

Guidance on the Presentation of Curtailment Associated with an 'Active Network Management' Connection Offer

Introduction

The ENA Active Network Management (ANM) Working Group (WG) was formed in late 2013 and its aim is to develop consistent understanding in the emerging method of Active Network Management (ANM) and its application on distribution networks across the UK. The ANM working group comprises of representatives from UK's transmission and distribution network operators.

The group wishes to develop guidance for customers on the presentation of the levels of curtailment associated with an 'Active Network Management' offer in order to standardise where appropriate how data is presented to customers across all Distribution Network Operator (DNO) areas.

When performing curtailment analysis DNOs currently take a number of approaches:

- Analysis is undertaken in-house with curtailment presented in the offer letter
- Analysis is undertaken by a 3rd party with curtailment presented in the offer letter
- Raw data is made available for the customer to undertake their own analysis

This document aims to cover off all approaches under two key areas;

1. What the customer should expect, as a minimum, from a curtailment study within an 'Active Network Management' offer
2. The key pieces of information the DNO is expected to provide to the customer in order for them to undertake their own due diligence

Participating Group Membership

- Electricity North West
- National Grid Electricity Transmission
- Northern Powergrid
- SP Energy Networks
- Scottish and Southern Energy Power Distribution
- UK Power Networks
- Western Power Distribution

Consultation Questions

We welcomed the opportunity for interested parties to provide comment and feedback on the consultation published on the ENA website on 15th February. We especially welcomed responses to the specific questions which we set out, these are included below.

- Q1. Is the information outlined in the document sufficient for the customer to make an investment decision?
- Q2. Is the information currently provided by DNOs in a format that enables the analysis to be carried out?
- Q3. What is the preferred method of presenting this information to the key decision makers?
- Q4. Is the level of risk being accepted by the customer adequately explained and easily understood?
- Q5. Does the supplied example of curtailment estimation explain the process sufficiently?
- Q6. Are there any other changes that could be made to further facilitate the investment decision?
- Q7. Any other comments?

The consultation closed on Friday 4th March 2016 and a link to the consultation can be found here –

<http://www.energynetworks.org/news/publications/consultations-and-responses/consultation-responses-2015.html>

Consultation Response

Response to the consultation questions published on ENA's website on 15th February 2016 are published below.

Purpose of this Document

The purpose of this follow-up document is to:

- Provide an overview of the consultation and a link to the original consultation;
- Summarise and comment on the feedback received
- Propose any next steps

List of Respondents

1. Association for Decentralised Energy
2. Community Energy Scotland
3. Smarter RWE Innogy
4. Smarter Grid Solutions
5. Power Con
6. Scottish Renewables
7. Gray Associates
8. RES

Response to Consultation Questions

This section details the responses received to the questions set out in the consultation document.

Q1. Is the information outlined in the document sufficient for the customer to make an investment decision?

Respondents generally agreed that the information provided would allow customers to make an investment decision. It is noted that the provision of information from DNOs to the customer is essential in providing a basis for investment. Some concerns were put forward in relation to the need for a consistent process across DNOs and for ANM connections.

It was evident in the responses that additional information would be of value to the customer in making an investment decision. These included principles of access, ANM as a temporary or enduring solution, volume caps for ANM, customer side equipment requirements, associated costs of ANM equipment, general operating guidance for ANM schemes, as well as details of LIFO or shared connections and position in queue.

