

This document is classified as **White** in accordance with the Panel Information Policy. Information can be shared with the public, and any members may publish the information, subject to copyright.

DP096 ‘DNO Power Outage Alerts’

Problem statement – version 0.1

About this document

This document provides a summary of this Draft Proposal, including the issue or problem identified, the impacts this is having, and the context of this issue within the Smart Energy Code (SEC).

Proposer

This Draft Proposal has been raised by Del Kang from the Data Communications Company (DCC).

What is the issue or problem identified?

Power outages are a common occurrence. There are various causes ranging from third party damage and weather-related events to equipment failure. The Smart Metering Implementation Program aims to deliver the advantage of timely and automated notifications of Power Outage Alerts (POAs) and Power Restoration Alerts (PRAs) generated in the event of an outage. These alerts are sent to Distribution Network Operators. Timely delivery enables improvements in:

- Timeliness of information to help DNOs reassure customers
- Visibility of faults
- Visibility of network topology & connectivity (when combined with other data)

For events affecting high voltage networks it is normal practice for automation schemes to attempt power restoration to some or all customers affected within three minutes. On the low voltage networks there is little, or no automation and power can only be restored by personnel attending site and carrying out a repair or by manual switching.

In the case of a power outage lasting more than three minutes, the DCC (Data Communications Company) are obliged under the SEC to provide POAs to DNOs within a given timeframe. The SEC states that the timeframe POAs must be sent within is 60 seconds after the initial three minutes of the outage (to allow time for power to be potentially restored automatically).

Once power has been restored, a PRA is sent to the DNO via the Data Service Provider (DSP). This must also be sent within 60 seconds.

The DCC is currently unable to meet this SEC obligation. A SEC transitional variation was approved by BEIS to compensate for the difference between the SEC obligation and the DCC's current capability. This exception expired on 31 October 2018 and BEIS cannot offer an extension.

DCC in communication with DNOs

There has, over the years, been extensive engagement between DCC and DNOs to understand the DNO requirements and what the DCC systems are currently capable of in regards to POAs and PRAs. This has included investigating defects being experienced by DNOs from outages and resulting POAs and PRAs.

On 8 October 2019 the DNOs submitted a requirements document via the Energy Networks Association. The document outlines the requirements the DNOs deem necessary to improve the current situation. This document can be found in Appendix A.

The DNOs understand that the DCC systems characteristics mean that their requirements may be difficult to achieve and that they will have to compromise in order to reach agreement on the final arrangements for POAs and PRAs. However, DNOs feel that it is important that any system constraints are transparent and well-justified, and that decisions to reject suggested improvements are supported with sound cost and benefit evidence.

How does this issue relate to the SEC?

The SEC places requirements on the DCC to provide alerts. SEC Section H3.14 (g) currently states that in the case of a Power Outage, an alert must be sent to the DNO within 60 seconds, and if the power is restored, an alert must also be sent within 60 seconds. This obligation is not currently deliverable by the DCC due to numerous issues including hardware design. These issues were flagged during design forums held with the DNOs. The existing CSP solutions do not meet the SEC requirement as they align to the original CSP contracts, these contracts do not include the same definition or requirement as they were set up in the early days of the SEC.

It is worth noting that after several meetings between the DCC and the DNOs, the DNOs have gained an understanding of the DCC systems characteristics. As a result, they are willing to compromise in order to reach an agreement on the final arrangements for POAs and PRAs.

The DCC propose that the SEC is impractical in respect of the 60 seconds and that a solution needs to be agreed and the SEC changed appropriately. Furthermore, we have received information regarding the DNOs requirements in relation to POAs and PRAs which differ from those stated in the SEC. further information can be found in Appendix A.

What is the impact this is having?

It is understood that this issue has minimal impact on consumers. The SEC requirements do not reflect current industry practice. For the DCC to be able to adhere to the SEC requirements, contract renegotiations would be required at a high expense. The issue currently impacts DNOs operationally but should there be a requirement to further invest in DCC Systems to improve timeliness of alerts being sent, there will be a financial impact on Parties.

What is the impact of doing nothing?

Prior to the implementation of the Single Power Cut Number (150) DNOs were receiving between 20% and 40% of calls within 5 minutes, and between 60% and 67% of calls within 10 minutes. This provides rationale as to why the DNOs need to receive POAs and PRAs in a timely manner. By improving the performance of POAs and PRAs, DNOs will gain a greater understanding of potential network issues and will be able to act more promptly while performing better customer service.

What are the views of the industry?

Views of the DCC

The DCC raised this proposal as they feel that this issue needs to be resolved through the SEC Modifications process.

Views of SEC Parties

The views of Parties will be gathered during the Development Stage.

Views of Panel Sub-Committees

The views of Panel Sub-Committees will be gathered during the Development Stage.

Views of the Change Sub-Committee

The views of the Change Sub-Committee will be gathered during the Development Stage.

Attachments

- **Appendix A:** DNO Requirements – Power Outage and Restoration Alerts

Power Outage and Power Restoration Alerts DNO Requirements

**ENA Smart Metering Steering Group
07 October 2019**

Introduction

This document has been produced to inform the discussions that will take place at the upcoming the SEC Working Group that will consider DCC's proposals for the delivery of Power Outage Alerts (POA) and Power Restoration Alerts (PRA). The text below summarises the DNO POA and PRA requirements, as they were at the outset of the Smart Metering Programme. The text does not provide a description of the service that the DNOs think they will receive due to the current limitations of the DCC/CSPs system.

