance and Review:

For both BGRE and BGB we have established quality assurance frameworks, whereby customer interactions are selected on a random basis in order to monitor the customer experience as well as adherence to regulatory obligations. Through coaching and feedback these assurance frameworks are designed to enable our team managers to focus on developing our people and provide the insight needed to continue to improve our service.

Within BGRE and BGB, we also have dedicated teams monitoring complaints, through focused quality assurance techniques and call listening. The design of our approach includes validating complaint closure, and supports our drive to embed complaints handling compliance to ensure the right customer outcomes are achieved.

Root Cause Analysis:

For both BGRE and BGB we have dedicated teams who investigate the root causes and drivers of complaints to identify themes and areas of customer dissatisfaction. This analysis is used to devise action plans to improve customer journeys and improve the customer experience.

Management Responsibility and Oversight:

We have clearly defined organisational accountability for complaints handling performance and both of our Customer Services Directors within BGRE and BGB have personal performance targets which are linked to our customer service performance, including complaints resolution. The supporting governance and reporting of complaints performance within the organisation includes the following:

- Complaints handling performance is monitored on a daily basis with the aim of ensuring that our contact channels are resourced to handle and process complaints.
- Complaints handling performance is reviewed on a monthly basis by nominated senior executives and managers with responsibility for complaints.
- We also report complaints performance and strategy updates to our Customer Service Directors and their Leadership
 Teams in BGRE and BGB each month. We aim to address areas of underperformance identified through further
 discussion and taking action to review the appropriateness and adequacy of resources.
- The output from our continual root cause analysis is circulated to Senior Management.
- In addition to our internal reporting, we report monthly and quarterly complaints performance to Ofgem, with BGRE also reporting to the Citizens Advice Consumer Service on a monthly and quarterly basis.

Appendix A: Independent report from Deloitte LLP

Independent assurance statement by Deloitte LLP to British Gas Trading Limited on the British Gas Report to Ofgem in response to Ofgem's open letter on Supplier Complaints handling dated 26 September 2014.

What we looked at: Scope of our work

British Gas engaged us to perform limited assurance procedures on their description of the design of their processes which have been established to manage the handling of customer complaints within the company's British Gas Residential Energy (BGRE) and British Gas Business (BGB) – Micro Business units.

Within the description of the design of their processes provided in Sections 2 to 4 of their report entitled "British Gas Report to Ofgem in response to Ofgem's open letter on Supplier Complaints handling dated 26 September 2014" (The Report) they have also provided certain performance metrics for their customer complaints handling process based on complaints captured between 1st to 14th September 2014 and set out in Section 2 of The Report.

We have only provided assurance over the specific performance metrics listed below, no other metrics have been assured:

- Number of complaints captured
- Percentage of complaints captured by channel
- Percentage of complaints resolved by method of resolution
- Percentage of complaints resolved by timeframe grouping
- Percentage of repeat complaints

What standards we used: basis of our work, criteria used and level of assurance

We carried out limited assurance on the selected statements in accordance with the International Standard on Assurance Engagements 3000 (ISAE 3000). To achieve limited assurance the ISAE 3000 requires that we review the processes, systems and competencies used to compile the areas on which we provide assurance. This is designed to give a similar level of assurance to that obtained in the review of interim financial information. It does not include detailed testing of source data or the operating effectiveness of processes and internal controls.

What we did: key assurance procedures

To form our conclusions, we undertook the following procedures:

- Interviewing managers at the British Gas head office in Staines responsible for oversight of Complaints Handling within BGRE and BGB Micro Business.
- Interviewing managers and staff responsible for Complaints Handling in order to gain an understanding of the design of the processes established to manage Complaints Handling. This included site visits to locations in:
 - Leeds
 - Leicester
- Confirming our understanding of the process descriptions provided from interviews by review of documentation
 including policies, procedures and guidance notes together with physical observation of the process activities during
 site visits.
- Comparing our understanding of the Complaints Handling process to the process descriptions provided in Sections 2 to 4 of The Report to confirm the reported description aligns with our understanding.
- With regard to the following performance metrics which are included in the body of Section 2 of The Report we reviewed on a sample basis the key structures, systems, processes, procedures and controls relating to the collation, validation and reporting of complaints resolution data:
 - Number of complaints captured
 - Percentage of complaints captured by channel
 - Percentage of complaints resolved by method of resolution
 - Percentage of complaints resolved by timeframe grouping
 - Percentage of repeat complaints
- We also performed non-statistical sample testing to verify that data had been appropriately collated, categorised and reported from the point of extraction from the various systems used by British Gas.
- We reviewed the performance metrics set out above and included in the body of Section 2 of The Report against Appendix B Basis of Reporting, assessing whether the data has been compiled as described.