A number of respondents requested additional information to be included as part of this work, these include:

- Seasonal or time of day pattern to the predicted curtailment, as seasonal/half-hourly changes in export values may accentuate or lessen the impact of curtailment too. If DNOs could provide the raw data from the curtailment results customers could assess these factors themselves.
- Access to Historic Data in CSV format
 - Historic data on reliability of the ANM system (including communications links)
- How the ANM scheme will operate in practice, this should include detail of:

- The principles of access,
- Whether ANM is designed to be a temporary or enduring solution,
- Whether there is a cap on the volume of ANM connections in the area that may impact on the generator
- What the limit trigger is for future reinforcement and how it is to be recovered
- The practicalities in terms of what technical requirements are made on the generator are (e.g.-any equipment that needs to be installed to facilitate ANM/ any turbine adjustments)
- The associated costs of any ANM equipment.
- Details of communications:
- Details of high demand/generation customers within the ANM zone who may significantly impact on the curtailment levels should their usage/output characteristics change
- Common sources of future uncertainty, i.e. demand growth/reduction, behind the meter changes by existing generators, changes in domestic low carbon technologies etc
- Load flow models
- Scenario Modeling:
 - Worst case correlation of all intermittent generation
 - More realistic overlap of intermittents
 - High levels of additional unconstrained microgeneration
 - A specified alternative to standard demand profiling, perhaps in relation to HH meter uptake.

Q1. ANM Working Group Response

Stakeholder Feedback	ANM Working Group Comments
Provision of information from DNOs	It is understood that Customers require this level of information in order to appraise whether the offer is financially viable or not. This information will be provided through the connection application process/offer and it's expected that customers will perform their own due diligence.
Principles of Access	<p>Principles of Access are described in detail in ENA's Active Network Management Good Practice Guide</p> <p>Principles of access can either be on a Last-In-First-Out (LIFO) or pro-rata basis:</p> <ul style="list-style-type: none"> ● LIFO may be preferred in situations where early projects are looking for certainty and simplicity ● Pro-rata may be preferred where maximising connections is an objective and applications are reasonably concurrent. <p>Exactly which principle is applied by the DNO that is being asked for a connection will be detailed in the connection offer.</p>
Is ANM a temporary or enduring solution?	This is location and DNO specific; however information is included in the Connection Offer.
Is there a cap on the volume of	This information is included in the Connection Offer as

ANM connections?	applicable.
What is the limit trigger for future reinforcement	This information is included in the Connection Offer as applicable.
What technical requirements are made on the generator e.g.-any equipment that needs to be installed to facilitate ANM/ any turbine adjustments.	The provision of this information and the detail provided is DNO specific and will be included within the connection offer as applicable.
Details of communications	This information is included in the Connection Offer and constituent details are DNO specific.
Details of high demand/generation customers within the ANM zone	<p>The Long Term Development Statements (LTDS) will provide an indication of any existing large-scale demand connection points (i.e. EHV connected or above) and existing generation capacity connected to the same source substation.</p> <p>In addition to the LTDS the connection offer will include details of generators, capacities and type, that would operate above the applicants installation within the principles of access or details of any cap that exists for a pro-rata curtailment approach.</p>
Common sources of future uncertainty i.e. demand growth or reduction	High level details provided in the Connection Offer, i.e. the impacts of change in the local demand and generation profile on the ANM connected generator.
Load flow models	The Long Term Development Statements (LTDS) cover this; customers are expected to undertake their own due diligence with the information provided.
Scenario Modeling	It is expected that generators would undertake this exercise if required.
ANM Offers across the TD boundary	<p>A TO could give a reasoned expectation of circuit planned unavailability.</p> <p>Electricity Ten Year Statements:</p> <ul style="list-style-type: none"> • Provides circuit ratings/ flows • Additional capacity to be provided by planned circuit reinforcements <p>Limitations</p> <ul style="list-style-type: none"> • Utilities Act 2000 Sect 105 – Data & Model confidentiality- prevents National Grid sharing third party data with a few exceptions eg demand data. • OC2 report – only applies to <u>registered</u> generators – so this source of outage data is not practicable. • CUSC 2.13.7(ii) - Currently allows for a 'best estimate' to be given of Restriction on Availability. The Statement of Works process

does not specifically mention 'Restrictions on Availability'.

The Company (*NGET acting as SO*) shall be obliged, at the request of the User (*DNO in this instance*) as part of the Connection Offer, to provide such information that the User may reasonably require in order to assess the probability of Notification of Restrictions on Availability being issued. For the avoidance of doubt, the information that is provided by The Company under this clause shall be a best estimate only and is not legally binding.