DNOs believe that it is for the SEC Working Group, in partnership with DCC, to define the details that will enable an alternative solution to be found. Only DCC and their service providers can put forward the information needed for the Working Group to be able to conclude which solution is technically feasible and cost effective to put forward for a SEC Change. We expect that the Working Group will look for explicit clarity from DCC on the current achievable levels of performance. The group will also need a clear understanding of the costs/impact to raise these performance levels closer to meeting the DNO requirements as far as reasonably practicable.

DNOs understand that the DSP/CSP system characteristics mean that their requirements might be difficult to achieve and that they will have to compromise in order to reach agreement on the final arrangements for POA and PRA. . However, it is important that any CSP/DSP constraints are transparent and well-justified, and that decisions to reject suggested improvements are supported with sound cost/benefit evidence.

Although the DNOs are prepared for a compromise they expect that any proposed alternative solution put forward by DCC is clearly set out with a full description of the POA/PRA alert service levels that DNOs will experience. The compromise solution will still need to deliver meaningful outputs that the DNOs can work with to deliver service improvements to their network customers.

For example, the CSP may be able to add an element of 'location awareness' into their processing (derived from identifying the receiving base station or cellular tower location) and therefore could protect themselves from very large outages affecting one area whilst not impacting traffic from other areas. Such location awareness wouldn't need to rely on the DNO's own network topology, simply on an understanding of which receiving CSP location the alerts are picked up at. If this could be achieved it should guarantee near 100% delivery of small and isolated faults whilst also giving the DNOs sufficient notice of larger network event without needing to send every single alert for large events.

DNO Requirements for Power Outage Alerts

The following bullet points are taken from v1.9 of the DCC Power Alerts Project Briefing Paper.

1. DNOs require a Power Outage Alert for all outages of power to the meter which are longer than 3 minutes to be sent to the DNO. [See note below]
2. The DNOs require the Power Outage Alert to be delivered promptly, arriving at the DNO systems within 5 minutes of the start of the power outage (i.e. 2 minutes after the start of the Power Outage Event, which starts 3 minute after the start of the power outage)
 - a. Rationale: Prior to the implementation of the Single Power Cut Number (150) DNOs were receiving between 20% and 40% of calls within 5 minutes, and between 60% and 67% of calls within 10 minutes.
 - b. For clarity, any interruptions of less than 3 minutes in duration are not a reportable outage. The three minutes have been agreed with Ofgem and allows for DNO auto-reclose devices to operate and restore supplies on circuits that have automation. Once the outage data is proven reliable it is possible it will one day be used to report network reliability performance to Ofgem. It is therefore important to maintain the clear distinction between interruptions that are less than three minutes duration and those that are greater than three minutes duration.
3. The DNOs require the Power Outage Alert to be reliable and dependable
 - a. Rationale: Delivery of 99.5% of Power Outage Alerts from 250,000 power outage events in a year would result in 1,250 instances where customers would be off supply without the DNO being made aware by the Smart Metering system. Although proportionally these are few in number it's likely that on occasions it would include vulnerable customers. This might cause issues for the DNO particularly if consumers start to assume that the DNO will always know when the power has been lost to a premise.
4. The DNOs require the Power Outage Alert to be trustworthy.
 - a. Rationale: A 0.1% annual False Positive rate from 10,000,000 meters would result in 10,000 notifications to DNOs where the DNO would need to invest in validating the event. DNOs accept that there are situations where a false POA will be sent which is outside the DCC's control and are working with the relevant industry party to address these types of issues. We note that the impact of False Positives can be much more significant given the large volumes currently being experienced. One DNO is collaborating on a piece of analysis work on OTA AD1s with one supplier who is advising when they are conducting OTAs. We are hopeful that this is offer some possible workarounds to minimise the issues for the DNOs.
5. The DNOs require the format, reliability and behaviour of Power Outage Alert to be consistent between all Meter types and Comms Hub types and CSP regions.
6. The DNOs do not require the throughput of Power Outage Alerts relating to the same Power Outage Event to be very high as in situations where a large number of Power Outage Alerts are being simultaneously sent to any one DNO, it would be more than likely due to a situation where the DNO would already be aware of the outage via other monitoring equipment [see note below]

DNO Requirements for Power Restoration Alerts

1. DNOs require Power Restoration Alerts for all outages of power to the meter (i.e. those lasting less than 3 minutes and those lasting more than 3 minutes) to be sent to the DNO.
 - a. Rationale: Reliable delivery of Power Restoration Alerts eliminates the need for DNOs to send a Service Request to check the energisation Status (ping) meters.
2. The DNOs require the Power Restoration Alert to be delivered promptly, arriving at the DNO systems within 1 minute following the restoration of the power supply to the meter.
 - a. Rationale: Prompt delivery of Power Restoration Alerts eliminates the need for DNOs to send a Service Request to check the energisation Status (ping) meters.
3. The DNOs require the format, reliability and behaviour of Power Outage Alert to be consistent between all Meter type and Comms Hub types and CSP regions.

Note: Historical Position

The issue of POAs alerts was discussed between ENA and DECC in 2013. DECC's view was POAs required by DNOs for any given fault was:

- 100% alerts delivered for 50 meter outages
- 25% alerts delivered for 50-5000 meter outages
- 1 message delivered for >5000 meter outages
- Delivered within 60s of the end of the three minute period

DNOs generally agreed with this with the exception that the initial cut-off should be 250 meters rather than 50. This view emerged from the Power Outage workshop.

However, in discussion with DCC it became apparent that to deliver this functionality on a *per outage* basis DCC would need to hold a live DNO connectivity model so that they could differentiate between different network faults – and that this was unrealistic (and probably undesirable). From this, the concept that 'all' POAs would be required so that the DNO could assess the POAs against their connectivity models.

ENA Smart Metering Steering Group
07 October 2019