What we found: our assurance conclusion

Based on the scope of our work and the assurance procedures we performed, nothing has come to our attention that causes us to believe that the description of the complaints handling process or the selected assured metrics provided in Sections 2 to 4 of the British Gas Report to Ofgem in response to Ofgem's open letter on Supplier Complaints handling dated 26 September 2014 are materially misstated.

Limitations

The process an organisation adopts to define, gather and report data on its non-financial performance is not subject to the formal processes adopted by financial reporting. Therefore, data of this nature is subject to variations in definitions, collection and reporting methodology with no consistent, accepted standard. This may result in non-comparable information between organisations and from year to year within an organisation as methodologies develop. To support clarity in this process, British Gas have developed a Basis of Reporting for The Report, which defines the scope of each assured metric and the method of calculation. It should be read together with this report.

In relation to our work performed for The Report, we note the following limitations:

- 1. Our work was focused on the complaints handling process and did not consider the completeness of complaints captured.
- 2. We have not undertaken any procedures to confirm the operating effectiveness of the processes described in Section 2 to 4 of The Report.
- 3. Our work did not consider whether the processes described within Sections 2 to 4 of The Report are compliant with The Gas and Electricity (Consumer Complaints Handling Standards) Regulations 2008 (the 'Complaint Handling Standards').

Roles and Responsibilities

British Gas:

The Directors are responsible for the preparation of British Gas Report to Ofgem in response to Ofgem's open letter
on Supplier Complaints handling dated 26 September 2014 and for the information and statements contained within
this report. They are responsible for determining and establishing and maintaining appropriate performance
management and internal control systems from which the reported information is derived.

Deloitte:

Our responsibility is to independently express conclusions on the subject matters as defined within the scope of work
above to British Gas Trading Limited in accordance with our letter of engagement. Our work has been undertaken so
that we might state to British Gas those matters we are required to state them in this statement and for no other
purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than
British Gas for our work, or for the conclusions we have formed.

Deloitte LLP London 28 November 2014

Appendix B: Basis of Reporting - Complaints Performance

Introduction:

Throughout this report we have referenced figures relating to the status of complaints received in the two week period from 1 to 14 September 2014 (the "Sample Period") and our performance in relation to these complaints in the period 1 September to 31 October 2014. This data has been extracted from our customer service and complaints handling systems.

This appendix provides an explanation of the basis upon which we have calculated the data presented.

Customer contacts:

The total of customer contacts includes all inbound telephone calls, letters, emails, online and other communications from customers which are handled by our advisors and recorded in our customer service and complaints handling systems for the Sample Period.

Exclusions:

Any contacts which are not handled by an advisor, for example automated calls and online petitions, are excluded from customer contacts.

Number and percentage of complaints captured:

The number of complaints captured is the total of complaints (including repeat complaints) captured in our complaints handling systems for the Sample Period.

The percentage of complaints captured has been calculated as the number of complaints captured divided by the total number of customer contacts for the Sample Period.

Percentage of complaints captured by channel:

We capture information on the source of complaints in our complaint handling systems using the following categories:

- Telephone; or
- Written (i.e. letters); or
- Email / Online (including web site, web chat, social media and smart phone app); or
- Other (e.g. fax, in person, text message, type talk, engineer/sales representative visit).

The percentage of complaints captured by channel is based on the total number of complaints for each channel recorded in our complaints handling systems for the Sample Period divided by the total number of complaints captured.

Percentage of complaints resolved by method of resolution:

We use three categories of closure status in our complaints handling systems to record the method of complaint resolution in our systems:

- Where all required or agreed actions are complete and the customer is satisfied that the complaint has been resolved; or
- Where the "No Contact Process" has been followed as we have been unable to make contact with the customer; or
- Where our "Deadlock / Final Position" process has been followed as we've not been able to agree resolution with the customer and have exhausted all internal escalation processes.

The percentage of complaints by method of resolution is based on the total for each category during the Sample Period, divided by the total number of complaints that have been closed in our complaints handling systems for the period 1 September to 31 October 2014.

Percentage of complaints resolved by time frame grouping:

The time taken to resolve complaints is calculated as the difference between the received date and resolved date as recorded in our complaints handling systems for the period 1 September to 31 October 2014. Working days exclude Saturdays and Sundays.

Percentage of repeat complaints:

In BGRE, this is the number of complaints captured in our complaints handling system during the Sample Period which have been linked back to a previous "resolved" complaint, regardless of when the original complaint was received.

In BGB, this is the number of complaints captured in our complaints handling system for the Sample Period which have been linked back to a previous complaint regardless of when the original complaint was received.

The percentage of repeat complaints is calculated as the total volume of repeat complaints captured divided by the total of complaints captured during the Sample Period.