National Grid would caveat the above data and base it on metered information wherever possible.

Q2. Is the information currently provided by DNOs in a format that enables the analysis to be carried out?

The responses detailed perceived inconsistency with the DNO approach to ANM offerings and missing detail such as frequency of constraints and a lack of data provision that could be used to inform decisions. One other respondent echoed the response, assuming that the additional details requested are included in future offers which would provide a strong basis for a customer to consider investment.

Q2. ANM Working Group Response

Following response to this consultation, DNOs will seek to provide a more consistent provision of information so that customers can undertake their own due diligence. Each company will have their own methods of providing the data. DNOs are committed to improving customer service through collaborative working and consultation via the ANM working group.

Q3. What is the preferred method of presenting this information to the key decision makers?

Respondents appreciate the use of site selection planning tools at an early stage although agree that much more accurate planning is required to make an investment decision, with some useful examples of DNO offerings in this area already. Other respondents suggest that all of the information required should be issued to the customer at the same time as any connection offer. Two respondents suggested that DNOs present curtailment information, in the form of MWh estimates, as it is suggested this is the most appropriate for illustrating the implications of a managed connection at monthly intervals or as appropriate. Consistency is again mentioned as a recurring theme throughout the consultation, this would suggest that any offering or approach via DNOs should be consistent at a base level.

One respondent suggested that the information could be presented with associated scenarios based on historical data, it is suggested that this data would then allow the customer to undertake additional modeling as required.

Q3. ANM Working Group Response

We agree that all of the information provided by respective DNOs should go out at the same time as a Connection Offer, with MWh being suggested as an appropriate unit for the provision of this information. The DNO community will now look to implement the principles laid out within this consultation response in a consistent manner.

A number of the DNOs provide online tools to assess curtailment, however these tools are not presently universally available from all DNOs; we do however recognise that these are a useful assessment tool for customers.

Q4. Is the level of risk being accepted by the customer adequately explained and easily understood?

The responses suggest that information could be provided by the DNO in relation to the risks associated with a flexible connection, although respondents acknowledged that there is responsibility for the customer to manage and understand risk appropriately. The information that could be provided to improve the understanding of the level of risk for the customer includes statistical analysis to provide the customer a clearer picture in relation to outages and duration.

Respondents also highlight the points included on question one and the provision of information required to inform investment decisions, this information could be provided with details of the associated risks and the implications are noted.

The respondents acknowledge that curtailment is an approximate exercise and welcome the disclaimer, it is also noted that accountability for generation on the network would provide a clearer picture of the risk i.e. if one large customer is responsible for a high proportion of power flow on a section of network.

Respondents found the use of examples helpful. One respondent requested that the group commit to review these examples after stakeholder feedback.

Q4. ANM Working Group Response

We will provide a statement from all Network Operators that will highlight some of the key risks for ANM connections. This will be published on the ENA Website and its publication communicated to stakeholders. In addition we will look to coordinate an ANM Curtailment Assessment Workshop where stakeholders can meet with the relevant Network Operator staff to discuss key ANM issues and so that we can address any concerns or questions that stakeholders may have. More detail on these Workshops is provided in the next steps set out at the end of this document.

Q5. Does the supplied example of curtailment estimation explain the process sufficiently?

Respondents suggested that while examples are useful, the example included does not provide a sufficient level of detail. It is suggested that the provision of the information included in the question one examples would provide greater insight, in addition to relevant examples. One respondent suggested that the meaning of the example is not clear to those who are not regularly involved with flexible connections.

Two respondents suggested that there is a requirement for DNOs to provide the following information:

- Clearer definition of input data, specifying the parameters that were represented by historical data, and those modelled using idealised profiles
- Specification of the capacity factors achieved by the idealised generation profiles
- Explanation of the curtailment estimation methodology: for example, whether it was based upon load-flow simulation or approximate calculations; and
- Details of any network outages or communications faults modelled within the analysis, and their duration.
- There is a need for more explicit explanation of the method (communications & processes) and the explicit logic triggering the constraint.

One of the above respondents added that whilst the information supplied in the example provided details of the ANM configuration, it does not provide sufficient explanation of the analysis methodology and the assumptions made. It is suggested that this could be improved by:

- Clearer definition of input data and parameters
- Specification of the capacity factors achieved by the idealised generation profiles
- Explanation of the curtailment estimation methodology
- Details of any network outages or communications faults modelled within the analysis, and their duration.

Q5. ANM Working Group Response

We will look to coordinate an ANM Workshop where stakeholders can meet with the relevant Network Operator staff to discuss key ANM issues so that we can address any concerns or questions that stakeholders may have. More detail on these Workshops is provided in the Next Steps set out at the end of this document.

Stakeholder Feedback	ANM Working Group Comments
Clearer definition of input data and parameters	This will be provided in the Connection Offer and any clarification can be provided at the proposed ANM Workshops.
Specification of the capacity factors	Approaches differ between DNOs. Again there is the potential to include this at the proposed ANM Workshops.
Explanation of the curtailment estimation methodology	This will be provided in the Connection Offer and any clarification can be provided at the proposed ANM Workshops.
Details of any network outages or communications faults modeled within the analysis, and their duration	This information is included in the Connection Offer

Q6. Are there any other changes that could be made to further facilitate the investment decision?

One respondent suggested that generator output is highly dependent on geographic location, panel efficiency etc. As such theoretical data here is not accurate; if these examples are included, details of the cost of each option should also be included to allow the customer to make an informed decision. Another response details that investment decisions hinge on the ability to reconcile project risk against potential benefits. The provision of data sets suitable for third party verification, as outlined in Q1 by a number of respondents, will better enable these decisions to be taken.

Whilst acknowledging that it is a complex exercise one respondent highlights the value in being able to model different types of asset adding that web based tools could provide a useful decision making tool to the customer.

It was proposed that the DNO should provide an estimate of the alternative reinforcement cost/timetable that the applicant would face in the absence of the proposed ANM solution. This would provide transparency to the customer regarding why the ANM solution is being offered.

One respondent suggested that the lack of clear stance from the DNOs and Ofgem on the treatment of storage, the suggestion is that this should be split out, as solar and wind are, in the two capacity tables. The characteristics of storage are so different that the capacity allocated to this type of equipment should be shown.

It is highlighted that the constraint in question should be measured for every single affected customer (i.e. any spilled energy recorded). The DNO should undertake to value this spilled energy and then propose a business case for network reinforcement should this total constraint exceed a pre-agreed value relating to an equivalent annualized cost of this reinforcement. Customers should be able to accept making a reasonable apportioned and annualised financial contribution towards such reinforcement, if appropriate under the prevailing connection charging guidelines, in return for the elimination or reduction of ANM constraint of equivalent or greater value.

Q6. ANM Working Group Response

Stakeholder Feedback	ANM Working Group Comments
<p>Details of the cost of each option should also be included to allow the customer to make an informed decision</p>	<p>DNO specific as to whether an ANM offer comes with the formal quote for the traditional connection or not.</p> <p>For those DNOs providing a curtailment assessment use of 3rd party data is an option if the customer prefers, but this will be DNO specific. It is the customer’s responsibility to ensure they undertake their own due diligence that covers matters relating to their own equipment e.g. panel efficiency.</p>
<p>Ability to model different types of asset and the provision of web based tools</p>	<p>For those DNOs providing a curtailment assessment use of 3rd party data is an option if the customer prefers, but this will be DNO specific.</p> <p>A number of the DNOs provide online tools to assess curtailment, however these tools are not presently universally available from all DNOs, we do however recognise that these are a useful assessment tool for customers.</p>

Could DNOs provide an estimate of the alternative reinforcement cost with timetable?

Customers are free to request a Standard Connection Offer at nil cost. DNO specific as to whether the ANM offer will come with a formal quote for a traditional connection. DNOs recognise that an indication of the traditional reinforcement cost is key to the customer's decision making process.

The treatment of storage and the suggestion to split in a similar manner to solar and wind as included in the table.

Storage is much more difficult to analyse as it is very much dependent on what the storage is aiming to do, i.e. what the operating profile looks like. It will however be relatively short lived as it would be based on the assumption that the storage would operate the export profile supplied, which would be unlikely due to the longevity of network support contracts for ancillary services.

For those DNOs providing a curtailment assessment use of 3rd party data is an option if the customer prefers, but this will be DNO specific.

The measurement of constraints for each affected customer (energy spill) and the impact of reinforcement

This is both DNO and location specific, however we do recognise this is an issue in terms of longevity for ANM connections. It is reliant on whether the DNO in question defines how much capacity is provide by ANM and whether the connection is enduring or short term.

Q7. Any other comments?

Respondent 1

No comments noted.

Respondent 2

Factors which appear minor can have very significant impacts on the results of curtailment studies, it is important that any methodologies used are accurate and reflective of scale.

A further uncertainty can arise when considering the granularity/resolution of the input data used. For instance, wind and grid flow data might be collected on a half-hourly average basis, half hourly peak flows may offer a solution.

The onus should be on both the customer and the DNO to cooperate as far as possible in providing data to ensure the results are realistic. Customers should be made aware of the complexities in calculating these results and should not expect the DNO to be able to provide highly accurate results if they don't provide the DNO with accurate input data.

Respondent 3

The information that the respondent would hope DNOs to provide based on this drafted Guidance would certainly be very helpful, however guidance does not appear to be strong enough as a means of ensuring that DNOs do so consistently.

Respondent 4

The respondent is unsure of the place of the final paragraph about Post Fault ANM as it seems out of sync with the rest of the document, assuming this is the model reply.

Respondent 5

Respondent 5 recognises that this consultation has focused on the provision of information, both when reporting the outcomes from curtailment analysis, and to facilitate due diligence analysis undertaken by a generation developer. Although these are important factors when a generator developer must consider the bankability of a project, the respondent believes that the methodology and assumptions made are equally, if not more, critical to the overall benefit of the curtailment analysis process.

The respondent has tried to reflect this position in the response to previous questions, however believes that further discussion between the ANM Working Group and the wider stakeholder community would support shared understanding or even standardisation regarding analysis methodologies and assumptions. Evaluation of estimation versus real operation and the reasons for differences between the two might be a valuable supporting exercise.

The respondent is supportive of the time-series approach to curtailment analysis as described by the ANM Working Group. The investigation of operation at half-hourly resolution will provide sufficient modeling to generate representative estimates of curtailment, and reflects the data often available to network operators. Analysis at higher-resolution will require more detailed modeling of the dynamics associated with generator curtailment and release, which is not always a linear process. There is a risk that higher-resolution modeling of curtailment may cause inference of accuracy, when the analysis will continue to be subject to significant uncertainty due to other variables.

The anticipated changes to the role of the DNO, moving towards what is being described as the DSO model, is expected to result in changes to the role of managed connections on the distribution network. The integration of new types of Distributed Energy Resource, with greater interactions across the distribution/transmission boundary, will require new methodologies for curtailment analysis.

Respondent 6

The respondent directed a number of questions to the ANM Group

1. Can the respondent assume that there will be no further unconstrained DG connections to networks that have been declared as being ANM constrained? (i.e. will there still be the opportunity to connect 'smaller installations'.
2. Will there be a minimum sized scheme for ANM connections?
3. Would you please provide details relating to the modeling tool to be used by each of the DNO's together with contact details of the 'operators'.
4. Would you please confirm that inclusion within any ANM scheme would exclude that project from any/all benefits of the existing Network Unavailability Rebate Schemes?
5. From experience the respondent would disagree that maintenance and reinforcement projects will have little effect on existing connected schemes and would suggest that these existing projects should have the protection of the network unavailability rebates that would be on offer to other projects.

Due to the design of the ANM system in this instance it is not anticipated that maintenance outages on significant plant will impact on the generator. For the avoidance of doubt, the

DNO does not guarantee any level of duration or frequency of curtailment or constraints. The customer is strongly encouraged to conduct their own assessment of the potential curtailments/constraints and risk associated with an alternative connection.

6. Would you please expand on potential outcomes assuming that there was a reduction in site demand that required a review of the ANM model?
7. The respondent notes the comments in that there are no guarantees that any level of constraint would or could be retained – should network parameters change during the lifetime of the project?
8. Could it be arranged that the ‘trigger’ (capacity or fault contribution etc) for network reinforcement be included within the specific network parameters – such that there would be visibility?
9. If reinforcement were to be ‘triggered’ would existing ANM schemes be offered the first opportunity to secure unconstrained connections?
10. If reinforcement were to be ‘triggered’ would there be additional charges to secure unconstrained connections?

Respondent 7

The respondent understands that this consultation is focused on effective information provision; however, it is important to contextualize this within the ongoing changes to our electricity networks.

For example, as supported by the regulator it is anticipated that Distribution Network Operators (DNOs) will move to exercise more control over the network (the Distribution System Operator model). This would expect this to alter the role of managed connection on the distribution network. In addition, as the deployment of energy storage technologies and demand management become more widespread, and customers would expect to see changing patterns in network constraints.

Respondent 8

Most developers funders will require independent confirmation of the forecast output and normally require both a P90 and a P50 figure, although the financial model will be prepared on the basis of a P90 figure. It would be useful to understand on what basis the report has been prepared in terms of probability – P90, etc. and whether the report has been produced by an independent third party. This would provide a level of certainty at modeling stage. Even if prepared by an independent third party the funder will more than likely require an independent assessment addressed to the funder as they will rely on the independent professionals professional indemnity insurance in the event that actual curtailment is significantly different from the assessment.

It would be useful to provide as much information on the underlying assumptions and data used in preparing the study, and perhaps make the same data available to the developer to assist in their own independent study, if required. The study should also stress through a disclaimer that the report is only an estimate based upon the underlying assumptions and no assurance can be given as to how close the actual curtailment will correspond to the study. In the past too much reliance has been placed on these studies with adequate scrutiny.

Respondent 9

The respondent welcomes the work of the ENA’s Active Network Management Working Group and strongly supports the concept of standardised presentation of curtailment under ANM by all DNOs (and Transmission Owners), to better facilitate quicker and more readily

comparable valuation of projects, and to build investor familiarity with projects subject to ANM.

It is suggested that the example given in the consultation paper is a very useful starting point, but it should be augmented before becoming best practice.

In summary, the most critical element missing from the consultation example is any scenario modeling; projecting forwards from the historical data under a few select scenarios – for example a scenario with a presumption of increased microgeneration. Furthermore, raw (aggregated) data should be made available in parallel on request, and in a timely manner, such that the customer can choose to undertake more detailed modeling should it wish to do so. Finally, we hope Transmission Owners can follow this best practice guidance too.

Q7. ANM Working Group Response

Stakeholder Feedback by Respondent	ANM Working Group Comments
Respondent 1	No comments noted.
Respondent 2	DNOs welcome the opportunity to work further with customers. We hope that providing the data in a consistent format will assist with this process.
Respondent 3	The responses in this consultation are hoped to cover this. Please refer back to work the group has produced to date such as the ANM Good Practice Guide (details below). In addition to this the group will continue to meet regularly and work to standardise and define terminology and common approaches for ANM.
Respondent 4	Comments on Consultation structure are noted.
Respondent 5	We will look to coordinate an ANM Workshop where stakeholders can meet with Network Operator staff to discuss key ANM issues and so that we can address any concerns or questions that stakeholders may have. More detail on these Workshops is provided in the Next Steps set out at the end of this document.
Respondent 6 Questions and Comments 1 - 10	<ol style="list-style-type: none"> 1. No, the respondent cannot assume this. There may be the possibility to connect smaller non-ANM installations under a certain size, but this will be DNO specific. 2. This is DNO specific and due diligence is the responsibility of the generator. 3. We will look to coordinate an ANM Workshop where stakeholders can meet with Network Operator staff to discuss key ANM issues and so that we can address any concerns or questions that stakeholders may have. More detail on these Workshops is provided in the Next Steps set out at

the end of this document.

4. Inclusion within an ANM connection would exclude the project from the existing Network Unavailability Rebate Scheme.
5. The premise of a non-firm connection is that it is interruptible for specific network conditions in return for a faster and cheaper connection.
6. The details of firm and non firm and scenarios are detailed below:
 - a. Firm Connection – Large demand customer disappears, Network Operator reinforces the networks and pays
 - b. Non firm – If large demand customer disappears there is no responsibility on the Network Operator to pay. ANM connected generator would likely see increased curtailment.
7. It is suggested that customer due diligence should provide comfort here.
8. Network Operator specific and engagement required with individual Network Operator s to understand longevity of ANM connections.
9. No, this is Network Operator specific for the application process.
10. Yes, potentially.

Respondent 7

Comments on DSO model are noted.

Respondent 8

We will look to coordinate an ANM Workshop where stakeholders can meet with Network Operator staff to discuss key ANM issues and so that we can address any concerns or questions that stakeholders may have. More detail on these Workshops is provided in the Next Steps set out at the end of this document. For those DNOs providing a curtailment assessment use of 3rd party data is an option if the customer prefers, but this will be DNO specific.

Respondent 9

It is expected that generators would undertake Scenario Modeling exercises if required. Network Operators will provide the data for customers to undertake their own due diligence. We agree that Transmission Operators would look to align with the processes defined although further clarification will need to be provided in the near future.

Next Steps

The ANM Working Group will continue to promote a coordinated standard for ANM, as well as defining common terminology and associated definitions for adoption by the industry.

As well as the clarification provided within the consultation and subsequent response the group will seek to coordinate ANM Workshops where stakeholders can meet with Network Operator staff to discuss key ANM issues and so that we can address any concerns or questions that stakeholders may have. The venue and location of these events will be confirmed to stakeholders as soon as arrangements are finalised.

The Curtailment paper drafted by the group will be developed further by each Network Operator, producing a short summary paper detailing what customers should expect as a minimum for ANM connections. This work will be informed by the feedback received from stakeholders from their consultation responses and the wider stakeholder engagement opportunities. These summaries will be published by each Network Operator, with all summaries being published centrally on ENA's website.

ENA Active Network Management Good Practice Guide

The ANM Good Practice Guide was commissioned by the Energy Networks Association's ANM Working Group to consolidate learnings so far from the deployment of ANM schemes in Great Britain. The guide sets out current good practice for the commercial arrangements and technical deployment of ANM technologies, and is intended to be of use to a number of electricity system stakeholders, including the network operators themselves, customers, product manufacturers, regulators and policy makers. The guide also looks to the future, and how ANM may become more commonplace and the implications for future network systems operations. A link to the guide is included here –

<http://www.energynetworks.org/news/publications/reports.html>

With Thanks

The ANM Working Group would like to take this opportunity to thank all those who have taken the time to respond to this consultation phase and look forward to developing this work further with the additional perspective you have provided us.

Further comments or questions

Any further questions or clarification on this document should, in the first instance, be directed to: Anthony Bivens (anthony.bivens@energynetworks.org), Energy Networks Association, 6th Floor, Dean Bradley House, 52 Horseferry Road, London, SW1P 2AF.